

# The health of Queenslanders

# 2020

Report of the  
Chief Health Officer  
Queensland



*Queensland Health pays its respects to the Traditional Owners of the land on which this report was produced, the Turrbal and Yuggera people, and acknowledges their Elders past, present and emerging.*

*The health of Queenslanders 2020.  
Report of the Chief Health Officer Queensland*

Published by the State of Queensland  
(Queensland Health)  
November 2020.

ISSN:1837-865X [online:1837-8668]



This document is licensed under a Creative Commons Attribution 3.0 Australia licence.

To view a copy of this licence, visit  
[www.creativecommons.org/licenses/by/3.0/au](http://www.creativecommons.org/licenses/by/3.0/au)

© State of Queensland (Queensland Health) 2020.

You are free to copy, communicate and adapt the work, as long as you attribute the State of Queensland (Queensland Health).

For copyright information contact [ip\\_officer@health.qld.gov.au](mailto:ip_officer@health.qld.gov.au)

This document is available on the Queensland Health internet at [www.health.qld.gov.au/CHO\\_report](http://www.health.qld.gov.au/CHO_report). There is the potential for minor revisions of data in this report. Please check the online version for updates and amendments.

Suggested citation: Queensland Health. The health of Queenslanders 2020. Report of the Chief Health Officer Queensland. Queensland Government. Brisbane 2020.

#### Cover photos:

*Main photo:* Ben Blanche Photography ©.

The location is Laidley Creek Falls in the Main Range National Park approximately 2.5 hours drive from Brisbane. The subject is Damien Muller, a Senior Scientist with Pathology Queensland for the past nine years. Both Ben and Damien are avid bushwalkers.

#### *From top left:*

- Queensland Health ©
- Budd photography ©
- Longreach Athletics Club, Longreach Queensland ©
- Indigenous Respiratory Outreach Care Program
- Health and Wellbeing Queensland ©.

All photos in this report that do not reflect social distancing were taken before COVID-19 restrictions were implemented.

#### For further information:

Manager, Epidemiology  
Preventive Health Branch  
Prevention Division  
Department of Health, Queensland

Email: [Population\\_Epidemiology@health.qld.gov.au](mailto:Population_Epidemiology@health.qld.gov.au)



# From the Chief Health Officer

**Queensland, and many other parts of Australia and the world, faced consecutive challenges in 2019 and 2020 with widespread effects on many levels.** Notably, the COVID-19 pandemic preceded by the impact of drought, fire and flood challenged our resilience and capacity to respond. Our people and places underwent significant, rapid change that will have long lasting effects on the way in which Queenslanders live, learn, work and play. Queenslanders should be proud of their response to these events.

This report provides a broad overview of the health of Queenslanders and our health services. Before COVID-19, the health of Queenslanders and the environments that determine our health were following a consistent trend—an ageing population, declines in key mortality indicators given improvements in our health status, increasing use of health services and notable successes as well as persisting challenges with respect to key risk and protective factors for health. The health and wellbeing of Queenslanders ranks high on world standards and most of us are happy with a good quality of life.

The impact of COVID-19, however, has made future predictions less clear given the social and economic effects of the pandemic are not fully known and likely to persist for many years. Further, we will continue to experience challenges in both our built and natural surroundings.

The strength, resilience and capability of Queenslanders have been clearly demonstrated during and after our recent natural disasters and throughout the COVID-19 pandemic. Queensland, and Australia, has one of the best healthcare systems in the world. Rather than exposing system weaknesses, during COVID-19 the flexibility and adaptability of our services came to the forefront.

I wish to express my deepest appreciation for the outstanding effort that has been made by all Queenslanders during COVID-19. This includes the myriad of Queensland Health staff on the front line and in the backrooms, our hospitals, residential care facilities, public health units, emergency services, schools, higher education facilities, childcare services, businesses, non-government organisations, police force, places of worship and, of course, families and communities.

As we start the new decade, Queensland has a lot to be proud of. The new era is evolving, and it will likely present many new challenges for our people, our lifestyles and our environments and by consequence, our health. However, there is a lot to look forward to in Queensland and much to be positive about.

**Dr Jeannette Young PSM**  
Chief Health Officer, Queensland

# About this report

The health of Queenslanders 2020 is the eighth in the biennial series from Queensland's Chief Health Officer. It has three objectives:

- to provide a public assessment of the health status of the population
- to be a reference document for health practitioners in Queensland
- to inform strategic policy and planning within Queensland Health.

All reports in the series, including resources, are available at [www.health.qld.gov.au/CHO\\_report](http://www.health.qld.gov.au/CHO_report). Amendments or errata are posted on the website.

## Data download and visualisations

- Data and dynamic data [visualisations](#) for Queensland, HHSs and PHNs
- Statistical data tables for Queensland, HHSs and [PHNs](#)
- Preventive health risk factors: detailed information and [trends](#)
- Additional reports and statistical methods and descriptions in Methods for reporting population health [status](#)<sup>1</sup>
- Supplementary tables and graphs referred to throughout the report are available on the main CHO\_report page.

## Acknowledgements

*The health of Queenslanders 2020* was prepared by Epidemiology, Preventive Health Branch, Prevention Division, with advice and assistance from others in Queensland Health and other government departments and agencies in Queensland. These include:

- Aboriginal and Torres Strait Islander Health Division
- Clinical Excellence Queensland
  - Office of the Chief Dental Officer
  - Mental Health, Alcohol and Other Drugs
  - Healthcare Improvement
- Aeromedical Retrieval and Disaster Management Branch
- Chief Medical Officer and Healthcare Regulation Branch
- Communicable Diseases Branch
- Statistical Services Branch
- Cancer Screening Unit
- Clinical Safety and Quality Unit
- Cancer Alliance Queensland
- Queensland Treasury
- Queensland Mental Health Commission
- Department of Transport and Main Roads.

## Report management and development

**Editors and report managers:** Susan Clemens and Mark West

### Report section development, data analysis, writing and editing:

Kerry-Ann O'Grady, Susan Clemens, Tim Roselli, Douglas Lincoln, Xing Lee, Katrin Hausdorf, Danielle Herbert, Lucy Laurie

### Contributors to specific sections:

Mellise Anderson, Frances Birrell, Chris Coulter, Nathan Dunn, Andrea Findlay, Anna Jensen, Pamela McErlean, Craig Mitchell, Nick Ormiston-Smith, Bridget O'Connor, Sophie Phelan, Ian Purcell, Mohana Rajmohan, Damin Si, Jamie Stewart, Ben Stute, Alison Thompson, Garry Thorne

### Expert content review of specific sections:

Bridget Appleyard, Elizabeth Bayliss, Linda Bertram, Scott Brown, Sonali Coulter, Ann Crowhurst, Michael Cussens, Erikka Dunning, Russell Evans, Elizabeth Garrigan, Stephen Lambert, Janet Martin, John Marquess, Kim McFarlane, James Morris, Russell Stafford, Lucy Stanley, Helen Taylor, Daniel Williamson

## Data custodians for key data sources

Direct requests for customised data were provided by the Data Custodians at: Queensland survey analytic system (QSAS), Statistical Services Branch, Queensland Government Statistician's Office, Queensland Cancer Registry, Australian Bureau of Statistics and Australian Institute of Health and Welfare. The investment and expertise associated with maintaining data collections and quality outputs is acknowledged.

A complete list of data custodians is available [here](#).

## Accessing online resources

Throughout this Report appear a number of interactive links to various websites. To access these references from a printed copy of this document, please refer to the following list of links and their associated URLs:

- *Preventive health risk factors, detailed information and trends*  
<https://www.health.qld.gov.au/phsurvey>
- *Methods for reporting population health status*  
<https://www.health.qld.gov.au/research-reports/population-health>
- *See QSAS for more information*  
<https://www.health.qld.gov.au/research-reports/population-health/preventive-health-surveys/detailed-data>
- *See QSAS trends for more information*  
<https://www.health.qld.gov.au/research-reports/population-health/preventive-health-surveys/data-trends>
- *See the online visualisation for more information*  
<https://www.health.qld.gov.au/research-reports/population-health/data-discovery>
- Data custodians  
[https://www.health.qld.gov.au/\\_data/assets/pdf\\_file/0034/843199/data\\_custodian\\_list.pdf](https://www.health.qld.gov.au/_data/assets/pdf_file/0034/843199/data_custodian_list.pdf)

# List of abbreviations

<b>ABDS</b>	Australian Burden of Disease Study	<b>NAER</b>	National Asbestos Exposure Register
<b>ABS</b>	Australian Bureau of Statistics	<b>NATSIHS</b>	National Aboriginal and Torres Strait Islander Health Survey
<b>ACT</b>	Australian Capital Territory	<b>NAUSP</b>	National Antimicrobial Usage Surveillance Program
<b>AIDS</b>	Acquired immunodeficiency syndrome	<b>NEC</b>	Not elsewhere classified
<b>AIHW</b>	Australian Institute of Health and Welfare	<b>NBCSP</b>	National bowel cancer screening program
<b>AIR</b>	Australian Immunisation Register	<b>NCD</b>	Non-communicable disease
<b>AMR</b>	Antimicrobial resistance	<b>NCSP</b>	National cervical cancer screening program
<b>ARDMB</b>	Aeromedical Retrieval and Disaster Management Branch	<b>NDSHS</b>	National Drug Strategy Household Survey
<b>ASR</b>	Age-standardised rate	<b>NGO</b>	Non-government organisation
<b>ASSAD</b>	Australian Secondary School Alcohol and Drug Survey	<b>NHMRC</b>	National Health and Medical Research Council
<b>AURA</b>	Antimicrobial Use and Resistance in Australia surveillance system	<b>NHS</b>	National Health Survey
<b>BCC</b>	Basal cell carcinoma	<b>NIP</b>	National Immunisation Program
<b>BE</b>	Bronchiectasis	<b>NMSC</b>	Non-melanoma skin cancer
<b>BP</b>	Blood pressure	<b>NSW</b>	New South Wales
<b>BMI</b>	Body mass index	<b>NT</b>	Northern Territory
<b>BoD</b>	Burden of Disease	<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>BSQ</b>	BreastScreen Queensland	<b>OSA</b>	Obstructive sleep apnoea
<b>CA</b>	Congenital anomaly	<b>PALY</b>	Productivity-adjusted life year
<b>CALD</b>	Culturally and linguistically diverse	<b>PHN</b>	Primary Health Networks
<b>CHD</b>	Coronary heart disease	<b>PIC</b>	Poisons Information Centre
<b>CHO</b>	Chief Health Officer	<b>POCT</b>	Point of care blood lead testing
<b>CHQ</b>	Children's Health Queensland	<b>PPH</b>	Potentially preventable hospitalisations
<b>CI</b>	Confidence interval	<b>PTSD</b>	Post-traumatic stress disorder
<b>COAG</b>	Council of Australian Governments	<b>QALY</b>	Quality adjusted life years
<b>COPD</b>	Chronic obstructive pulmonary disease	<b>QCH</b>	Queensland Children's Hospital
<b>CVD</b>	Cardiovascular disease	<b>Qld</b>	Queensland
<b>DALY</b>	Disability-adjusted life year	<b>QoL</b>	Quality of life
<b>DMFT</b>	Decayed, missing and filled teeth	<b>QSAMPS</b>	Queensland Statewide Antimicrobial Stewardship Program
<b>DMFS</b>	Decayed, missing and filled surfaces	<b>QSAS</b>	Queensland survey analytic system
<b>DS</b>	Decayed surfaces	<b>RA</b>	Rheumatoid arthritis
<b>dTpa</b>	Diphtheria-tetanus-pertussis acellular vaccine	<b>RHD</b>	Rheumatic heart disease
<b>ED</b>	Emergency department	<b>RFDS</b>	Royal Flying Doctor Service
<b>eHQ</b>	eHealth Queensland	<b>RSV</b>	Respiratory syncytial virus
<b>FASD</b>	Fetal alcohol spectrum disorder	<b>RTDs</b>	Ready to drink beverages
<b>FOBT</b>	Faecal occult blood test	<b>SA</b>	South Australia
<b>FS</b>	Filled surfaces	<b>SCC</b>	Squamous cell carcinoma
<b>GBD</b>	Global burden of disease	<b>SEIFA</b>	Socio-Economic Indexes For Areas – Index of Relative
<b>GDP</b>	Gross Domestic Product	<b>(IRSAD)</b>	Socio-economic Advantage and Disadvantage
<b>GP</b>	General Practitioner	<b>SEIFA</b>	Socio-Economic Indexes For Areas – Index of Relative
<b>HALE</b>	Health adjusted life expectancy	<b>(IRSD)</b>	Socio-economic Disadvantage
<b>HCC</b>	Health Contact Centre	<b>SIP</b>	School Immunisation Program
<b>HHS</b>	Hospital and Health Services	<b>SPF</b>	Sun protection factor
<b>Hib</b>	<i>Haemophilus influenzae</i> type b	<b>STI</b>	Sexually transmitted infection
<b>HIU</b>	Healthcare Improvement Unit	<b>Tas</b>	Tasmania
<b>HIV</b>	Human immunodeficiency virus	<b>TB</b>	Tuberculosis
<b>HPV</b>	Human papillomavirus	<b>TBI</b>	Traumatic brain injury
<b>HRQoL</b>	Health-related quality of life	<b>TSCI</b>	Traumatic spinal cord injury
<b>HWQld</b>	Health and Wellbeing Queensland	<b>UN</b>	United Nations
<b>ICD</b>	International classification of diseases	<b>UVR</b>	Ultraviolet radiation
<b>ICU</b>	Intensive care unit	<b>VET</b>	Vocation Educational Training
<b>LGA</b>	Local Government Area	<b>Vic</b>	Victoria
<b>LGBTIQ+</b>	Lesbian, gay, bisexual, transgender, intersexed and queer	<b>WA</b>	Western Australia
<b>LOTE</b>	Language other than English	<b>WHO</b>	World Health Organization
<b>MDR-TB</b>	Multi-drug resistant tuberculosis	<b>YLD</b>	Years lived with disability
<b>MSM</b>	Men who have sex with men	<b>YLL</b>	Years of life lost

# Contents

From the Chief Health Officer .....	i
About this report .....	ii
List of abbreviations .....	iii
Contents .....	iv
Key facts at a glance .....	v
Indicators of progress .....	vi

## Section 1 Our times 1

Introduction .....	2
Selected challenges .....	2
Selected highlights .....	3
Summary .....	4

## Section 2 Our people 5

Introduction .....	6
Our population and growth .....	6
Rural, regional and remote Queensland .....	6
Children .....	7
Young people .....	7
Younger and middle-aged adults .....	8
Older people .....	8
Aboriginal and Torres Strait Islander people living in Queensland .....	9
Diversity .....	9
Broad socioeconomic factors .....	12

## Section 3 Our health 13

Introduction .....	14
Life expectancy .....	14
Burden of disease and injury .....	15
Hospitalisations .....	21
Deaths .....	28
The first 1000 days .....	31
Chronic conditions .....	35
Cancer .....	43
Notifiable communicable diseases .....	46
Injury .....	50
Dental and oral health .....	54
Mental health and wellbeing .....	56

## Section 4 Our health services 63

Introduction .....	64
The cost of health care .....	64
Health service utilisation .....	65

## Section 5 Our lifestyle 71

Smoking .....	73
Weight .....	77
Diet .....	80
Blood pressure, glucose and cholesterol .....	84
Alcohol consumption .....	86
Illicit drugs .....	89
Physical activity .....	91
Sun safety .....	94
Domestic violence and child abuse .....	96
Immunisation .....	99
Cancer screening .....	101
Rest and sleep .....	103
Road safety .....	105
Oral health risks .....	107
Environmental factors .....	108

## Section 6 Our future 113

Introduction .....	114
Our people .....	114
Our health .....	114
Our health services .....	115
Our lifestyles .....	116
The final word .....	116

Terminology and definitions .....	117
-----------------------------------	-----

Index .....	119
-------------	-----

References .....	121
------------------	-----

Appendices .....	131
------------------	-----

# Key facts at a glance

## Our people

- The estimated resident population in 2018 was 5,011,216 persons.
- The 2026 population is projected to be approximately 5,720,000 persons.
- 231,000 Queenslanders identify as Aboriginal and Torres Strait Islander.
- The population is declining in the northern, central and southern western regions of the state.
- Males are expected to live to approximately 80 years of age and females to 85 years.
- The life expectancy of Aboriginal and Torres Strait Islander people has improved by 4.4 years for males and 2.7 years for females in the 10 years to 2015–17.
- In 2018, Australia ranked sixth globally for the quality of life of its people.

## Our health

- Queenslanders across the state rose to the challenge and flattened the COVID-19 curve.
- In 2015, there were almost 950,000 years of healthy life lost to death or disability in Queensland.
- The burden of disease due to cardiovascular diseases has declined by 15%.
- Burden of disease is highest in the most socioeconomically disadvantaged groups and in rural and remote areas.
- There were 60,503 babies born to 59,644 Queensland mothers in 2018.
- There have been consistent declines in the proportion of pregnant women who are smoking.
- There has been a 23% decline in chronic obstructive pulmonary disease experienced by Aboriginal and Torres Strait Islander people since 2001.
- New HIV diagnoses in Queensland have fallen by 24%.
- Mental health and wellbeing dominate health status across the lifespan.
- The median age at death in 2018 was 80.4 years; 77.7 years for males and 80.5 years for females.

## Our health services

- Almost \$39 billion was spent on health in Queensland in 2017–18.
- The hospitalisation rate in Queensland has increased from 39,000 per 100,000 population in 2008–09 to 55,400 per 100,000 in 2018–19.
- People requiring resuscitation accounted for 15,133 emergency department presentations in 2018–19.
- The most common outpatient services were for midwifery (20%), orthopaedics (15%) and physiotherapy (13%).

- There were more than 25 million general practice presentations in Queensland in 2018–19.
- There was rapid growth in telehealth and 13 HEALTH (13 43 25 84) services in Queensland.
- In 2018–19, there were 47,831 drug and alcohol services provided to 35,123 clients.

## Our lifestyles

- 10% of Queensland adults are smoking daily in 2020.
- 13% of Queensland adults had ever tried an e-cigarette in 2018–19.
- 25% of children and 66% of adults in Queensland are overweight or obese.
- 68% of children and 53% of adults are meeting daily recommendations for servings of fruit.
- 46% of children and 59% of adults are meeting physical activity recommendations.
- 94.2% of 1-year-old children are age-appropriately immunised.
- Up to 45% of adults are experiencing inadequate sleep or poor sleep health.
- 49% of adults and 45% of children were sunburnt in the previous 12 months.

## Our future

- Our ageing population will continue to challenge the health of individuals, their communities and health services.
- Mental health is a growing concern and affects health and wellbeing across the lifespan.
- Out-of-hospital care is expanding and is safe and effective.
- There is rapid change in our social and physical environments presenting many opportunities for health and wellbeing.
- The resilience and capability of our people are critical to a healthy future for Queensland.
- The effects of COVID-19 on our future are yet to be fully understood.

# Indicators of progress

Table 1 Population health indicators, persons, Queensland, 2011–2020

Population	Units	Age group	2011	2012	2013	2014	2015	2016	2017	2018	2019 Forecast	2020 Forecast
Total population – estimated resident Queensland – proportion of Australia	'000 %	0–85+ 0–85+	4,476.8 20.0	4,569.9 20.1	4,654.5 20.1	4,724.4 20.1	4,784.4 20.0	4,848.9 20.0	4,927.6 20.0	5,011.2 20.1	5,090.1 20.0	5,174.7 20.1
Major cities	'000	0–85+	2,769.9	2,847.3	2,908.1	2,961.9	3,013.8	3,072.1	3,143.4	3,213.6		
Inner regional	no.	0–85+	910,332	928,510	943,731	955,346	962,822	969,324	969,597	979,950		
Outer regional	no.	0–85+	659,995	675,701	685,030	691,084	693,841	696,038	687,585	690,909		
Remote	no.	0–85+	78,135	70,414	70,002	68,621	67,175	65,407	72,775	72,303		
Very remote	no.	0–85+	58,369	47,964	47,678	47,418	46,723	45,996	54,268	54,443		
Aboriginal and Torres Strait Islander people												
Estimated resident population	no.	0–85+	188,954	193,506	198,206	212,436	216,969	221,276	226,055	230,954		
Proportion of Queensland population	%	0–85+	4.2	4.2	4.3	4.3	4.3	4.6	4.6	4.6		
Proportion of Australian Indigenous population	%	0–85+	28.2	28.3	28.4	29.8	29.8	29.7	29.7	29.7		
Births (includes stillbirths)	no.	births	62,181	63,723	63,173	63,823	61,903	62,779	60,326	60,503		
Infants	no.	<1	60,155	63,091	63,555	62,998	62,082	62,460	61,150	61,864	64,512	65,225
Young children	no.	1–4	244,175	249,403	253,698	255,691	255,686	255,030	256,172	255,899	259,898	263,159
Children	no.	5–17	768,241	778,659	788,794	798,664	809,132	820,691	834,945	848,691	858,984	871,729
Young adults	no.	18–29	770,841	786,542	799,125	807,745	810,971	814,228	823,297	832,862	830,600	834,236
Adults	'000	30–44	938.6	955.7	970.8	978.7	983.9	986.5	994.6	1,006.2	1,019.5	1,038.9
	'000	45–64	1,115.0	1,128.9	1,145.0	1,161.1	1,176.8	1,196.4	1,216.2	1,235.5	1,258.7	1,274.7
Older people	no.	65–74	330,620	351,418	369,959	386,825	403,746	421,038	436,381	452,904	467,039	479,459
Elderly	no.	75+	249,138	256,149	263,601	272,652	282,031	292,615	304,875	317,244	330,861	347,320
Headline indicators	Unit	Age group	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Life expectancy – males	years	at birth	79.5	79.5	79.6	79.9	80.0		80.2			
Life expectancy – females	years	at birth	84.1	84.0	84.1	84.2	84.3		84.7			
Aboriginal and Torres Strait Islander males	years	at birth	68.7					72.0				
Aboriginal and Torres Strait Islander females	years	at birth	74.4					76.4				
Median age at death	years	0–85+	80	80	80	80	80	80	80	80		
Perinatal mortality rate – per 1000 live births	rate	live births	9.8	10.3	9.8	9.9	9.6	9.4	10.0	8.8		
Infant mortality rate – per 1000 live births	rate	live births	5.1	4.8	4.5	4.5	4.4	4.2	4.2	3.9		
Aboriginal and Torres Strait Islander infants	rate	live births	8.4	6.9	6.6	6.2	7.2	6.3	6.6	5.6		
Other infants	rate	live births	4.7	4.4	4.2	4.1	4.0	3.9	3.9	3.7		
Deaths	Unit	Age group	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
All causes	no.	0–85+	27,798	27,798	27,882	28,658	28,208	29,826	29,693	29,019		
	rate	0–85+	590	571	555	552	527	540	520	493		
Premature deaths – all causes	no.	0–74	10,592	10,228	10,624	10,635	10,379	11,078	10,830	10,746		
	%	0–74	38.1	36.8	38.1	37.1	36.8	37.1	36.5	37.0		
	rate	0–74	236	220	222	216	206	214	203	196		
Avoidable deaths	no.	0–74	5,692	5,316	5,503	5,380	5,315	5,652	5,496	5,347		
	rate	0–74	128	115	116	111	107	112	105	100		
Coronary heart disease	rate	15+	115	103	97	93	89	85	81	71		
Stroke	rate	15+	56	55	50	48	47	46	42	37		
Heart failure	rate	15+	11	12	11	11	11	10	10	9		
All cancers – malignant neoplasms	rate	0–85+	173	174	172	169	157	166	154	152		
Female breast cancer	rate	15+	29	29	30	26	29	28	27	23		
Target group for breast screening	rate	50–69	39	48	45	32	38	41	35	32		
Target group for breast screening (from 2015)	rate	50–74	44	55	49	40	45	45	40	38		
Cervical cancer – females	rate	15+	2.4	2.4	2.5	2.9	3.2	2.6	2.8	1.7		
Target group for cervical screening	rate	20–69	2.2	1.6	2.0	2.5	2.4	2.3	2.3	1.6		
Target group for cervical screening (from 2017)	rate	25–74	2.6	2.1	2.2	3.1	2.9	2.5	2.7	1.9		
Prostate cancer – males	rate	15+	40	37	37	34	37	36	34	32		
Colorectal cancer	rate	15+	20	21	22	21	20	21	20	18		
Target group for bowel screening (from 2015)	rate	50–74	28	29	31	26	30	29	28	27		
Lung cancer	rate	15+	42	43	42	42	41	39	36	37		
Melanoma	rate	0–85+	7.4	7.4	8.2	6.9	5.8	5.6	5.3	5.3		
Diabetes	rate	0–85+	16	17	15	16	15	15	15	14		
Suicide (year of death)	rate	0–85+	15	12	15	14	14	14	15	14		
Suicide (year of registration)	rate	0–85+	13	14	15	14	16	14	16	16		
Asthma	rate	0–85+	1.5	1.5	1.7	1.1	1.4	1.4	1.3	1.3		
COPD	rate	15+	32	32	31	33	33	31	31	30		
Road transport deaths	rate	0–85+	6.6	6.3	5.9	4.7	4.3	5.3	4.7	4.4		
Falls	rate	0–85+	9.6	9.3	9.2	9.7	9.2	9.4	10.1	9.6		
Falls in older people	rate	65+	68	67	64	69	68	70	73	70		

**Table 1 Population health indicators, persons, Queensland, 2011–2020**

Hospitalisations	Unit	Age group	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
All causes	'000	0–85+	1,844	1,919	2,008	2,168	2,292	2,418	2,541	2,648		
	rate	0–85+	40,257	40,841	41,765	44,081	45,681	47,172	48,354	49,244		
	crude rate	0–85+	41,189	41,994	43,164	45,932	47,966	49,910	51,568	52,838		
Potentially preventable hospitalisations (National Healthcare Agreement definition)	no.	0–85+	118,229	128,192	132,210	144,719	155,990	163,607	177,146	175,370		
	%	0–85+	6.4	6.7	6.6	6.7	6.8	6.8	7.0	6.6		
	rate	0–85+	2,589	2,735	2,751	2,947	3,114	3,194	3,372	3,267		
Coronary heart disease	rate	15+	879	848	832	783	825	813	821	785		
Stroke	rate	15+	309	315	306	312	312	313	308	299		
Chronic obstructive pulmonary disease (COPD)	rate	15+	351	360	333	356	378	405	413	389		
Asthma	rate	0–85+	161	170	157	175	176	173	178	169		
Road transport injury	rate	0–85+	239	266	279	278	301	307	304	315		
Falls	rate	0–85+	1,210	1,303	1,353	1,426	1,515	1,586	1,629	1,657		
Falls in older people	rate	65+	5,568	5,975	6,082	6,544	7,021	7,459	7,652	7,704		
<b>Cancer incidence</b>	<b>Unit</b>	<b>Age group</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
All cancers	no.	0–85+	24,968	26,077	26,725	27,463		29,168				
	rate	0–85+	532	539	538	536		600				
Female breast cancer	rate	0–85+	122	127	131	129		141				
Target group for breast screening	crude rate	50–69	300	311	320	323						
Target group for breast screening (from 2015)	crude rate	50–74	313	325	331	345						
Cervical cancer – female	rate	0–85+	7.6	9.0	8.1	8.7		8.1				
Target group for cervical screening	crude rate	20–69	10.8	11.6	11.3	11.9						
Target group for cervical screening (from 2017)	crude rate	25–74	11.8	12.5	12.1	13.1						
Prostate cancer – male	rate	0–85+	175	172	165	154		149				
Colorectal cancer	rate	0–85+	63	61	59	60		60				
Target group for bowel screening (from 2015)	crude rate	50–74	139	135	123	130						
Lung cancer	rate	0–85+	46	46	46	46		48				
Melanoma	rate	0–85+	70	72	75	73		76				
<b>Communicable disease notifications</b>	<b>Unit</b>	<b>Age group</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
HIV	no.	0–85+	194	206	181	245	201	195	187	180	158	
Influenza (laboratory confirmed)	no.	0–85+	10,383	16,908	5,509	17,898	28,061	23,284	56,109	15,705	68,152	
Measles	no.	0–85+	18	4	52	72	21	15	8	14	74	
Meningococcal	no.	0–85+	61	64	33	40	31	45	69	58	46	
Syphilis (infectious)	no.	0–85+	339	389	333	396	572	681	1,083	1,127	1,131	
Tuberculosis	no.	0–85+	221	171	153	166	182	188	201	199	194	
<b>Immunisation</b>	<b>Unit</b>	<b>Age group</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Childhood immunisation coverage	%	1 year	91.6	91.9	91.6	91.5	92.4	93.9	94.1	94.0	94.2	
	%	2 years	92.8	92.8	92.7	92.4	90.2	92.3	91.7	91.5	91.9	
	%	5 years	89.9	91.1	91.9	92.4	92.4	93.1	94.2	94.5	94.4	
<b>Protective factor prevalence</b>	<b>Unit</b>	<b>Age group</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Breastfed at discharge – all babies	%	newborn	92.0	92.0	92.6	92.4	92.8	92.8	92.9	93.0		
Aboriginal and Torres Strait Islander babies	%	newborn	85.1	85.7	85.5	85.4	85.0	85.0	85.6	84.6		
Other babies	%	newborn	92.4	92.4	93.0	92.9	93.4	93.4	93.4	93.6		
Five or more antenatal visits – all women	%	mothers	94.6	94.6	94.2	94.4	95.1	95.1	95.2	95.3		
Aboriginal and Torres Strait Islander women	%	mothers	83.4	84.4	83.9	84.4	85.9	86.8	87.9	89.5		
Other women	%	mothers	95.4	95.3	94.8	95.1	95.7	95.7	95.8	95.7		
Excellent, very good or good health in adults – self-rated	%	18+	84.0	83.0			83.6	83.7	84.4	85.2	84.1	84.9
Very good or good quality of life – adults	%	18+	89.5	90.9			90.2	89.5				
Very satisfied or satisfied with health – adults	%	18+	77.5	79.8			79.8	78.5				
Never smoked – adults	%	18+	53.0	54.8	52.9	55.2	55.7	55.3	56.2	55.9	57.0	57.3
Healthy weight in adults – measured	%	18+				35.3			32.3			
Healthy weight in adults – self report	%	18+	39.8	39.8	37.9	39.6	39.9	38.5	38.6	37.1	37.8	37.1
Healthy weight in children – measured	%	5–17				65.7			65.5			
Healthy and underweight in children – proxy report <sup>(a)</sup>	%	5–17	75.2		72.3	75.9	76.8	74.2	73.8	74.4	76.5	73.0
Sufficient physical activity (≥150mins & 5+ sessions)	%	18–75	56.1	55.1	58.0	58.8	57.5	61.3	60.6	59.7	57.8	58.7
Active every day of previous week – children	%	5–17	44.0		40.6	39.2	39.3	44.5	45.5	40.6	48.7	45.7
Any 3 of 5 sun safe behaviours in adults – summer	%	18+	52.0	52.6			56.2	58.4				54.8
Mean daily fruit intake – adults	servings	18+	1.6	1.8	1.8	1.9	1.8	1.8	1.8	1.7	1.7	
Mean daily vegetable intake – adults	servings	18+	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.4	
Mean daily fruit intake – children	servings	5–17	1.9		2.0	2.0	2.0	2.2	2.2		2.1	2.1
Mean daily vegetable intake – children	servings	5–17	2.1		2.2	2.2	2.0	2.0	2.2		1.9	1.9
<b>2013 Dietary Guidelines</b>												
Adequate fruit intake – adults	%	18+			55.7	58.3	56.8	57.3	54.8	52.1	52.5	
Adequate vegetable intake – adults	%	18+			7.1	9.1	7.6	6.8	8.7	8.6	8.0	

**Table 1 Population health indicators, persons, Queensland, 2011–2020**

Adequate fruit intake – children	%	5–17			65.0	66.7	67.7	70.0	71.4		70.0	68.4
Adequate vegetable intake – children	%	5–17			6.3	6.2	3.7	3.7	5.3		3.9	4.6
BreastScreen Queensland participation	%	50–69	57.8		57.6							
Target group for breast screening (from 2015)	%	50–74						56.5		55.1		
Cervical screening participation	%	20–69	55.5		56.0			53.2				
Target group for cervical screening (from 2017)	%	25–74										
Bowel screening participation – target group (from 2015)	%	50–74						40.4		40.8		
<b>Risk factor prevalence</b>	<b>Unit</b>	<b>Age group</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Low maternal age	%	<20 years	5.1	5.1	4.7	4.3	3.9	3.4	3.4	3.0		
Low birthweight – total (includes stillbirths)	%	births	6.9	7.1	7.0	7.0	7.1	7.3	7.5	7.2		
Aboriginal and Torres Strait Islander babies	%	births	12.0	11.7	12.0	11.0	11.4	11.2	13.1	12.2		
Other babies	%	births	6.6	6.8	6.6	6.7	6.8	7.0	7.1	6.8		
Smoking at anytime during pregnancy	%	mothers	16.0	15.2	14.2	13.1	12.4	12.0	11.9	11.3		
Aboriginal and Torres Strait Islander women	%	mothers	49.7	48.5	47.5	45.0	43.3	42.9	42.7	42.5		
Other women	%	mothers	13.9	13.0	12.0	11.0	10.3	9.8	9.6	8.9		
Self rated fair or poor health – adults	%	18+	16.0	17.0			16.4	16.3	15.6	14.8	15.9	15.1
Smoke daily – adults	%	18+	14.8	14.3	15.8	14.0	12.3	11.9	11.6	11.1	11.4	10.3
Alcohol consumption (2009 Guidelines)												
Lifetime risk – adults	%	18+	22.7	21.1	20.5	18.9	22.4	21.1		22.3	21.1	22.5
Single occasion risk – weekly	%	18+	15.9	15.3	15.1	13.9	15.0	14.4		15.3	14.6	15.5
Single occasion risk – at least monthly	%	18+	34.8	29.6	30.7	29.1	31.9	30.9		31.3	29.7	30.6
Illicit drugs – used in previous 12 months	%	14+			15.5			16.8			16.9	
Underweight in adults – self report	%	18+	2.8	2.5	3.3	2.6	2.3	2.4	2.9	2.4	2.5	2.7
Overweight in adults – self report	%	18+	34.5	35.0	35.3	34.7	34.3	34.6	32.8	36.3	34.7	35.3
Obese in adults – self report	%	18+	22.9	22.7	23.4	23.2	23.4	24.4	25.7	24.2	25.0	24.8
Overweight and obese in adults – self report	%	18+	57.4	57.7	58.8	57.8	57.7	59.0	58.5	60.4	59.7	60.2
Underweight in adults – measured	%	18+				1.2			1.8			
Overweight in adults – measured	%	18+	34.5			33.4			33.5			
Obese in adults – measured	%	18+	30.4			30.2			32.4			
Overweight and obese in adults – measured	%	18+	64.9			63.6			65.9			
Overweight in children – proxy report	%	5–17	16.7		17.4	16.4	16.7	17.8	17.0	17.7	15.8	18.4
Obese in children – proxy report	%	5–17	8.1		10.2	7.7	6.5	8.0	9.2	7.9	7.8	8.6
Overweight and obese in children – proxy report	%	5–17	24.8		27.7	24.1	23.2	25.8	26.2	25.6	23.5	27.0
Underweight in children – measured	%	5–17				8.0			9.9			
Overweight in children – measured	%	5–17	18.2			19.2			15.9			
Obese in children – measured	%	5–17	9.3			7.2			8.3			
Overweight or obese in children – measured	%	5–17	27.5			26.2			24.6			
2013 Dietary Guidelines												
Inadequate fruit intake – adults	%	18+			44.3	41.7	43.2	42.7	45.2	47.9	47.5	
Inadequate vegetable intake – adults	%	18+			92.9	90.9	92.4	93.2	91.3	91.4	92.0	
Inadequate fruit intake – children	%	5–17			35.0	33.3	32.3	30	28.6		30.0	31.6
Inadequate vegetable intake – children	%	5–17			93.7	93.8	96.3	96.3	94.7		96.1	95.4
Inactive in previous week – adults	%	18–75	9.7	10.7	9.7	9.4	10.0	9.3	9.3	9.5	11.1	11.5
Insufficient physical activity – adults	%	18–75	34.2	34.2	32.4	31.8	32.5	29.4	30.0	30.7	31.2	29.7
Sunburnt in previous 12 months – adults	%	18+	52.4	51.6	52.3	54.3	51.6	55.8	51.4	54.3	55.8	49.3
Sunburnt in previous 12 months – children	%	5–17			54.4	64.0				46.4	52.8	

Note 1: All rates are age-standardised per 100,000 persons unless otherwise noted.

Note 2: Data and/or indicator updates may have occurred since previous reports.

Note 3: Refer to previous Queensland Chief Health Officer reports for cancer screening participation by varying target age groups in earlier years.

(a) Proxy-reported weight status for children does not provide reliable distinctions between healthy weight and underweight, therefore the combined category was reported.

## Data sources and methods

For data prior to 2011, see previous reports of the Queensland Chief Health Officer.

Data and indicators are subject to revision and updates.

Alternate definitions

- Potentially preventable hospitalisations (PPHs): Data for two definitions of PPHs are included from 2011. They differ by the inclusion of diabetes complications.
- The Australian Institute of Health and Welfare's (AIHW) National Healthcare Agreement definition only includes diabetes as a principal cause while the Queensland Health definition also includes diabetes as an 'other' diagnosis under certain circumstances.

Perinatal deaths: There are two definitions used to report perinatal deaths and they differ by how stillbirths are recorded.<sup>2</sup> The preferred definition for use in Queensland is the National Perinatal Data Collection.

Rates are age-standardised per 100,000 persons unless otherwise noted.

Data are consistent with reporting in other sections including: hospitalisations from the Queensland Hospital Admitted Patient Data Collection, cancer incidence from Queensland Cancer Registry, deaths from the Queensland Registrar of Births, Deaths and Marriages, diabetes prevalence is from the National Health Survey.

Proxy reported weight status for children does not provide reliable distinctions between healthy weight and underweight, therefore the combined category was reported.

Throughout this report, adults are aged 18 years and older and children are from one to 17 years unless otherwise stated.

Prevalence ratios may be calculated from higher precision numbers than available in text or tables.

section one

# Our times

*Highlights and challenges*

---



# Our times

## Introduction

The health of Queenslanders, and Australians as a whole, continues to improve and Australia was ranked twelfth among 156 countries for the happiness of its people in the 2020 World Happiness Report.<sup>3</sup> Our social and physical environments are the foundations of our health across the lifespan. They are instrumental to the success of prevention efforts to improve the health status of Queenslanders and reduce the burden of disease, however, there is more that could be done. As our population continues to grow and age and the availability of, and access to, equitable, evidence-based and effective health interventions increases, the impetus for a focus on “*healthy places, healthy people*” becomes increasingly important.

Achieving that goal is dependent on the capability of our people, the resilience of our environments and the ability of our governments, businesses, industries, communities, individuals and public services to respond to challenges. At the same time we should remember to celebrate our achievements. In the past two years we have been tested in many ways but each time our ability to reach our aspirations has been amply demonstrated.

## Selected challenges

### COVID-19

On 31 December 2019, a cluster of cases of a severe pneumonia with an unknown aetiology in Wuhan City, China, was reported to the World Health Organization’s (WHO) China Country Office.<sup>4</sup> On 7 January 2020, Chinese authorities identified a novel Coronavirus in clinical specimens. Cases were quickly identified outside of China and evidence of human to human transmission was established. The WHO declared a Public Health Emergency of International Concern on 30 January 2020 and the virus was named SARS-CoV-2 on 11 February. On 11 March, the WHO declared a global pandemic. Australia’s first case was identified on 25 January 2020 in Victoria in a returned traveller from Wuhan City. Queensland reported its first case on 28 January in a tourist who had arrived from Wuhan City eight days earlier.

By 30 September 2020, Queensland had recorded 1157 laboratory confirmed cases, there were 6 deaths. The corresponding national figures were 27,078 cases and 886 deaths respectively. Approximately 1,110,990 COVID-19 screening tests had been undertaken in Queensland and 7,637,400 nationally. Further analysis of the COVID-19 pandemic in Queensland is presented in the Communicable Diseases section of this report ([page 49](#)).

COVID-19’s global spread resulted in profound impacts on communities, economies and health systems internationally, including in Australia, that will likely persist for years. Restrictions were put in place to contain the spread of the virus, reduce deaths and enable our health systems to effectively function and respond. These measures have been successful in Queensland, however, the effects of the pandemic will be felt for many years. The pandemic highlighted the quality of our healthcare systems, the commitment and flexibility of our healthcare workers and the resilience of our communities. Our world-class researchers and research institutions are at the forefront of studies aimed at developing vaccines and improving the treatment of the disease.

## Flood, fire and drought

Australia has always been a land of drought, fire, cyclones and flood that have both immediate and long-term impacts on our lives with direct and indirect impacts on health.



In late January and early February 2019, an active monsoon trough and slow-moving low-pressure system resulted in major flooding affecting 39 local government areas (LGAs) in North Queensland. There were 3300 homes in Townsville fully inundated with flood waters and another 8500 were flood affected. Roads and rail lines were cut to the north, south and west. Ross River Dam was damaged and sewerage facilities were substantially affected—more than 600 homes had sewerage discharged either inside the house or into the yard.<sup>5</sup> Sadly, four people died—two from persons entering floodwaters and two reported events due to melioidosis—and 97 injuries were reported.<sup>6</sup> The social and economic cost of the disaster was estimated to be \$5.8 billion with the health, social and community impacts comprising 41% of those costs.<sup>6</sup> The event was not limited to Townsville with regions across the north and north-west of the state affected.



The 2019–20, Australian bushfire season began in June 2019 and by March 2020 an estimated 18.6 billion hectares had burned. More than 3000 homes were destroyed, more than 30 people died and tens of thousands were evacuated. Investigation of the health effects attributable to air pollution generated by the bushfires included excess deaths, hospitalisations for cardiovascular and respiratory problems and emergency department (ED) presentations for asthma

in New South Wales, Queensland, the Australian Capital Territory and Victoria.<sup>7</sup> From 1 October 2019 to 10 February 2020 in Queensland, there were an estimated 47 excess deaths, 135 excess cardiovascular hospitalisations, 245 excess respiratory hospitalisations and 113 excess ED attendances for asthma. These data do not account for primary care presentations and ambulance use nor the non-medically attended physical and mental health impacts of the fires.



In 2019–20, large areas of Australia were drought declared. By January 2020 there were 180 LGAs in Australia deemed eligible for the Australian Government's Drought Communities Programme.<sup>8</sup> In Queensland, drought declared LGAs comprised 67.4% of the state's land size, with a further 28 Individual Droughted Properties in 11 other LGAs as of 1 March 2020.<sup>9</sup> Evaluating the social and economic wellbeing, and consequent health status, of drought-affected communities is complex. Effects vary by region, age and sex between farmers and non-farmers.<sup>10</sup> Data suggest that the largest impacts are economic, however, there are important negative impacts on physical and mental health, social cohesion and the availability of key community services.<sup>11</sup>

## Selected highlights

### *A Chief Aboriginal and Torres Strait Islander Health Officer for Queensland*



In October 2019, Ms Haylene Grogan commenced her role as Queensland's first Chief Aboriginal and Torres Strait Islander Health Officer. A proud Kuku Yalanji and Tagalaka woman, Ms Grogan leads the Aboriginal and Torres Strait Islander Health Division in Queensland Health. This Division aims to improve health equity and outcomes for Aboriginal and Torres Strait Islander people in Queensland. She comes with experience across the public sector in Aboriginal and Torres Strait Islander policy reforms relating to economic prosperity, procurement, planning, land, cultural heritage and languages.

### *Finding solutions to our problems*

In 2019, a new health agency, Health and Wellbeing Queensland (HWQld), aimed at tackling obesity and helping people make positive lifestyle choices, was established. HWQld is bringing together the community, the private sector and all levels of government to drive collaboration and change. Its focus is on "making healthy happen" through population level prevention approaches. Several key initiatives programs have been launched that address diet, physical activity and building capacity and capability in making healthy choices.

Approximately 38% of Queenslanders live in regional and remote parts of the state and these regions are critical drivers of the Queensland economy via agriculture, mining and tourism.<sup>12</sup> However, there are ongoing disparities in the health status of regional and remote populations compared to their urban contemporaries.<sup>13</sup> In November 2019, the Health Minister announced a new Office for Rural and Remote Health. The Office will drive rural and remote health planning, ensure improved access, patient quality and safety, workforce planning and reporting on health outcomes. A key focus of the new agency is to develop a sustainable health workforce and support new service models for rural and remote Queensland.

Queensland continued to produce world class health and medical research aimed at improving our health and our health services.<sup>14</sup> More than 300 new research projects with a start date of 2019 were recorded in the Queensland Health database of research activity. Two initiatives include:

- Queensland researchers are at the forefront of efforts to develop a COVID-19 vaccine. An international team at The University of Queensland is partnering with industry stakeholders to fast track the development of a candidate vaccine with support from the Queensland Government and the Coalition for Epidemic Preparedness Innovations. A different candidate vaccine is being investigated by teams at Griffith University, while at the Queensland University of Technology researchers are investigating new technologies for vaccine development based on the use of plants rather than animal cell models.<sup>15</sup>
- The Centre for Child and Adolescent Brain Cancer Research (CCABCR) in Brisbane is Australia's first research centre focusing solely on paediatric brain cancer, treatment and survivorship.<sup>16</sup> Brain cancer claims the life of one Australian child every nine days—more than any other disease—and survival rates have changed little over the past 30 years. The CCABCR brings together research leaders from across Queensland's major hospitals and health and technology research institutes.

### Our people helping our people

The challenges Queenslanders faced in 2019 and 2020 made it clear how Queenslanders rise to these challenges to support their communities every day. Individuals, community groups and charitable organisations:

- provided relief to drought-stricken farmers in the form of food baskets, water and livestock feed
- raised money for, and helped with, the recovery efforts during and after the fires and floods
- signed up to the Care Army to help protect vulnerable Queenslanders who were isolated by the pandemic
- started an international trend by dancing in their driveways to show support for healthcare workers
- took part in the great global COVID-19 teddy bear hunt to entertain children during lockdowns.



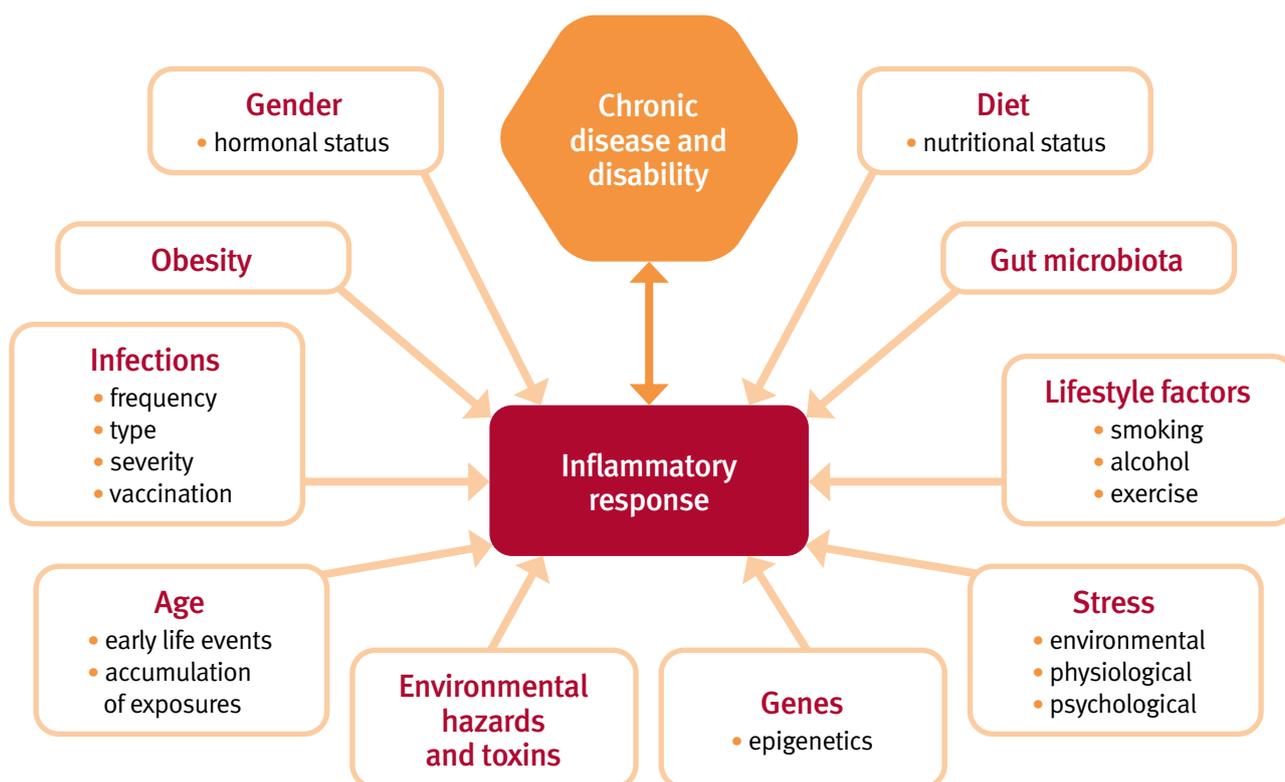
In August 2019, the Queensland Children’s Hospital clown doctors celebrated 20 years of bringing joy to sick children, their families and health care providers at the hospital. Dr Kerfuffle, Dr O’Dear, Dr Wobble, Dr 2 Shoes, Dr Bubbly and Dr Nincompoop are supported through funding from The Humour Foundation. They spend four days a week at the hospital providing much needed relief and humour through their routines that mimic hospital life.

### Summary

Health and disease are complex—specific health conditions cannot be viewed in isolation as they are the result of multiple interactions. Further, as our social and physical environments change over our lifespan, these interactions become more complex, as do the responses by our health systems and services. For example, the evidence for the links between factors that cause heightened or prolonged inflammatory responses in our bodies and the development of chronic disease is growing (Figure 1).<sup>17</sup> Those with chronic disease are at higher risk of new infections and inadequate immune responses to environmental insults and injury—the higher COVID-19 infection and mortality rates in those with pre-existing chronic diseases is a clear example.<sup>18,19</sup>

Throughout this report we present our people’s health through sections that address a healthy start to life, chronic and communicable diseases, cancer, injury, mental health, oral health and perceptions of overall health. We then outline how health services are used and their associated costs. Finally, we focus on the key risk and protective factors that determine disease burden with an emphasis on factors that are modifiable in order to improve health.

Figure 1: *Inflammation and health*<sup>17</sup>



section two

# Our people

*A diverse population*



# Our people

## Introduction

Our people are Queensland’s most important asset. Queensland has the third largest population in Australia. The State’s land mass covers 23% (1,730,648 km<sup>2</sup>) of the Australian continent yet more than half of its population resides in the South East. Queensland’s geography ranges from sandy beaches and tropical islands to rainforests to dry deserts and its climate ranges from hot desert/semi-arid through to tropical monsoon. The diversity of Queensland’s geography and climate is reflected in the diversity of its people, their social and physical environments, and their health status. Queensland’s people are frequently affected by drought, heatwaves, bushfires, tropical cyclones and floods and these factors play an increasing role in overall health and the ability of governments, health services providers and communities themselves to respond.

This chapter presents an overview of the key demographic characteristics of Queensland (Figure 2.1) including population growth, age and sex distributions, socioeconomic and diversity indices, and regional characteristics.

## Our population and growth

In 2018, Queenslanders represented approximately 20% (5,011,216) of Australia’s population. The Queensland population is projected to grow by 14% to 5,720,000 by 2026 (Figure 2.2).<sup>21</sup> The largest driver of population growth in Queensland is natural increase (36%), followed by net overseas migration (34%) and net interstate migration (30%).<sup>22,23</sup> The natural increase of about 30,000 people in 2017–18 included more than 60,000 babies born, offset by about 31,000 deaths. Net overseas migration was 16% lower in 2017–18 than in 2016–17. Temporary visa holders (86%) represented the largest contribution to Queensland’s net overseas migration in 2017–18. Net interstate migration from Australian states and territories contributed about 24,700 people to Queensland in 2017–18.

Figure 2.2 Population growth by age, Queensland, 2002–2026<sup>21</sup>



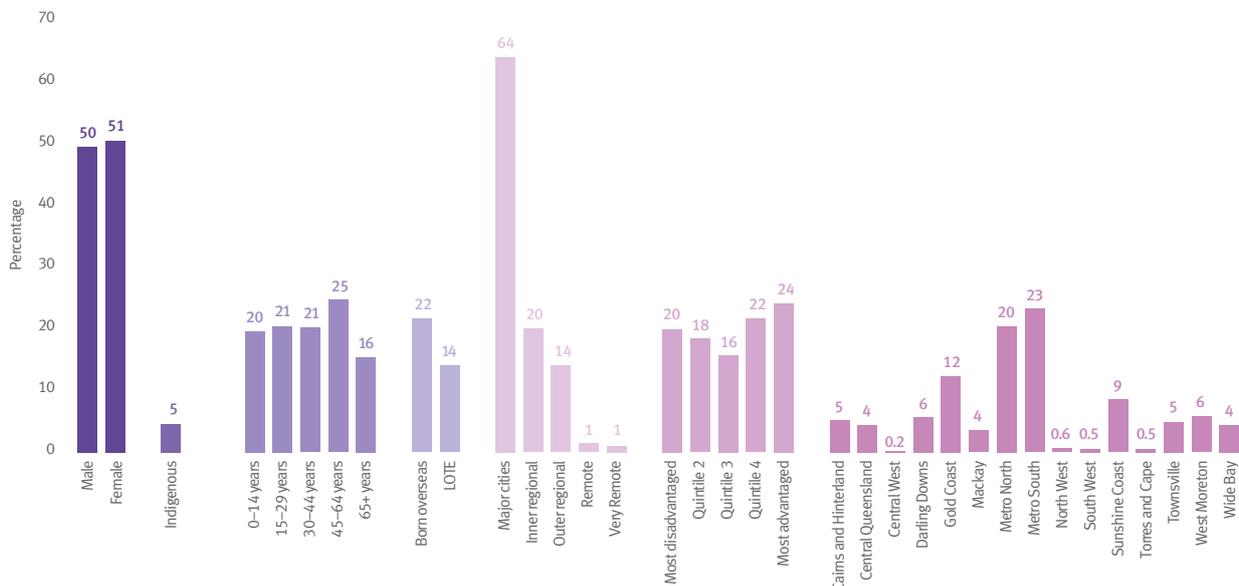
See the [online visualisation](#) for more information

## Rural, regional and remote Queensland

Rural, regional and remote areas of Queensland are great places to live and work, however, there are specific population issues of concern in these regions of the state. These include declining population growth due to outmigration of youth and environmental and economic challenges, particularly natural disasters such as drought. These contribute to the ageing of these communities and accelerate challenges with respect to workforce and skills shortages, downturns in service and business viability and equitable access to health care.<sup>24</sup>

Areas of population decline in Queensland include the North West, Central West and the South West Hospital and Health Service (HHS) areas with declines of 12%, 14% and 7% from 2011 to 2017.<sup>25</sup>

Figure 2.1 Key population characteristics,<sup>1</sup> Queensland, 2018<sup>20</sup>



1 LOTE: Languages other than English

## Children

The social and physical environments of a child, including during foetal development, are key determinants of health and wellbeing across the lifespan. Safe and healthy environments that incorporate responsive caregiving and nurturing ensure children develop to their full potential.<sup>26</sup> In 2018, there were about 980,000 children aged 0–14 years in Queensland—19.6% of the total population (Figure 2.2). Of all families in Queensland in 2016 (1,221,148), 430,937 were couple families with children less than 15 years of age and/or dependent students and 136,240 were one-parent families with children less than 15 years of age and/or dependent students.<sup>23</sup>

In 2019, 34.9% of Queensland children aged 0–12 years were attending Australian Government subsidy approved childcare services—the national proportion was 31.5%.<sup>24</sup>



Aboriginal and Torres Strait Islander children comprised 8.3% of children aged 0–12 years in the community and they represented 5.9% of childcare attendees. Children with a disability represented 7.4% of children in the community but only 2.7% of childcare attendees. Low income families represented 25% of childcare attendees (18% in the community). Children from regional and remote areas were under-represented among childcare attendees.<sup>28</sup>

In 2019, 335,804 (52.2%) Australian children aged four or five years were enrolled in a preschool program (328,134 attending) and 63,135 (47.9%) Queensland children were enrolled (61,592 attending).<sup>28,29</sup> Of Queensland children, 5637 of those enrolled were Aboriginal and Torres Strait Islander of whom 5430 were attending, with 676 (12%) of those in remote/very remote regions.<sup>28,29</sup> This was a 16% increase from 2018 in Aboriginal and Torres Strait Islander children enrolled in preschool in Queensland.<sup>28,29</sup>

In 2019, school attendance for eligible Queensland children was 92.1% for Years 1–6 (93.0% in 2015) and 89.7% (91.1% in 2015) for Years 7–10.<sup>30</sup> This was comparable to national proportions of 92.4% and 89.9% respectively. Apparent Year 12 retention (that is, the proportion of children from the respective Year 10 cohort who completed Year 12) for all fulltime students in 2018 was 83.7% (79.2% nationally). The corresponding proportion for Aboriginal and Torres Strait Islander students were 73.1% for Queensland and 59.8% nationally.<sup>30</sup>

## Aboriginal and Torres Strait Islander young people's engagement with Year 12 has improved markedly from the 46.7% reported in 2009.

To obtain more information about children in Queensland, The Growing Up in Queensland Study that was conducted in 2018 interviewed more than 7000 children from more than 40 communities in Queensland. It provides a detailed overview of what children and young people consider important to their current and future wellbeing.<sup>31,32</sup>

## Young people

The transition from child to adult is characterised by important stages in physical, intellectual and emotional development. These stages are informed and influenced by the development of autonomous identities, independent social networks and the initiation of intimate relationships. It is a period of developing the capacity to make their own decisions and thus the time when young people make important health and wellbeing choices. In 2018, there were about 1,020,000 young people aged 15–29 years in Queensland—20% of the population.<sup>20</sup>

## At a glance

The 2018 Queensland population was 5,011,216 persons

Areas of population decline in Queensland include the north-west, central-west and south-west

From 2013 to 2018, the number of Aboriginal and Torres Strait Islander Queenslanders aged 65 years and older increased from about 6900 to 10,000

Queensland is home to people from more than 220 countries, who speak more than 300 languages and belong to more than 100 religions





Budd photography

### Half of young people aged 18–29 years live with their parents.

Nationally, among those aged 15–24 years, the majority live in couple-parent or single parent households but a small share (6.6%) live in couple households without children and 4.6% live alone.<sup>33</sup> Queensland has experienced higher growth in the proportion of young people aged 18–29 years living at home compared with the rest of the country, rising from 31% in 2001 to 52% in 2017.<sup>33</sup>

Nationally, the proportion of young adult women living with their parents increased by 48% compared to 20% for men. The reasons for the increase are complex, however, economic and educational factors as well as marriage decline are likely to be key drivers as they are over-represented among the unemployed, non-working fulltime students and those who are single.<sup>33</sup>

In 2019, proportionate to population size, 81% of 15–19 year-olds, 70% of 20–24 year-olds and 73% of 25–29 year-olds were fully engaged in work and/or study (83% in major cities, 74% in inner regional areas and 72% in outer regional and remote areas).<sup>33,34</sup> There has been no clear trend in young people fully engaged in work and/or study in Queensland over the past 10 years.

### Younger and middle-aged adults

The period from 30–64 years of age is dominated by employment, careers and job security, finding a stable place to call home, consolidating social networks, establishing and nurturing long-term relationships, raising children and planning for retirement. It is also the period in which many chronic diseases of adulthood transition from pre-clinical to clinical conditions and thus when early screening and detection are key to reducing the burden of disease.

In 2018, there were about 2,250,000 people aged 30–64 years living in Queensland, representing 45% of the population.<sup>20</sup>

- In 2019, an estimated 645,000 (64%) younger adults aged 30–44 years and 695,000 (56%) aged 45–64 years were currently fully engaged in employment and/or enrolled in some form of study.<sup>34</sup>

- Nationally in 2014, 17% of 35–44 year-olds, 26% of 45–54 year-olds and 32% of 55–64 year-olds had cared for a person with a disability, long-term condition or older person in a 4-week period and 29%, 29% and 36% respectively were providing support to other relatives living outside the household.<sup>36</sup>
- Approximately 9–16% of those aged 35–64 years of age were living alone in 2014.<sup>36</sup>
- Between 13–16% of people aged 35–64 years had experienced homelessness in 2014.<sup>36</sup>
- In 2017–18, of the 21% of Australian males and 24% of Australian females aged 15–64 years who had no superannuation coverage, 16% were males and 22% were females aged 55–64 years.<sup>37</sup>



Budd photography

### Older people

The ageing of the population is possibly the most important demographic change that is occurring in developed countries. As medical advances extend life, key components of health and wellbeing such as quality of life for our older people become more important. Thus, initiatives that facilitate independence, active participation in society and the ability to spend as much time as possible in their own homes, close to family and friends, will be increasingly needed.

In 2018, there were about 770,000 people aged 65 years and older in Queensland—15.4% of the population. The proportion of people in this age group is expected to reach 17.3% in 2026.

In 2017–18, it was estimated that 35% of Australians aged 65–74 years lived in single person households, increasing to 52% among those aged 75 years and over.<sup>38</sup> Approximately 70% of those aged 65–74 years lived in households that were owned without a mortgage, increasing to 74% in those aged 75 years and older. Similarly, the majority lived in households in which there were no persons in the labour force (65% and 90% respectively). The contribution of government pensions

and allowances to gross household income was 90% or more in 31% of households in which the reference person was aged 65–74 years and 49% for those aged 75 years and older.<sup>38</sup>



## Aboriginal and Torres Strait Islander people living in Queensland

Aboriginal and Torres Strait Islander people are the world's oldest living culture with many strengths to be celebrated. Aboriginal and Torres Strait Islander people experience health inequity which is due to a variety of reasons, including systemic racism that continues to pervade daily life. We know that Aboriginal and Torres Strait Islander people are best placed to define what their health needs are and what solutions are most appropriate. While moving forward we plan to have a strong partnership focus, we are not relinquishing our responsibility to eliminate systemic racism in our health services and promote environments that are culturally safe.

In 2018, one-third (34%) of Aboriginal and Torres Strait Islander people living in Queensland were aged 0–14 years (82,500), and 28% were aged 15–29 years (67,300).<sup>21</sup>

The proportion of Aboriginal and Torres Strait Islander children in Queensland is projected to decrease to 32% by 2026 and Aboriginal and Torres Strait Islander young people to remain similar at 28% by 2026.<sup>39</sup> The proportion of younger Aboriginal and Torres Strait Islander adults is projected to remain similar at 17% in 2020 and 18% by 2026 and to remain the same for middle-aged Aboriginal and Torres Strait Islander adults at 16% in both 2020 and 2026.<sup>39</sup>

From 2013 to 2018, the number of Aboriginal and Torres Strait Islander people in Queensland aged 65 years and older increased from about 6900 to 10,000, an increase of the total Aboriginal and Torres Strait Islander population from 3.3% to 4.3%.<sup>39</sup> The proportion of older Aboriginal and Torres Strait Islander people is projected to increase from 4.8% in 2020 to 6.3% in 2026.<sup>39</sup>

Language is a key element of Aboriginal and Torres Strait Islander people's sense of identity, cultural expression, spiritual and intellectual sovereignty and wellbeing.<sup>40</sup> However, a consequence of colonisation, removal, or migration from traditional lands and government policy up until the 1970s has been the loss of many Aboriginal and Torres Strait Islander languages. In many areas of Australia attempts are being made

to restore and preserve Aboriginal and Torres Strait Islander languages. In the Torres Strait and Cape York Indigenous Regions, 78% and 40% of Aboriginal and Torres Strait Islander residents respectively spoke an Aboriginal and Torres Strait Islander language at home.<sup>41</sup> Less than 10% of Aboriginal and Torres Strait Islander people living in Queensland reported speaking an Aboriginal and Torres Strait Islander language at home in 2016, a decline of 20% since 2006.<sup>41</sup>

Fourteen per cent of Aboriginal and Torres Strait Islander households were lone person and 5.1% were multiple family compared to 24.0% and 2.0% among other Queenslanders. Single parent (36%) or couple-parent (40%) families with children predominated in Aboriginal and Torres Strait Islander households.<sup>41</sup>

More Aboriginal and Torres Strait Islander people living in Queensland rent than own or have a mortgage on their home than other Queenslanders, equivalised household incomes remain lower, and the difference in median total weekly household incomes has continued to grow from 2006 (from \$138 to \$190 per week).<sup>41</sup>



## Diversity

The diversity of a population generates substantial social, cultural and economic benefits. Valuing diversity is important to the health and wellbeing of individuals and their communities, as well as to the quality of policies and strategies aimed at promoting equity, creativity, innovation and adaptability in societies and organisations.<sup>42</sup>

### Country of birth

Queensland is home to people from more than 220 countries, who speak more than 300 languages, and inclusive of more than 100 religions.<sup>43</sup> Of those born overseas, New Zealand (4.3%), England (3.8%), India (1.0%) and China (1.0%) were the most common countries of birth. One in four Queenslanders (26%) reported both parents were born overseas and 11% had one parent who was born overseas. One in seven people (14%) spoke a language other than English at home in 2016, the most common being Mandarin, Vietnamese, and Cantonese.<sup>43</sup> Detailed data on the characteristics of Queensland's overseas population can be found in the Queensland Government's *Diversity Figures* report.<sup>44</sup>



Budd photography

### Religion

Religion and spirituality are known determinants of health behaviours and health outcomes, both positive and negative. Religious affiliation in Australia is decreasing, with an estimated 0.2% of Australians in 1911 reporting no religion compared to 30% of Australians in 2016.<sup>45</sup> The reasons for this change are complex but thought to be related to the increasing pluralisation and liberalisation of developed societies.<sup>45</sup> In 2016, the largest religious groups were Western (Roman) Catholic (21.7%) and Anglican (15.3%) whereas Islam (3.6%), Buddhism (3.2%) and Hinduism (2.6%) comprised the largest of the non-Christian religions; 29.5% of people reported no religion and 9.5% did not answer the question.<sup>46</sup>



Queensland Health Asset Library

### International students

With a steady increase in the number of international students in Australia, greater attention is being paid to the health and wellbeing of these students, as well as the resulting impact on our health systems.<sup>47,48</sup>

In March 2020, there were 91,270 international students in Queensland compared to 80,297 students in 2010.<sup>48</sup> Students from China, India and South Korea accounted for 41% of international students. Students were enrolled in 97,957 courses (average of 1.1 per student) and most of these courses were in higher education (48%).<sup>49</sup> While only 5% of international students in Queensland were located in regional areas, Cairns, Toowoomba and Townsville were among the top six regional centres nationally for international student enrolments.<sup>50</sup>

### Refugees

The health and wellbeing of refugees is highly dependent on their experiences prior to and after arrival. In 2018–19, 3037 persons from 48 countries arrived in Queensland through the Humanitarian Settlement Program (50% female), representing 18% of Australia’s humanitarian intake.<sup>51</sup> The Brisbane, Toowoomba and Logan LGAs accepted the largest number of arrivals (738, 720 and 556 respectively). The largest number of people came from Iraq (800) and The Democratic Republic of the Congo (607). Children aged 0–14 years comprised 1266 (42%) of Queensland arrivals and there were 63 (2%) persons aged 65 years and older.

### Lesbian, gay, bisexual, transgender, intersex or queer (LGBTIQ+)

The number of Australians who identify as non-heterosexual is increasing.<sup>52</sup> Multiple studies internationally have demonstrated that experiences of stigmatisation, prejudice and discrimination have been contributing factors to the poorer health and wellbeing experienced by those who identify as LGBTIQ+.<sup>53</sup> In 2016, an estimated 3.0% of Queensland adults aged 18 years and older identified as LGBTIQ+.<sup>52</sup>

The 2016 Census reported same-sex couples in Australia represented around 1 in 100 of all couple families (either with or without children), a 39% increase on the 2011 Census.<sup>46</sup> This is likely due to increasing willingness to identify and improvements in the rights of same-sex couples. Just under half of same-sex couples were female (49%), and one-quarter (25%) of female same-sex couples had children in 2016. A considerably smaller proportion of male same-sex couples had children (4.5%). The proportion of same-sex couple families in Australia with children increased from 12% in 2011 to 15% in 2016 and the percentages with children for female and male couples were unchanged.

### People with disabilities

The Queensland Government’s vision is for people with disability to be welcomed, valued and respected members of their communities. This is reflected in the *Everybody has a role to play—All Abilities Queensland* initiative that was established under the State Disability Plan 2017–2020.<sup>54,55</sup>



Queensland Health Asset Library

It was estimated that 19% of Queenslanders were living with a disability and in 2018–19<sup>23</sup> there were an estimated 285,000 Queenslanders living with severe or profound disability that imposed limitations on their core activities. Approximately 3%

of Queenslanders 15 years or older with a disability were living in cared accommodation.<sup>23</sup> Of those in households, about one in four people were living alone. About 49% Queenslanders aged 65 years or older were living with a disability in 2018—an estimated 377,300 people. Among older Queenslanders, 14% were living with severe or profound disability.<sup>23</sup>

### Residents of aged care facilities

Residents of aged care facilities are a growing demographic in Queensland as our population ages. The period of transition from independence to the need for residential aged care creates challenges for individuals, their families and service providers that significantly influence their physical and mental health and wellbeing. The needs of residents, and their caregivers, has received increasing attention in recent years, particularly through the Royal Commission into Aged Care Quality and Safety. In 2017–18 there were 49,158 people in residential aged care facilities in Queensland.<sup>56</sup> Approximately 7% of the target population for residential aged care in Queensland (that is, adults aged 65 years and older and Aboriginal and Torres Strait Islander people aged 50–64 years) are living in aged care.<sup>57</sup>



In 2017–18, approximately 0.4% of men and 0.2% of women in residential aged care were less than 50 years of age—of those, 89% had a selfcare limitation, 63% had a movement limitation and 52% had a communication limitation.<sup>58</sup> In 2013–14, 15.5% of people aged less than 50 years who entered permanent residential aged care nationally were Aboriginal and Torres Strait Islander people compared to 6.6% of those aged 65 years and older. The proportion of people aged less than 50 years in aged care who identified as Aboriginal and Torres Strait Islander people has risen progressively since 2003–04 (9%).<sup>58</sup>

### Carers

Carers are those people who look after someone, usually a relative or friend, who needs help with their day-to-day living. The recipients of care comprise those with a disability, mental health problems, a medical problem or the frail aged. It is estimated that it would cost \$60.3 billion annually to replace carers in Australia.<sup>23</sup>

About 11% of Australians will become an unpaid carer at some point and carers can be any age. In Queensland, approximately 10% of people are carers of whom 11.5% are young carers (carers under 25 years of age). Over half of carers (56%) are not working and not looking for work and 6% are in paid full-time work.<sup>59</sup> Approximately 7% of Queensland carers identify as

Aboriginal and Torres Strait Islander persons and a further 10% are from culturally and linguistically diverse backgrounds. The most common primary diagnosis of care recipients is physical/spinal cord injury (20%), followed by autism (18%). The frail aged and people with dementia or Alzheimer's disease represent 7% and 8% of care recipients respectively. Half of Queensland's carers are providing 12 or more hours of care and support per day.<sup>60</sup>

### Prisoners and youth in detention

Imprisonment and youth detention are largely consequences of adverse social, economic, physical and family environments. A history of child-abuse and domestic violence is common, and people in prison or detention often have complex pre-existing and ongoing health problems.<sup>61</sup>

In 2018, 8843 prisoners were in full-time custody in Queensland on an average day; 91% (8003) were males, 9.5% (840) were females and 31% (2781) were Aboriginal and Torres Strait Islander people.<sup>35</sup> In 2018, there were 20,630 people in community-based correction facilities—76% (15,751) were males, 24% (4879) were females and 23% (4798) were Aboriginal and Torres Strait Islander people.<sup>35</sup> The median age of adult prisoners was 33 years of age and overseas-born prisoners accounted for 12% of the Queensland adult prisoner population. The median aggregate sentence length was three years.

In Australia, children may be charged with a criminal offence if they are aged 10 years or older.<sup>62</sup> The upper age limit in the youth justice system is 17 years (at the time of the offence) in all states and territories. On an average night in the June quarter of 2019, there were 949 Australian youth in detention (90% male). Young Aboriginal and Torres Strait Islander people nationally made up about half (500 or 53%) of all those in detention on an average night in the June quarter of 2019 equating to a detention rate 21 times higher than other Australian youth.<sup>62</sup>



### The homeless

The definition of homeless includes sleeping rough as well as staying in temporary, unstable or substandard accommodation. Homelessness is on the rise in Australia.<sup>63</sup> Homelessness can affect anyone at any stage of life and, although the causal pathways are complex in Australia, it is frequently a result of financial difficulties and family and domestic violence—financial difficulties (47%), housing crisis (41%), and housing affordability stress (35%).<sup>64</sup>

There were an estimated 21,760 homeless people in Queensland in 2016. Of these, 58% were male, 8% were sleeping rough and 17% were in specific accommodation for the homeless.<sup>65</sup> Almost half (45%) of those who were homeless had a personal income of less than \$400 per week and 38% were born overseas. In Queensland in 2016, one in five (21%) people experiencing homelessness identified as an Aboriginal and Torres Strait Islander person.<sup>66</sup> The largest number of homeless persons were young adults aged 25–34 years (3968, 18%) followed by children aged under 12 years (2979, 14%).<sup>66</sup>

## Broad socioeconomic factors

In the 2016 census, seven of Australia's top 10 most disadvantaged LGAs were in Queensland and there were no Queensland LGAs in Australia's top 10 most advantaged.

Nationally, more Aboriginal and Torres Strait Islander people lived in disadvantaged areas (48% in the most disadvantaged areas) than other Australians (18%). Nationally, 5.3% of Aboriginal and Torres Strait Islander people lived in areas of the highest relative advantage compared with 22% of other Australians. For those born overseas, 20% were in the most disadvantaged areas and 24% were in the most advantaged compared to 19% and 20% of Australian-born persons respectively.<sup>22</sup>



## Employment

Prior to the implementation of policies to contain the spread of COVID-19, the unemployment rate in Queensland in March 2020 was 5.7% with the range over the previous five years being from 5.7 to 6.4%. The under-employment rate was 8.8% and unchanged from March 2019.<sup>67</sup>

In 2018, the employment rate was around 49% for Aboriginal and Torres Strait Islander people nationally compared to around 75% for other Australians.<sup>68</sup> The difference was widest in remote and very remote Australia.<sup>68</sup> Aboriginal and Torres Strait Islander people with higher levels of education had employment rates similar to those of other Australians.

## Household economic wellbeing

Household equivalised income is a measure of material living standards, obtained by adjusting household disposable income for the household's needs.<sup>38</sup> For example, a household of six people will require a greater household income than that of one person, however, other factors such as age and sex, health,

home ownership status and region of residence should be included in determining need. From 2012–13 to 2016–17, there was a 1.1% increase in median equivalised incomes among residents of the Brisbane region (\$51,078 to \$51,652 in 2017 dollars) compared to a 0.5% increase (\$41,779 to \$41,971) for the rest of Queensland over that time period.<sup>33</sup> Given COVID-19 in 2020, estimates of household economic wellbeing need to be interpreted cautiously.

## Education and training

In 2018, 81% of males and 87% of females (84% combined) in the Queensland potential Year 12 population of that year attained Year 12 certification.<sup>69</sup> This compares to 75% of males and 83% of females nationally.<sup>69</sup> The proportion of females obtaining certification was higher than males across all socioeconomic status categories and the overall certification rate in the lowest socioeconomic group (84%) was the same as Queensland overall. The lowest certification was for students in remote or very remote regions (72%).

Year 12 certification nationally has risen progressively from 64% reported in 2009.<sup>69</sup> From 2008 to 2018–19, the proportion of Aboriginal and Torres Strait Islander people aged 20–24 years attaining Year 12 or equivalent increased by about 21%.<sup>30</sup>

In Queensland in 2018–19, there were 238,533 students (7.4% Aboriginal and Torres Strait Islander) participating in a publicly funded Australian Vocational and Education Training (VET) programme, a decline from 256,302 students in 2014–15.<sup>70</sup> Approximately one-third (32%) of VET students were aged 15–19 years, 6.2% had a disability and 46.8% were female. The percentage of students with a disability were the only demographic that did not decline from 2016–17.<sup>70</sup>

In 2019, 27% of Queenslanders aged 20–64 years had a non-school qualification at Bachelor degree level or above compared to 21% in 2009.<sup>34</sup> The proportion of Queenslanders aged 25–34 years with this level of education increased from 26% to 34% over that time period. In 2018–19, 39% of Aboriginal and Torres Strait Islander people aged 20–64 years reported having a non-school qualification at Certificate III/IV, Diploma or Advanced Diploma level and 6.4% reported having a Bachelor degree or above.<sup>71</sup> In 2018, there were 5229 Aboriginal and Torres Strait Islander students enrolled or commencing in higher education courses in Queensland, 42% of whom were commencing their courses. This compares to 2541 students in 2009 with 45% commencing.<sup>72</sup>



section three

# Our health

*Across the lifespan*



# Our health

## Introduction

Health across the lifespan reflects the diversity of our people and our places, particularly given health is not merely the absence of disease, injury or disability. The concepts and perceptions of health vary within and between each stage of life with differing social, cultural and environmental domains over time. While hereditary factors play a role in determining health status and outcomes, an individual's lifestyle along with the environment, are the greatest modifiable factors.

In this section we present population-level measures of health including life expectancy, burden of disease, deaths and hospitalisations. There are also snapshots of conditions of public health importance for chronic and communicable diseases, injury, oral health, mental health, cancers and adult perceptions of health. Comparisons are generally made across age groups, sex and geographical jurisdictions, however, the data should be interpreted in the context of the diversity of our people described in [Section 2](#). There are likely to be substantial variations within and between population subgroups.

## At a glance

### Life expectancy

Life expectancy in 2016–2018 was 80.2 years for males and 84.7 years for females

Life expectancy for Aboriginal and Torres Strait Islander people has increased by 4.4 years for males and 2.7 years for females

Life expectancy is one to three years lower for Queenslanders living outside of the metropolitan regions



Budd photography

## Life expectancy

From the 1980s to early 2000s, life expectancy at birth increased rapidly for Australians compared to other high-income countries.<sup>73</sup> By the year 2000, life expectancy for Australians was among the highest in the world. This was largely due to declines in early mortality due to cardiovascular diseases. Since then, mortality declines have slowed, thought to be due to the high prevalence of obesity and more modest improvements in early mortality due to smoking.<sup>74</sup> However, life expectancy in Australia remains higher than that in the United Kingdom, the United States, Europe and the World average.<sup>75</sup>

From 2006–2008 to 2016–2018, life expectancy for Queenslanders increased by 1.3 years for males and 1.0 year for females equating to 80.2 years and 84.7 years respectively in 2016–2018.<sup>76</sup> The life expectancy for Queenslanders overall differed little from the Australian population.<sup>76</sup> Estimates produced by the United Nations (UN) suggest life expectancy in Australia in 2020 (not accounting for COVID-19) is 83.5 years with Australia ranked eighth in the world (Hong Kong ranks first at 84.9 years).<sup>73</sup>

Nationally from 2005–2007 to 2015–2017, Aboriginal and Torres Strait Islander people's life expectancy at birth for males increased by 4.4 years and by 2.7 years for females.<sup>77</sup> In Queensland, life expectancy for an Aboriginal and Torres Strait Islander person born between 2015–2017 was 72.0 years for males and 76.4 years for females.<sup>77</sup> Indicators for early mortality are improving (for example marked declines in cardiovascular deaths, continued decline in smoking and improvements in perinatal mortality) which suggests life expectancy will continue to improve over time.

An individual's life expectancy changes over time as they progress through each life stage. Australian men aged 65 in 2015–2017 could expect to live another 19.7 years (an expected age at death of 84.7 years) and women aged 65 in 2015–2017 could expect to live another 22.3 years (an expected age at death of 87.3 years).<sup>78</sup>

**Life expectancy is one to three years lower for Queenslanders living outside of the metropolitan regions and lower for Aboriginal and Torres Strait Islander people living in Queensland.**

## Health-adjusted life expectancy

Health-adjusted life expectancy (HALE) at birth is the number of years a person could expect to live in full health if the current patterns of mortality and disability continue throughout their life.<sup>79</sup> HALE includes the full experience of ill health and the impact of health-related consequences. This differs from disability-free life expectancy by accounting for the scope of functional limitations of disability and selected long-term conditions.<sup>79</sup>



Budda photography

There is substantial variation in HALE based on socioeconomic status and geographic location with those in the highest socioeconomic groups having the highest measures.<sup>79</sup> People living in urban areas having a higher HALE at birth than those in the lowest socioeconomic groups and those in remote areas, potentially reflecting different access to services and environmental challenges.<sup>79</sup> In 2016, the Global Health Observatory reported HALE at birth for Australians was 73 years, 74.1 for females and 71.8 for males compared to 70.3, 68.5 and 72 years respectively in 2000.<sup>80</sup> This means that from birth females live approximately 87% of their lives in full health (89% of their lives for men). Globally, HALE at birth was 63.3 years in 2016 and the increase in HALE from 1990 to 2017 was smaller in most countries compared to life expectancy suggesting more years are being lived in poor health.<sup>81</sup>

**We are living longer but spending more years in poor health with reduced quality of life.**

HALE at age 65 represents the number of years during the remaining expected lifetime that people at this age could expect to live in full health. In 2015, Australians aged 65 years could expect to spend about 76% of their remaining life in good health (77.0% for females and 76.5% for males).<sup>82</sup>

## Burden of disease and injury

Burden of disease and injury is a complex measure of the health of a population that quantifies the impact of living with illness and injury and dying prematurely.<sup>82</sup> It reflects how many years of healthy life are lost from the “ideal” of reaching old age without disease and disability.<sup>82</sup> There are standard measures of burden, years of life lost (YLL) which refers to premature deaths and years of life lost to disability (YLD) which refers to loss of healthy life once disease or disability occurs. These two measures are summed to produce the disability adjusted life year (DALY) which essentially measures the health gap rather than health expectancies. A further measure, the quality-adjusted life year (QALY) is the product of life expectancy combined with a measure of the quality of life years remaining. The QALY is a unit of measurement for valuing health outcomes.<sup>83</sup> QALYs are frequently used to assess the benefits of health interventions and inform funding decisions. DALYs and QALYs are not inter-changeable and have different applications.

While these measures assist in quantifying and comparing the health of populations and impact of interventions, neither measure fully captures the wider effects of disease and disability and both involve explicit or implicit social value choices.<sup>84</sup> These choices may or may not change over time as population changes and advances in health and medical technologies

### At a glance

#### *Burden of disease and injury*

The total burden of disease (DALYs) in Queensland decreased by 11% from 2003 to 2015

Premature deaths are declining but more years are lived with illness or disability

Tobacco, overweight and obesity, diet and high blood pressure remain leading risk factors for disease burden



Queensland Health Asset Library

and interventions occur. Neither term includes the economic cost and the daily quality of life impacts that not only affect individuals but also their families, carers and communities.

Data for this section are from the Australian Burden of Disease Study 2015 (ABDS),<sup>82</sup> which provided more limited jurisdictional data for 2015 than in the 2011 study.<sup>85</sup> The ABDS did not provide QALY data. There are no new burden of disease data for Aboriginal and Torres Strait Islander people living in Queensland since the 2011 ABDS<sup>85</sup> and only limited jurisdictional information was available in that report. Therefore, Aboriginal and Torres Strait Islander data are not presented in this section given known changes over time in several health outcomes and risk factors that are reported elsewhere in this report.

### Overall burden

After accounting for age among the eight Australian jurisdictions, Queensland ranked fifth for total DALYs, sixth for YLL and fourth for YLD in 2015 (Figure 3.1). Overall burden of disease in Queensland in 2011 and 2015 is presented in Figure 3.2.<sup>82</sup>

From 2003 to 2015, overall DALYs nationally decreased by 11.4%, with most of this decline explained by a 20% decline in YLL.<sup>82</sup> For Australia overall, YLD (50.4%) was higher than YLL (49.6%) for the first time since reporting began. The patterns in decline reflect the trends observed in many developed countries where medical and public health advances have reduced mortality but are resulting in people living longer with disease and/or disability.

Figure 3.1 Burden ranking, Queensland, 2015<sup>82</sup>



As shown in Figure 3.3, DALYs for Queenslanders overall increased by age, however, they were relatively high in infants younger than one year of age (382.5 per 1000 in 2015) who were comparable to those aged 65–69 years (376.0 per 1000). This is largely due to prenatal and antenatal factors leading to neonatal and infant deaths. Notably, the infant rate declined from 469.8 per 1000 population in 2011 (YLL rate of 436.1 and YLD rate of 33.6).<sup>82</sup>

Figure 3.2 Burden of disease, Queensland, 2011 and 2015<sup>82</sup>

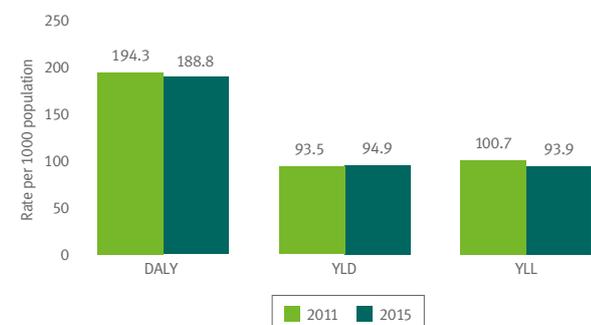
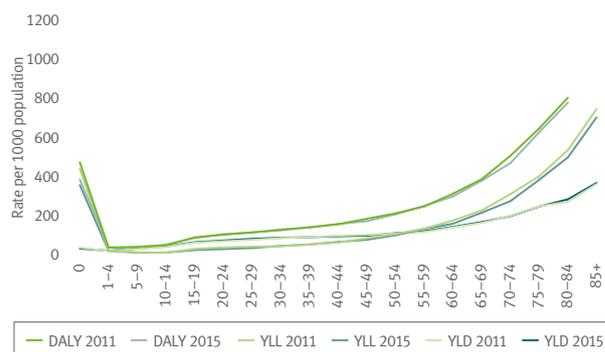


Figure 3.3 Burden of disease by age group, Queensland, 2011 and 2015<sup>82</sup>



The top 20 specific conditions associated with overall DALY by age group and their ranking in 2011 and 2015 are presented in Table 3.1.<sup>82</sup>

Table 3.2 presents the age-standardised rates per 1000 population for the leading disease groups responsible for DALYs, YLL and YLD for Queensland in 2011 and 2015.<sup>82</sup> Disease groups represent the primary cause of death and do not account for the co-contribution of comorbidities.

Notable declines in burden included<sup>82</sup>:

- cardiovascular diseases (-15% DALY)
- infant and congenital conditions (-15% DALY)
- endocrine disorders (-10% DALY)
- mental ill-health and substance use (-50% YLL).

These declines are likely due to improved early detection, diagnosis and management as well as the impact of prevention interventions that have led to a decline in smoking rates, greater awareness of mental health issues in society over time and strategies designed to improve pregnancy outcomes.

Notable increases in burden included<sup>82</sup>:

- reproductive and maternal conditions (43% DALY, 36% YLD)
- infectious diseases (14% DALY, 31% YLD)
- blood and metabolic disorders (33% YLD, -14% YLL).

The reasons for these increases are not clear. Globally, leading causes of reproductive and maternal DALYs in 2017, including in high-income countries, were obstructed labour, uterine rupture, maternal hypertension and post-partum haemorrhage.<sup>86</sup> Factors such as maternal obesity and older maternal age are common risk factors for these conditions and contribute to the need for caesarean sections.<sup>87</sup>

For infectious diseases, this may be related to longer life expectancy for people with HIV/AIDS or infectious complications of chronic diseases.

Like infectious diseases, the rise in YLD due to blood and metabolic diseases may reflect improved management leading to reduced mortality and more years living with the condition.

**Table 3.1 Top 20 conditions associated with burden of disease, Queensland, 2011 and 2015<sup>82</sup>**

	Crude* DALY 2011	Rank 2011	Crude* DALY 2015	Rank 2015		Crude* DALY 2011	Rank 2011	Crude* DALY 2015	Rank 2015
<b>0–14 years</b>					<b>15+ years</b>				
Preterm birth/low birthweight	7.6	1	6.4	1	Coronary heart disease	20.1	1	17.2	1
Asthma	4.2	2	4.3	2	Other musculoskeletal	11.6	2	10.1	3
Other injuries	3.8	3	2.5	5	Other injuries	11.6	3	11.0	2
Sudden infant death syndrome	3.7	4	2.0	9	COPD	9.1	4	9.6	5
Birth trauma and asphyxia	3.6	5	3.5	3	Lung cancer	8.6	5	8.6	6
Other disorders of infancy	3.4	6	2.2	7	Back pain and problems	8.6	6	10.0	4
Anxiety disorders	3.0	7	3.0	4	Stroke	7.5	7	6.4	9
Other congenital conditions	2.9	8	2.0	8	Dementia	7.1	8	8.4	7
Cardiovascular defects	2.6	9	2.3	6	Anxiety disorders	6.6	9	6.5	8
Depressive disorders	1.9	10	1.8	10	Depressive disorders	5.9	10	5.8	10
Conduct disorder	1.8	11	1.8	11	Poisoning	5.5	11	5.3	11
Dental caries	1.5	12	1.5	12	Type 2 diabetes	5.3	12	5.0	14
Other gastrointestinal infections	1.3	13	1.3	15	Asthma	5.1	13	5.2	12
Dermatitis and eczema	1.2	14	1.2	17	Rheumatoid arthritis	4.9	14	4.6	16
Epilepsy	1.2	15	0.9	22	Bowel cancer	4.9	15	5.1	13
Drowning/submersion injuries	1.2	16	1.5	13	Alcohol use disorders	4.5	16	4.2	17
Other chromosomal abnormalities	1.2	17	0.9	23	Osteoarthritis	4.3	17	4.7	15
Autism spectrum disorders	1.1	18	1.2	18	Breast cancer	3.6	18	3.7	19
Acne	1.0	19	1.0	20	Hearing loss	3.5	19	4.0	18
Other neurological conditions	1.0	20	1.3	16	Prostate cancer	3.1	20	2.9	21

\* Crude rate per 1000 population

**Table 3.2 Leading disease groups associated with burden of disease, age-standardised rates per 1000 population, Queensland, 2011 and 2015<sup>82</sup>**

	Total burden (DALY)			Fatal burden (YLL)			Disability burden (YLD)			Estimated deaths*	
	2011	2015	% change	2011	2015	% change	2011	2015	% change	2011	2015
Reproductive and maternal conditions	1.4	2.0	42.9	0	0	0.0	1.4	1.9	35.7	10	10
Kidney and urinary diseases	2.1	2.4	14.3	1.3	1.8	38.5	0.8	0.7	-12.5	540	740
Infectious diseases	3.7	4.2	13.5	2.3	2.5	8.7	1.3	1.7	30.8	830	990
Hearing and vision disorders	3.7	4.0	8.1	0	0	0.0	3.7	4.0	8.1	0	0
Neurological conditions	11.8	12.7	7.6	5.4	6.0	11.1	6.4	6.7	4.7	2390	3160
Gastrointestinal disorders	5.9	6.1	3.4	3.6	3.8	5.6	2.3	2.4	4.3	1040	1200
Mental and substance use disorders	22.8	23.0	0.9	0.8	0.4	-50.0	22.0	22.6	2.7	150	110
Respiratory diseases	13.9	13.9	0.0	4.9	5.0	2.0	8.9	8.9	0.0	1690	1940
Oral disorders	4.4	4.4	0.0	0	0	0.0	4.4	4.4	0.0	5	10
Blood and metabolic disorders	2.3	2.3	0.0	1.4	1.2	-14.3	0.9	1.2	33.3	360	390
Musculoskeletal disorders	23.4	22.9	-2.1	0.6	0.6	0.0	22.8	22.3	-2.2	250	240
Skin disorders	3.4	3.3	-2.9	0.2	0.2	0.0	3.2	3.1	-3.1	80	100
Injury (external cause)	20.1	19.4	-3.5	17.1	16.1	-5.8	3.0	3.3	10.0	2170	2250
Cancer and other neoplasms	35.0	33.6	-4.0	32.4	31.0	-4.3	2.6	2.5	-3.8	8450	9170
Endocrine disorders	5.0	4.5	-10.0	2.3	1.8	-21.7	2.7	2.7	0.0	750	660
Infant and congenital conditions	6.7	5.7	-14.9	5.7	4.8	-15.8	1.0	0.9	-10.0	340	320
Cardiovascular diseases	28.6	24.2	-15.4	22.4	18.7	-16.5	6.2	5.6	-9.7	8840	8480

\* Deaths are counts not rates per 1000 population



Budd photography

Table 3.3 presents the estimates by remoteness and socioeconomic index for 2011 and 2015 for Australia (Queensland specific data are not available). After accounting for age, rates per 1000 population were highest in remote and very remote areas for all burden measures and lowest in the major cities.<sup>82</sup> While both DALY and YLL declined in all regions, YLD increased in all regions from 2011 to 2015 (Table 3.3). Similarly, the highest burden of disease for all three measures were in populations from the most disadvantaged areas. Of note is that the most disadvantaged areas were the only ones that had a rise in total DALY from 2011 to 2015.

**Table 3.3 Burden of disease rates<sup>1</sup> by region and socioeconomic status, Australia, 2011 and 2015<sup>82</sup>**

Region	2011			2015		
	ASR DALY	ASR YLL	ASR YLD	ASR DALY	ASR YLL	ASR YLD
Major cities	177.7	86.5	91.2	174.8	81.7	93.2
Inner regional	200.5	102.5	97.9	198.0	99.3	98.7
Outer regional	203.3	111.6	91.7	203.0	107.9	95.1
Remote and very remote	256.9	150.0	106.9	248.6	139.6	108.9
<b>Level of disadvantage</b>						
Most disadvantaged	215.5	114.6	100.9	219.7	111.9	107.7
Quintile 2	205.2	104.1	101.1	201.9	99.2	102.8
Quintile 3	190.7	94.7	96.0	185.3	88.7	96.6
Quintile 4	173.3	82.2	91.1	165.1	77.1	87.9
Most advantaged	149.1	70.0	79.1	144.7	65.7	79

1 ASR: Age-standardised rate per 1000 population

The combination of distance from metropolitan centres with tertiary health services and socioeconomic disadvantage is likely to increase burden by reducing access to health services and delaying screening, diagnosis and management of disease in the early phases.<sup>88,89</sup> These estimates also do not reflect differences that are likely to exist within population categories such as disparities in burden between Aboriginal and Torres Strait Islander and other Australians in all geographical and socioeconomic groups.

### Leading risk factors

Total burden of disease metrics by risk factors in 2015 were available for Australia only. In Australia in 2015, specific risk factors were responsible for 38% of total burden (DALYs) and accounted for about 14,000 deaths in 2015.<sup>90</sup> The largest contributions are in Table 3.4 which also includes the estimated per cent of deaths in Queensland that were as a result of these risk factors.

In males, child abuse and neglect were the leading contributors to disease and disability burden in those aged 0–14 years, alcohol use dominated for ages 15–44, tobacco use for ages 45–84 and high blood pressure for those aged 85 years and older.<sup>90</sup> In females, the impacts of child abuse and neglect extended beyond childhood and were the leading contributor to burden up to 45 years of age.<sup>90</sup> The risk factors for those aged 45 years and older were the same as for males. High blood pressure is itself an outcome of lifestyle related exposures such as smoking. More detail on these risk factors, including trends is provided in [Section 5](#).



**Table 3.4 Burden of disease (%) by risk factors,<sup>1</sup> Australia, 2015<sup>90</sup>**

Risk factor	Deaths	Fatal burden (YLL)	Non-fatal burden (YLD)	Total burden (DALY)
Tobacco use	13.3	13.7	5.0	9.3
Overweight and obesity	9.0	9.1	7.7	8.4
All dietary risks	12.6	11.1	3.5	7.3
High blood pressure	12.4	9.1	2.4	5.8
High blood plasma glucose	6.5	5.4	4.0	4.7
Alcohol use	4.0	5.6	3.4	4.5
High cholesterol	5.5	4.9	1.1	3.0
Illicit drug use	1.6	3.7	1.7	2.7
Physical inactivity	4.5	3.6	1.5	2.5
Child abuse and neglect	0.5	1.5	2.8	2.2
Impaired kidney function	4.9	3.1	1.1	2.1
Occupational exposures and hazards	1.3	1.8	2.1	2.0
Air pollution	1.6	1.2	0.4	0.8
High sun exposure	1.2	1.4	0.2	0.8
Intimate partner violence	0.1	0.4	1.1	0.7
Iron deficiency	<0.1	<0.1	0.7	0.4
Low bone mineral density	0.5	0.3	0.5	0.4
Unsafe sex	0.2	0.4	0.1	0.3

1 Complex pathways and interactions between risk factors mean it is not possible to sum the impact of individual risk factors. The joint effect analysis should be used to examine the impact of all risk factors included in the study, and all dietary risk factors<sup>90</sup>

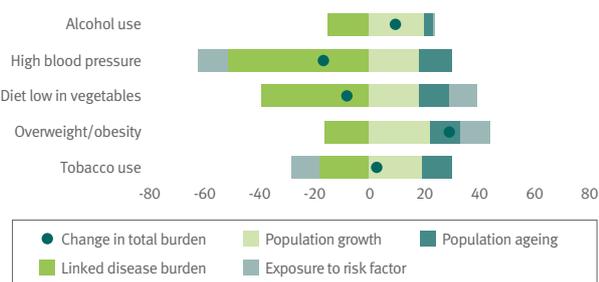
**For every risk factor, those in the lowest socioeconomic groups experience greater burden than the highest group.**

It should be noted that broader factors such as social determinants of disease were not included in these key risk factors analyses as the methods have not been fully developed.

### Drivers of change in burden risk factors

Changes in disease burden over time, and the associated risks, can occur for many reasons. Key drivers include population growth, the ageing of the population, a measure known as the “linked disease amount” and changes in the prevalence of the risk factor itself.<sup>90</sup> Linked disease burden is a composite estimate of disease prevalence, the number of deaths and average age at death. Population growth and ageing were important drivers of increases in burden from 2003 to 2015 (Figure 3.4), however, positive declines were observed in both tobacco and high blood pressure linked disease and exposures.<sup>90</sup>

**Figure 3.4 Drivers of change (%) in risk factor attributable burden, Australia, 2003–2015<sup>90</sup>**



### Global burden of disease

The burden of disease in Australia is comparable to that of other high-income countries. Key differences between high- and low-income countries are due to a higher burden of communicable diseases and adverse pregnancy outcomes in low-income countries (Table 3.5).<sup>91</sup> Many low-income countries, however, are seeing steep increases in conditions associated with high income lifestyles.

**Table 3.5 Leading causes of early death and disability<sup>1</sup> by level of development, 2017<sup>91</sup>**

Low Sociodemographic Index (SDI) <sup>2</sup> countries	High SDI countries
1 Neonatal disorders	1 Ischemic heart disease
2 Lower respiratory infections	2 Low back pain
3 Diarrheal diseases	3 Stroke
4 Malaria	4 Lung cancer
5 Congenital anomalies	5 COPD <sup>3</sup>

■ Communicable, maternal, neonatal, and nutritional diseases  
 ■ Non-communicable disease

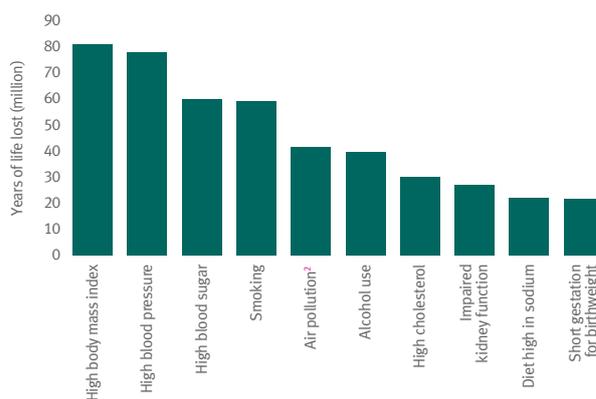
<sup>1</sup> Ranking based on number of all-ages DALYs

<sup>2</sup> SDI captures three different aspects of development: income, education, and fertility

<sup>3</sup> COPD = chronic obstructive pulmonary disease

As with Australia, there are common key modifiable risk factors that will continue to influence disease burden in the coming decades (Figure 3.5). Reductions in exposure to these risk factors will have substantial positive impacts.

**Figure 3.5 Potential global loss of life averted<sup>1</sup> through reduction of exposure to risk factors, 2040<sup>91</sup>**



<sup>1</sup> Measured as the difference between the 2040 “reference” (the future trend based on what has been observed historically) and 2040 “better” (what can be expected if more progress is made) scenarios in terms of YLLs attributable to risk factors

<sup>2</sup> Ambient particulate matter pollution

### Quality of life

While declining premature mortality is good news for Australia, maintaining quality of life for those living longer with disease and disability becomes paramount. Poor quality of life is not only a predictor of disease and disability but declines in quality of life among those with existing health burden influences management and the effectiveness of interventions.

**In 2018, Australia was ranked sixth worldwide for the quality of life of its residents in the United Nations’ human development index report.**



In 2018, Australia’s human development index was measured at 0.935 out of a maximum score of 1.0,<sup>92</sup> coming sixth among countries included in the report. In general, Australians are satisfied with their lives—when asked to rate their general satisfaction with life on a scale from 0 to 10, Australians averaged a 7.3 on the OECD Better Life Index average, higher than the OECD average of 6.5.<sup>93</sup> Australia scored a high 9.4 for the health of its people and about 85% of people in Australia said they were in good health, more than the OECD average of 69%. However, these composite scores do not reflect variations within and between individuals and specific population groups or regions. In Queensland adults in 2020, unhealthy days (a component of health-related quality of life) differed by socioeconomic status, sex, age and the prevalence of self-reported health risk factors.<sup>94</sup>

Health-related quality of life (HRQoL) is an aspect of overall quality of life that refers to how people affect or are affected by health.<sup>95</sup> It focusses on factors that are within the role and scope of health care providers and systems. Most HRQoL tools address physical, mental, emotional, and social functioning as well as wellbeing and can be assessed using generic measures or disease-specific tools. HRQoL is now recognised as a core outcome of interventions to improve health at both the individual and population levels.<sup>95</sup> HRQoL is known to decline exponentially as disease increases in severity and in the presence of comorbidities, particularly depression.

**Australian HRQoL norms decline with age beyond 40 years, lower levels of education, higher levels of socioeconomic disadvantage and with very low and very high BMI levels.<sup>96</sup>**

Examples of Queensland HRQoL studies include:

- Half of oral health patients in a North Queensland study of 479 adults aged 18 years and older reported one or more HRQoL impacts “fairly often” or “very often” with physical pain and psychological discomfort the most reported. Prevalence of impacts were higher in Aboriginal and Torres Strait Islander people (72%).<sup>97</sup>
- In 1064 Queensland men with prostate cancer, those with younger age, lower income, the presence of comorbidities, no partner and treatment type were associated with lower life satisfaction and poor psychological trajectories.<sup>98</sup>
- A cross-sectional study in 2011 of 5555 Queensland adults found approximately one in six participants had some or severe limitation with mobility, usual activities or anxiety or depression. Forty per cent reported moderate to severe pain and 3% had problems with self-care.<sup>99</sup>

## Quality adjusted life years

QALYs are often the basis of cost-effectiveness studies in which the cost of interventions relative to improvements in quality of life are assessed. By assigning a monetary value, changes in QALYs can be considered against costs. For Australian Government health expenditure, the estimated opportunity cost of one QALY was AUD\$28,033.<sup>100</sup>

This capacity has led to growing popularity in the use of QALYs and subjective wellbeing measures more broadly. For example, QALYs were used to evaluate a broad range of public health initiatives in the UK targeting, for example, smoking cessation, physical activity, and mental wellbeing.<sup>101</sup> The public health initiatives evaluated were largely shown to be good value for money. Other studies reported QALY gains due to specific interventions:

- The impact of smoking in Australian adults aged 20–69 years on YLL, QALYs lost and productivity-adjusted life years (PALYs) modelled up to the time they turned 70 years of age is 3.1 million YLL, 6 million QALYs lost and 2.5 million PALYs.<sup>102</sup>
- A United States simulation model estimated the mandated labelling of sugar content on all packaged foods and beverages would result in a gain of 727,000 QALYS from 2018 to 2037 and, if this was combined with reformulation of products, it would lead to a gain of 1.3 million QALYS.<sup>103</sup>



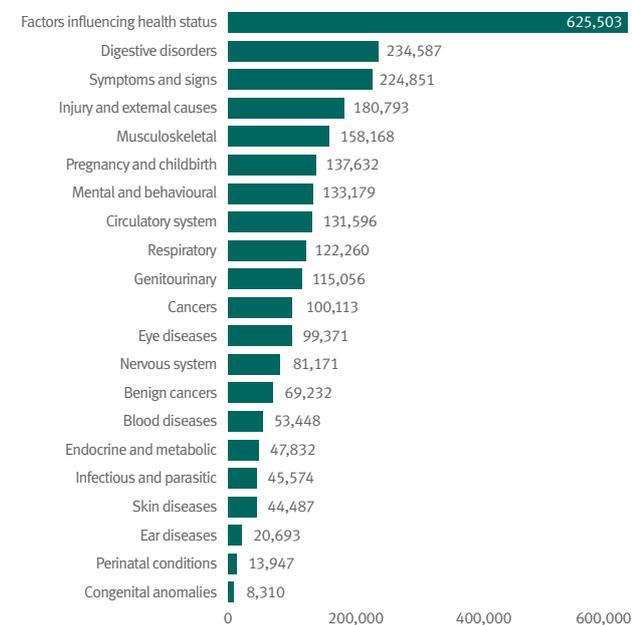
# Hospitalisations

Admitted episodes of care to public and private hospitals in Australia are among the largest cost drivers in public and private health expenditure. Nationally from 2013–14 to 2018–19, hospitalisations increased on average by 3.3% per year (3.7% in public hospitals and 2.6% in private hospitals).<sup>104</sup> In public hospitals, 42% of episodes were emergency admissions, whereas in private hospitals 82% of episodes were elective admissions. Reflecting our ageing population and the increased burden of disease and disability in older Australians, almost half (43%) of hospitalisations in Australia in 2018–19 were for persons aged 65 years and older.<sup>104</sup>

Queensland has 123 public hospitals—119 public acute hospitals and four public specialist psychiatric hospitals.<sup>105</sup> Twenty public hospitals are in major cities, 70 in regional areas, and 33 in remote areas. There are 118 private hospitals in Queensland. The main types of services provided during a hospitalisation are surgical care, medical care, intensive care, newborn care, rehabilitation care, palliative care, and mental health care.

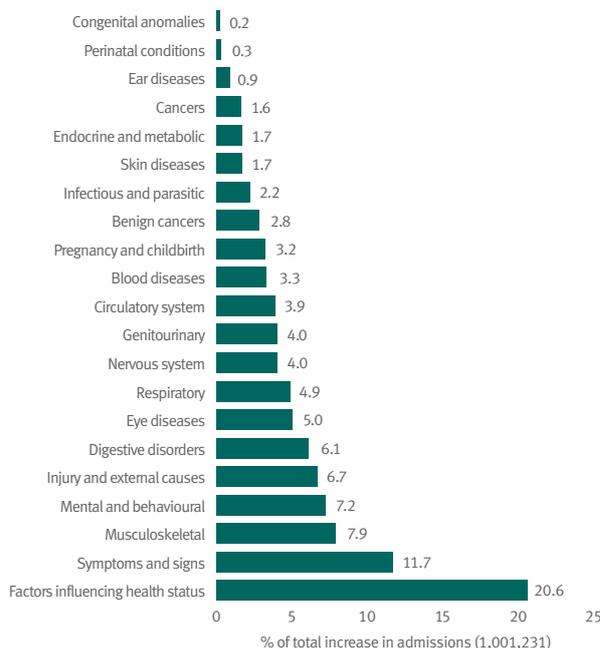
This section presents admitted episodes of care to Queensland hospitals in 2018–19 including the major causes, trends over time and PPHs. Spotlights include trends in admissions for diseases of the blood and blood forming organs, psychiatric admissions and admissions to the Queensland Children’s Hospital, Queensland’s only tertiary paediatric hospital.

**Figure 3.6** Number of hospitalisations by category,<sup>1</sup> Queensland, 2018–19<sup>106</sup>



<sup>1</sup> Excludes 83831 episodes for non-Queensland residents

**Figure 3.7** Contribution of diseases and disorders to increase in total admissions, by ICD Chapter, Queensland, 2008–09 to 2018–19<sup>106</sup>



## At a glance

### Hospitalisations

2,731,900 admitted episodes of care in Queensland hospitals in 2018–19

There were 3267 potentially preventable hospitalisations per 100,000 population in 2018–19

Patients spent 1,529,790 hours in intensive care in 2018–19

In 2017–18, there were 35,604 admissions to Queensland hospitals for specialist psychiatric care—309 were to public psychiatric hospitals



Buud photography

## Overall

Excluding admissions to public psychiatric hospitals, in 2018–19, there were 2,731,634 public and private hospital admitted episodes of care with an average annual increase of 5.1% since 2014–15.<sup>107</sup> Numbers of individuals and episodes by selected characteristics are presented in Table 3.6. Public hospitals accounted for 57% of episodes. The average annual growth was 6.8% for public hospitals and 3.0% for private hospitals.

In 2018–19<sup>107</sup>:

- there was a total of 6,587,805 patient days, an average annual increase of 2.8% since 2014–15
- 89% of episodes were for acute care, followed by mental health care (4.1%), rehabilitation (3.4%) and newborn care (2.3%)
- episodes with at least an overnight stay accounted for 980,896 separations (34% were in private hospitals)
- same-day episodes accounted for 64% of all hospital episodes
- there were 266 episodes for public psychiatric hospitals of which all but two were overnight admissions
- 3.1% of episodes were for non-Queensland residents.
- there were 147,034 admitted episodes for Aboriginal and Torres Strait Islander people
- 47% of episodes were for males
- people aged 55–84 years accounted for the highest proportions of admissions in both public and private hospitals (Table 3.7)
- the average length of stay in public acute hospitals (excluding same-day episodes) was 4.6 days and 5.3 days in private hospitals
- rates of hospitalisations were higher in Queensland than Australia overall (Table 3.8).

**Table 3.6 Admitted individuals and episodes, Queensland, 2018–19<sup>106</sup>**

Age group	Persons	Episodes	Average per person
0–14	110,594	159,088	1.4
15–29	159,498	294,525	1.8
30–44	197,191	396,745	2.0
45–64	303,068	759,907	2.5
65+	347,763	1,121,366	3.2
Not stated	3	3	1.0
<b>Sex</b>			
Female	610,071	1,442,254	2.4
Male	502,960	1,289,365	2.6
Other	13	14	1.1
Not stated	1	1	1.0
<b>Indigenous status</b>			
Aboriginal	40,928	122,801	3.0
Torres Strait Islander	4868	17,693	3.6
Both	4809	13,237	2.8
Not Indigenous	1,042,422	2,492,819	2.4
Not stated	40,382	85,084	2.1
<b>Total</b>	<b>1,113,045</b>	<b>2,731,634</b>	<b>2.5</b>

**Table 3.7 Hospital admissions (%) by age group, sex and hospital type, Queensland, 2018–19<sup>106</sup>**

Age group	Public hospitals			Private hospitals		
	Males	Females	Total <sup>1</sup>	Males	Females	Total <sup>1</sup>
0–4	5.8	4.0	4.9	1.5	0.8	1.1
5–14	4.0	2.9	3.4	1.6	1.2	1.4
15–24	5.4	9.9	7.7	3.1	4.9	4.1
25–34	6.8	16.2	11.7	4.1	9.4	6.9
35–44	8.2	11.3	9.8	6.4	11.2	9.0
45–54	12.0	11.8	11.9	10.8	12.7	11.8
55–64	17.1	13.3	15.1	17.4	16.7	17.1
65–74	20.5	14.2	17.2	28.4	21.8	24.8
75–84	14.7	10.9	12.7	20.4	14.9	17.5
85–89	3.8	3.3	3.6	4.3	4.0	4.1
90–94	1.4	1.7	1.6	1.5	1.9	1.7
95+	0.3	0.5	0.4	0.4	0.5	0.5
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

<sup>1</sup> Includes persons for whom sex was not reported or indeterminant



**Table 3.8 Rates<sup>1</sup> of admitted episodes of care, Queensland and Australia, by Aboriginal and Torres Strait Islander status and episode type, 2018–19<sup>106</sup>**

	Queensland			Australia		
	Indigenous	Other <sup>2</sup>	Total	Indigenous	Other <sup>2</sup>	Total
Same day acute	639.8	285.6	<b>295.2</b>	688.5	229.8	<b>239.0</b>
Same day excluding dialysis	248.5	243.0	<b>243.9</b>	176.9	185.2	<b>185.4</b>
Overnight acute	281.0	161.6	<b>166.0</b>	270.6	145.1	<b>148.6</b>

<sup>1</sup> Rate per 100,000 population

<sup>2</sup> Other includes episodes in which Aboriginal and Torres Strait Islander status was not reported

**Hospital admissions for mental and behavioural conditions have increased by 82.5% since 2008–09.**

## Leading causes of hospitalisation

Leading causes of hospitalisation are derived from the Queensland Hospital Admitted Patient Data Collection unless otherwise noted.<sup>106</sup> The number of admissions based on International Classification of Diseases (ICD)<sup>108</sup> categories are presented in Figure 3.6. The proportionate contribution of specific ICD categories to the total increase in admissions from 2008–09 to 2018–19 (1,001,231) is presented in Figure 3.7.

Factors influencing health status are events such as investigations, treatments and procedures. This group accounted for 21% of the total increase in admissions from 2008–09 and 2018–19.<sup>106</sup> The leading specific cause within this broad group was renal dialysis, typified by a relatively large number of hospitalisations for a small number of people.

Leading causes of admission for Aboriginal and Torres Strait Islander people and other Queenslanders are presented in Table 3.9.

**Table 3.9** Leading causes of admission<sup>1</sup> by Aboriginal and Torres Strait Islander status, Queensland, 2018–19<sup>106</sup>

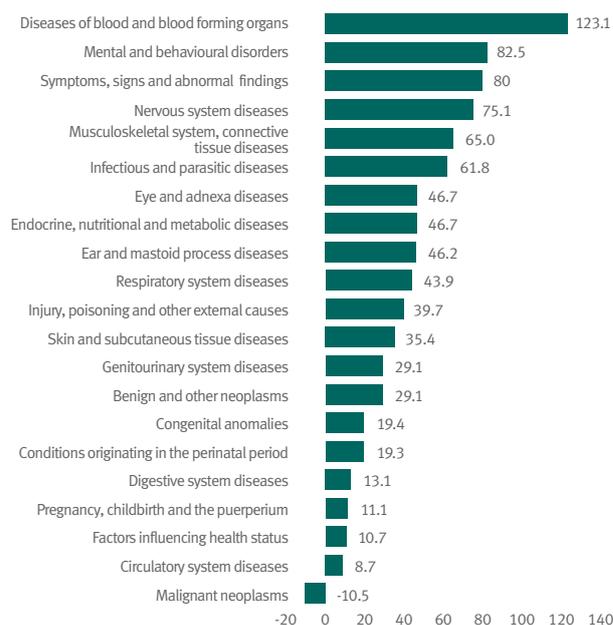
	Indigenous	Others <sup>2</sup>
Factors influencing health status	39.7	22.6
Pregnancy, childbirth, the puerperium	7.3	5.1
Injury, poisoning, other external causes	7.3	6.8
Symptoms, signs, abnormal findings	7.1	8.6
Respiratory system	5.8	4.5
Digestive system	5.7	9.0
Mental, behavioural	4.4	5.1
Genitourinary system	3.2	4.4
Circulatory system	3.1	5.1
Musculoskeletal system, connective tissue	2.6	6.2
Skin, subcutaneous tissue	2.3	1.6
Infectious, parasitic diseases	1.9	1.7
Endocrine, nutritional, metabolic diseases	1.9	1.8
Nervous system	1.7	3.1
Malignant neoplasms	1.2	3.9
Perinatal conditions	1.1	0.5
Eye, adnexa	1.1	3.9
Blood, blood forming organs	0.9	2.1
Ear, mastoid process	0.8	0.8
Benign, other neoplasms	0.7	2.7
Congenital anomalies	0.4	0.3
<b>Total</b>	<b>100</b>	<b>100</b>

<sup>1</sup> Per cent of all admissions

<sup>2</sup> Others include those for whom Aboriginal and Torres Strait Islander status was not recorded

The broad condition category that had the largest proportionate increase in age-standardised admission rates from 2008–09 to 2018–19 for all Queenslanders was ICD Chapter 3—diseases of the blood and blood-forming organs (Figure 3.8).<sup>106</sup> This trend is described in more detail in the Spotlights section. The only condition category with a decline in admissions was malignant neoplasms (10.5% decline).

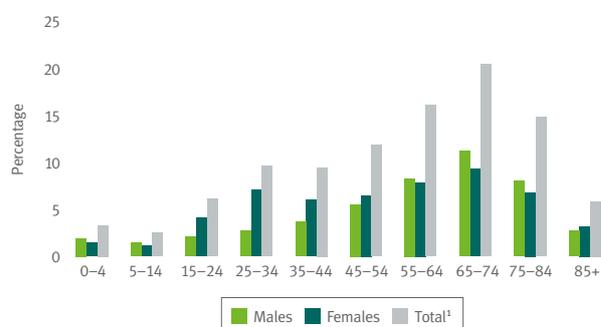
**Figure 3.8** Change (%) in hospitalisations<sup>1</sup> for each ICD chapter, Queensland, 2008–09 to 2018–19<sup>106</sup>



<sup>1</sup> Change in age-standardised rates

The proportionate contribution of age and sex to total hospitalisations in Queensland in 2018–19 is presented in Figure 3.9.

**Figure 3.9** Proportion of total hospitalisations by age group and sex, Queensland, 2018–19<sup>106</sup>



<sup>1</sup> Includes persons for whom sex was not specified

In 2018–19, the top three leading causes of admission for each broad age group were<sup>106</sup>:

- 0–14 years: respiratory diseases (21%), injury, poisoning and other external causes (13%) and symptoms, signs and other abnormal findings (9.0%)
- 15–29 years: conditions related to pregnancy, childbirth and the puerperium (25%), diseases of the digestive system (11%) and injury, poisoning and other external causes (11%)
- 30–44 years: pregnancy, childbirth and the puerperium (17%), factors influencing health status (17%) and diseases of the digestive system (10%)
- 45–64 years: factors influencing health status (29%), diseases of the digestive system (10%) and symptoms, signs and abnormal findings (9.1%)
- 65 years and older: factors influencing health status (29%), symptoms, signs and abnormal findings (7.9%) and diseases of the circulatory system (7.9%).

## Admissions requiring intensive care and continuous ventilatory support

For the 10 hospitals in Queensland reporting admitted episodes of care involving a stay in an intensive care unit (ICU) in 2018–19, there were<sup>109</sup>:

- 20,991 ICU episodes (65% in public hospitals)
- rates of 8.7 ICU stays per 1000 admissions in public hospitals and 6.3 per 1000 in private hospitals (nationally, the corresponding rates were 16.9 and 14.9 per 1000 respectively)
- 1,529,790 hours spent by patients in ICU
- average stays in public hospitals of 81.7 hours and 56.5 hours in private hospitals.

For the 52 Queensland hospitals reporting admitted episodes of care that involved patients receiving continuous ventilatory support in 2018–19, there were<sup>107</sup>:

- 7870 episodes (88% in public hospitals)
- rates of 4.4 episodes per 1000 admissions in public hospitals and 0.8 per 1000 in private hospitals
- 888,113 hours of continuous ventilatory support required
- average support times of 111 hours in public hospitals and 128 hours in private hospitals.

## Potentially preventable hospitalisations

PPHs are certain hospital admissions that potentially could have been prevented by timely and adequate health care in the community. There are 22 conditions for which hospitalisations are considered potentially preventable, across three broad categories: chronic, acute and vaccine-preventable conditions.<sup>110</sup>

However, there are many other reasons groups of people may have higher PPH rates other than access to primary care. These include higher disease burden and prevalence of risk factors that contribute to that burden. Some PPHs may not be avoidable, such as those for patients with complex illness and multimorbidities.<sup>110</sup> PPH rates are also known to vary widely within and between various population groups and geographical regions. They are usually higher with people who experience lower socioeconomic status, live in regional and remote areas, are very young or old and Aboriginal and Torres Strait Islander people.<sup>110</sup> For detailed analyses of disparities in PPHs refer to the AIHW report *Disparities in potentially preventable hospitalisation in Australia*.<sup>111</sup>

In 2018–19 in Queensland, there were 175,370 admissions considered PPHs (6.4% of total admissions)<sup>110</sup>:

- 84,862 admissions for acute conditions
- 78,629 admissions for chronic conditions
- 13,387 vaccine-preventable admissions.

The sum of the PPH subcategories does not add up to total PPH as a single episode can be counted in multiple subcategories.

**Table 3.10** Potentially preventable hospitalisation rates<sup>1</sup> by sex, Queensland, 2018–19<sup>110</sup>

	Females			Males			Persons		
	ASR	95% CI <sup>2</sup>		ASR	95% CI <sup>2</sup>		ASR	95% CI <sup>2</sup>	
Total potentially preventable hospitalisations	3351.2	3329.2	3373.3	3196.2	3174.3	3218.2	3266.5	3251.1	3282.0
Total acute conditions	1722.9	1706.9	1739.1	1557.5	1542.1	1573.1	1639.1	1628.0	1650.3
Total chronic conditions	1412.7	1398.8	1426.7	1410.3	1396.0	1424.8	1405.9	1396.0	1415.9
Total vaccine-preventable	242.2	236.4	248.2	256.6	250.5	262.9	248.8	244.6	253.1
Urinary tract infections, including pyelonephritis	531.7	523.0	540.6	258.2	252.0	264.4	396.5	391.1	401.9
Cellulitis	298.2	291.7	304.8	435.4	427.3	443.7	364.8	359.6	370.0
COPD	295.2	289.0	301.4	331.9	325.1	338.8	310.8	306.3	315.4
Dental conditions	311.9	305.0	319.0	294.7	288.0	301.6	303.4	298.6	308.3
Ear, nose and throat infections	275.1	268.5	281.8	252.5	246.2	258.9	264.1	259.6	268.7
Iron deficiency anaemia	295.0	288.4	301.6	162.7	157.9	167.7	229.0	224.9	233.1
Congestive cardiac failure	184.9	180.2	189.7	267.4	261.1	273.7	223.1	219.3	227.0
Diabetes complications	182.7	177.6	187.9	263.8	257.6	270.2	221.0	217.0	225.0
Convulsions and epilepsy	181.1	175.8	186.5	212.3	206.6	218.1	196.3	192.4	200.2
Asthma	190.9	185.6	196.4	123.2	118.8	127.6	158.4	154.9	161.9
Influenza and pneumonia	158.6	153.9	163.5	153.2	148.4	158.1	155.6	152.3	159.0
Angina	107.9	104.2	111.8	167.5	162.7	172.5	136.5	133.5	139.6
Other vaccine-preventable conditions	84.1	80.6	87.7	104.1	100.3	108.1	93.8	91.2	96.5
Hypertension	80.0	76.8	83.3	45.3	42.8	48.0	64.2	62.1	66.3
Gangrene	44.2	41.8	46.8	71.1	67.8	74.4	57.1	55.1	59.1
Bronchiectasis	53.2	50.6	55.9	25.6	23.7	27.7	40.1	38.4	41.8
Pelvic inflammatory disease	56.0	53.1	59.1	n.a <sup>3</sup>	n.a	n.a	28.2	26.7	29.8
Perforated/bleeding ulcer	14.1	12.8	15.6	24.4	22.5	26.4	19.1	17.9	20.3
Rheumatic heart disease	18.6	17.0	20.3	18.1	16.5	19.8	18.3	17.2	19.5
Pneumonia (not vaccine-preventable)	11.2	9.9	12.6	11.8	10.5	13.2	11.5	10.5	12.4
Nutritional deficiencies	4.3	3.5	5.1	4.9	4.1	5.8	4.6	4.0	5.2
Eclampsia	1.0	0.6	1.5	n.a	n.a	n.a	0.5	0.3	0.8

1 Age-standardised rates (ASR) per 100,000 population

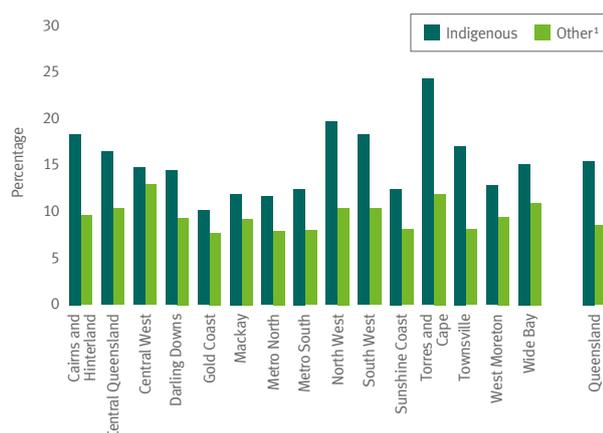
2 CI – confidence interval

3 n.a – not available

Age-standardised rates for all Queenslanders were highest for urinary tract infections (Table 3.10) with these infections being the highest for females (532 per 100,000 persons). The highest rate for males was for cellulitis (435 per 100,000).

PPHs as a proportion of total hospitalisations in each HHS were highest in the Torres and Cape (Figure 3.10) for Aboriginal and Torres Strait Islander people.

**Figure 3.10 Potentially preventable hospitalisation (% of total admissions) by Hospital and Health Service and Aboriginal and Torres Strait Islander status, Queensland, 2018–19<sup>10</sup>**



1 Includes persons for whom Aboriginal and Torres Strait Islanders status was not specified

## Spotlights

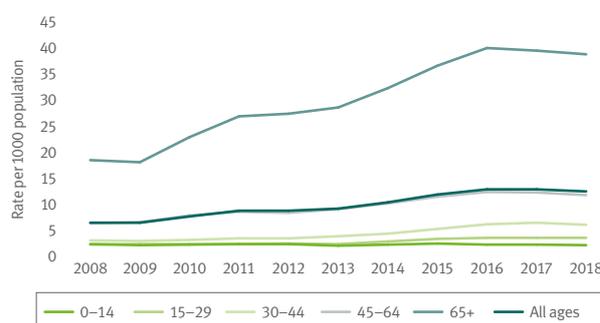
This section presents some specific data on the increase in hospitalisations for blood and blood disorders, admissions specific to the Queensland Children’s Hospital and for psychiatric care. This does not suggest these events are more or less important than other hospitalisations.

## Trends in blood and blood disorders

ICD Chapter 3 conditions include certain disorders involving the immune mechanism and excludes blood cancers (for example, leukaemia). Common conditions within this category include the nutritional anaemias. In 2018–19, there were 53,448 admitted episodes in Queensland hospitals for these conditions compared to 20,671 in 2008–09 (123% overall increase).<sup>106</sup>

It is beyond the scope of this report to analyse the increases in hospitalisations for these conditions in detail, however, they were seen in all ages except children aged less than 14 years (Figure 3.11). The largest increase was seen in those aged 65 years and older.

**Figure 3.11 Trends in hospitalisation for diseases of the blood and blood forming organs by age, Queensland, 2008–09 to 2018–19<sup>106</sup>**



Increases were seen in all categories within this chapter with the largest being for disorders involving the immune mechanism, followed by nutritional anaemias and haemolytic anaemias (Table 3.11).<sup>106</sup>

Disorders of the immune mechanism include immune deficiencies such as those associated with antibody defects and common variable immunodeficiencies. Nutritional deficiencies include iron deficiency anaemia and folate deficiency anaemia.

The reasons why there has been such a large increase in hospitalisations for these disorders are currently not clear. They may reflect changes in clinical practice, hospital administration practices (for example, changes in admission criteria) and potentially improved diagnosis and access to care. More detailed analyses are needed to determine whether they reflect an actual increase in disease in the population.

**Table 3.11 Admitted episodes of care for diseases of the blood and blood forming organs, Queensland, 2008–09 to 2018–19<sup>106</sup>**

	2008–09	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19	Average annual increase (%)
Nutritional anaemias	5479	5509	6244	6882	7312	8425	10,197	12,310	14,066	14,784	14,736	10.6
Haemolytic anaemias	781	679	813	1007	1127	1014	1248	1664	1995	2007	2064	10.9
Aplastic and other anaemias	4275	3814	6641	8027	7768	8010	8961	10,274	11,696	11,520	11,014	8.1
Coagulation defects, purpura, other haemorrhagic conditions	2342	2771	2859	3761	3739	3613	4361	5012	5343	5233	5327	6.6
Other diseases of blood/ blood forming organs	2046	2299	2523	2489	2668	2805	3079	3649	3725	3979	3512	4.7
Disorders of immune mechanism	5748	6079	6885	8055	8666	9956	11,666	13,821	15,551	16,195	16,795	10.6
<b>Total</b>	<b>20,671</b>	<b>21,151</b>	<b>25,965</b>	<b>30,221</b>	<b>31,280</b>	<b>33,823</b>	<b>39,512</b>	<b>46,730</b>	<b>52,376</b>	<b>53,718</b>	<b>53,448</b>	

### Queensland Children's Hospital

The Queensland Children's Hospital (QCH) is Queensland's only tertiary paediatric hospital and therefore the referral hospital for children across the state with complex health needs requiring specialist care. The Queensland Children's HHS (QCHHS) also has responsibility for the Ellen Barron Centre which is a multi-disciplinary, specialist child health service for families who require support with building practical skills and confidence in parenting. Overall, in 2018-19 there were 40,130 admitted episodes of care at QCH (Table 3.12) and 41,143 admitted episodes of care for children in QCHHS facilities (Table 3.13)<sup>106</sup>:

- 18,794 were overnight or longer stays with an average length of stay of 4.3 days
- 96% of episodes were for acute care, 2.3% for rehabilitation care, 1.0% were for mental health care and 0.3% were for palliative care
- 45% were emergency admissions.

There were 2320 (44% were aged 0–14 years) admissions to the Ellen Barron Centre of which 2209 were overnight or longer episodes. The average length of stay for these episodes was 3.6 days.<sup>106</sup>

The most common diagnosis related group for the Ellen Barron Centre admissions was Other Factors Influencing Health Status (1238) followed by Sleep Disorders (985).

**Table 3.12 Queensland Children's Hospital admitted episodes of care and patient days by age group, 2018–19<sup>106</sup>**

Age group	Episodes		Patient Days		Total Episodes	Total Patient Days
	Males	Females	Males	Females		
0–4	10,139	7436	26,977	20,838	17,575	47,815
5–9	5637	4057	11,806	8035	9694	19,841
10–14	5116	3897	13,218	9540	9013	22,758
15–19	2132	1700	5966	6001	3832	11,967
20–24	10	6	11	6	16	17
<b>Total</b>	<b>23,034</b>	<b>17,096</b>	<b>57,978</b>	<b>44,420</b>	<b>40,130</b>	<b>102,398</b>

The primary diagnosis groups associated with these admissions by age group for QCHHS patients up to 19 years of age overall are presented in Table 3.13. Most Queensland admissions for malignant neoplasms in children aged less than 15 years occur at QCHHS as do approximately half of all episodes for congenital anomalies.

### Overnight or longer stay admissions to psychiatric hospitals for specialist psychiatric care

Mental ill-health and behavioural disorders are major causes of hospitalisations in Queensland and Australia. The majority are cared for in our general public and private facilities, however, there are four dedicated psychiatric facilities in Queensland.<sup>112</sup> There are a small number of patients each year (less than a third) with severe mental illness who require involuntary specialist psychiatric care in an authorised service to ensure their own safety and that of others.<sup>113</sup>

Overall in 2017–18, there were 35,604 overnight or longer stay admissions (65.2 per 10,000 population) to Queensland hospitals involving specialist psychiatric care and 687,695 psychiatric care days<sup>112</sup>:

- 309 (0.9%) admissions were to public psychiatric hospitals
- 37.5% of all specialist care admissions were involuntary
- 81.2% of admissions to public psychiatric hospitals were involuntary
- 53.5% of admissions to general public hospitals were involuntary
- 1.6% of private hospital admissions were involuntary.

Nationally in 2017–18, the top five principal diagnoses associated with specialist psychiatric care admissions were<sup>112</sup>:

- depressive episodes (14.8%)
- schizophrenia (14.1%)
- reactions to severe stress and adjustment disorders (10.0%)
- bipolar affective disorders (8.8%)
- mental and behavioural disorders due to other psychoactive substance abuse (7.7%).

The characteristics of patients admitted nationally for overnight or longer stays with specialist psychiatric care in 2017–18 are presented in Table 3.14 (Queensland data were not published).<sup>112</sup> The highest rates per 10,000 population were for people aged 18–54 years and for those who identify as Aboriginal and Torres Strait Islander.

At 30 June 2019, there were 6333 patients in Queensland hospitals who were subject to involuntary assessment, treatment, care or detention.<sup>113</sup> Of these, 795 were due to a forensic order (a person is of unsound mind at the time of an alleged offence or is unfit for trial). There were 36 persons in care who were classified patients, that is, a person who has been transferred from a place of custody.

**Table 3.14 Demographic characteristics, overnight-longer stay admissions with specialist psychiatric care, Australia, 2017–18<sup>112</sup>**

	Rate <sup>1</sup>	
Age group	0–4	0.7
	5–11	1.7
	12–17	52.8
	18–24	102.6
	25–34	93.9
	35–44	105.4
	45–54	89.5
	55–64	62.1
	65–74	46.3
	75–84	38.6
Indigenous status	85+	26.2
	Indigenous <sup>2</sup>	150.6
Sex	Other	63.7
	Male	64.3
Region	Female	69.2
	Major cities	66.8
	Inner regional	67.1
	Outer regional	54.6
	Remote/very remote	36.9
Socioeconomic status	Least advantaged	64.9
	Quintile 2	68.5
	Quintile 3	64.6
	Quintile 4	64.4
	Most advantaged	63.6

<sup>1</sup> Crude rate per 10,000 population

<sup>2</sup> Age-standardised for Aboriginal and Torres Strait Islander rate

**Table 3.13 Admitted episodes of care, Queensland Children's Hospital and Health Service 2018–19<sup>106</sup>**

Cause of admission	0–4 years			5–9 years			10–14 years			15–19 years			Total		
	Total QCH	% QCH	% QLD <sup>1</sup>	Total QCH	% QCH	% QLD <sup>1</sup>	Total QCH	% QCH	% QLD <sup>1</sup>	Total QCH	% QCH	% QLD <sup>1</sup>	Total QCHHS	% QCH	% QLD <sup>1</sup>
Benign and other neoplasms	163	0.9	41.1	92	0.9	32.1	127	1.4	33.0	53	1.4	11.4	435	1.1	28.4
Perinatal origin conditions	356	1.9	2.5	3	0.0	75.0	–	–	–	–	–	–	359	0.9	2.5
Congenital anomalies	1704	9.2	47.7	423	4.4	50.5	408	4.5	52.3	151	3.9	3.9	2686	6.5	51.7
Blood and blood forming organs	299	1.6	48.5	333	3.4	58.4	233	2.6	51.5	156	4.1	27.7	1021	2.5	46.4
Circulatory system	176	0.9	35.7	156	1.6	23.1	151	1.7	25.8	77	2.0	10.1	560	1.4	22.3
Digestive system	944	5.1	24.9	822	8.5	16.6	1116	12.4	22.3	525	13.7	66.5	3407	8.3	23.4
Ear and mastoid process	598	3.2	15.2	309	3.2	13.8	157	1.7	20.8	26	0.7	0.3	1090	2.6	6.4
Eye and adnexa	234	1.3	36.6	227	2.3	52.9	103	1.1	38.0	34	0.9	7.8	598	1.5	33.7
Genitourinary system	510	2.7	23.2	296	3.1	24.4	353	3.9	25.0	118	3.1	48.0	1277	3.1	25.2
Musculoskeletal system	293	1.6	37.5	366	3.8	41.4	599	6.6	35.1	292	7.6	8.0	1550	3.8	22.1
Nervous system	1845	9.9	58.4	898	9.3	46.5	757	8.4	53.8	311	8.1	10.2	3811	9.3	39.9
Respiratory system	4023	21.6	17.7	1121	11.6	15.5	530	5.9	17.0	139	3.6	8.6	5813	14.1	16.8
Skin and subcutaneous tissue	503	2.7	26.7	243	2.5	23.3	254	2.8	22.5	81	2.1	1.9	1081	2.6	13.0
Endocrine nutritional and metabolic	280	1.5	32.5	383	4.0	53.5	397	4.4	44.2	207	5.4	10.2	1267	3.1	28.1
Factors influencing health status	1795	9.7	27.4	1589	16.4	59.0	1244	13.8	56.2	550	14.3	34.8	5178	12.6	39.7
Infectious and parasitic	1096	5.9	15.3	228	2.4	15.7	135	1.5	15.8	47	1.2	1.2	1506	3.7	11.2
Injury poisoning and other external causes	1982	10.7	25.4	1280	13.2	20.9	1228	13.6	17.9	388	10.1	21.6	4878	11.9	21.6
Malignant neoplasms	418	2.2	90.1	303	3.1	91.3	320	3.6	93.6	169	4.4	1.6	1210	2.9	10.2
Mental and behavioural disorders	40	0.2	27.8	49	0.5	29.9	335	3.7	23.0	304	7.9	77.0	728	1.8	33.8
Pregnancy, childbirth and the puerperium	–	–	–	–	–	–	–	–	–	1	0.0	0.0	1	0.0	0.0
Symptoms signs and abnormal findings	1336	7.2	16.1	573	5.9	19.3	566	6.3	18.7	212	5.5	3.1	2687	6.5	12.6
<b>Total</b>	<b>18,595</b>	<b>100</b>	<b>20.7</b>	<b>9694</b>	<b>100</b>	<b>26.4</b>	<b>9013</b>	<b>100</b>	<b>27.6</b>	<b>3841</b>	<b>100.0</b>	<b>5.9</b>	<b>41,143</b>	<b>100</b>	<b>18.3</b>

1 Proportion of all paediatric admissions in Queensland for that condition by age group

## Deaths

Life expectancy in Australia is one of the highest in the world. Life expectancy at birth reached unprecedented levels globally in 2019 but significant differences persist within and between regions and populations.<sup>114</sup> Deaths are a measure of a country's health and development, and decreasing premature deaths (defined in this report as those that occur before 75 years of age) is a global health priority.

Overall deaths in Australia are steadily increasing, largely driven by population growth, however, gains are being made in key measures such as the infant mortality rate, particularly for Aboriginal and Torres Strait Islander people.

### Overall

In 2018, there were 30,860 deaths in Queensland for an overall standardised mortality rate of 5.4 per 1000 population (Table 3.15).<sup>115</sup> The 2008 mortality rate was 6.4 per 1000 population.

- The median age at death was 80.4 years—77.7 years for males and 80.5 years for females.
- There were 214 deaths in infants aged less than 12 months, an infant mortality rate of 3.5 per 1000 births.
- There were 155 infant deaths (72%) before four weeks of age.

## At a glance

### Deaths

*In Queensland in 2018:*

The median age at death was 80.4 years

The mortality rate was 5.4 per 1000 persons

For Aboriginal and Torres Strait Islander people, the mortality rate was 9.6 per 1000

The overall infant mortality rate was 3.5 per 1000 births and 5.6 per 1000 for Aboriginal and Torres Strait Islander infants

**Table 3.15 Trends in death rates<sup>1</sup> Queensland, 2012–2018<sup>115</sup>**

	2012	2013	2014	2015	2016	2017	2018
<b>All deaths<sup>2</sup></b>							
Major cities	5.6	5.6	5.5	5.4	5.3	5.3	5.2
Inner regional	6.1	5.9	5.8	5.7	5.7	5.8	5.7
Outer regional	6.4	6.2	5.9	5.8	5.8	5.9	5.9
Remote	6.8	7.2	5.9	6.1	6.3	6.4	6.2
Very remote	8.5	6.6	7.2	7.0	7.1	7.0	7.1
<i>Indigenous</i>	10.5	9.0	8.9	8.9	9.1	9.6	9.6
<i>Queensland</i>	6.0	5.8	5.7	5.6	5.6	5.6	5.4
<i>Australia</i>	5.8	5.6	5.5	5.5	5.5	5.5	5.3
<b>Infant mortality rate<sup>3</sup></b>							
Major cities	4.2	3.9	4	3.8	3.7	3.6	3.6
Inner regional	4.7	4.6	4.6	4.9	4.6	4.7	4.1
Outer regional	5.1	5.1	4.5	4.7	4.3	4.4	4.4
Remote	5.4	6.5	6.9	6.0	5.6	5.6	np <sup>4</sup>
Very remote	7.1	6.4	4.8	5.6	5.6	4.5	np <sup>4</sup>
<i>Indigenous</i>	6.9	6.6	6.2	7.2	6.3	6.6	5.6
<i>Queensland</i>	4.8	4.5	4.5	4.4	4.2	4.2	3.5
<i>Australia</i>	3.7	3.6	3.4	3.4	3.2	3.2	3.2

1 Rate per 1000 persons

2 Age-standardised rate per 1000 population

3 Rate per 1000 births

4 np – not publishable

### Age-specific mortality rates

In Queensland in 2018, the average numbers of deaths (n) and mortality rates by age group were<sup>115</sup>:

- < 1 year: 3.2 per 1000 (198)
- 1–4 years: 0.1 per 1000 (34)
- 5–14 years: 0.1 per 1000 (44)
- 15–29 years: 0.4 per 1000 (420)
- 30–44 years: 0.9 per 1000 (918)
- 45–64 years: 3.3 per 1000 (4110)
- 65–74 years: 11.2 per 1000 (5082)
- 75+ years: 57.7 per 1000 (18,293).

Average deaths in a single year are based on the average of three years of deaths.



## Leading causes of death

Overall, leading causes of death are dominated by conditions that become clinically apparent in adulthood and progress in severity as people age. This section describes the leading causes of death derived from the primary diagnosis assigned to the death. While the primary diagnosis is useful to monitoring trends, it does not address the complexity of causal pathways that lead to death from specific diseases, disorders or injuries within and between population groups. As described in other sections of this report, multimorbidities, sociodemographic factors and our environments are important contributors to mortality.

From 2014 to 2018, the top five leading causes of death for Queenslanders overall in both males and females were coronary heart disease, cardiovascular disease, COPD, lung cancer and dementia (Table 3.16).<sup>\*</sup> The top five causes of deaths in 2018 varied by age (Table 3.17). Intentional self-harm was in the top five for persons aged 1–14, 15–34 and 35–64 years.<sup>116</sup>

**Table 3.16** *Leading causes of death, Queensland, 2014–2018\**

Rank	Males				Females				Persons			
	Cause of death	Deaths	% all causes	ASR <sup>1</sup>	Cause of death	Deaths	% all causes	ASR <sup>1</sup>	Cause of death	Deaths	% all causes	ASR <sup>1</sup>
1	Coronary heart disease	10,784	13.5	88.3	Coronary heart disease	8472	12.0	50.6	Coronary heart disease	19,256	12.8	68.2
2	Lung cancer	5311	6.7	41.1	Dementia (inc Alzheimer's)	7440	10.5	43.1	Dementia (inc Alzheimer's)	11,719	7.8	40.8
3	Dementia (inc Alzheimer's)	4279	5.4	36.9	Cerebrovascular disease	5881	8.3	35.3	Cerebrovascular disease	10,095	6.7	35.7
4	Cerebrovascular disease	4214	5.3	35.4	Lung cancer	3437	4.8	23.7	Lung cancer	8748	5.8	31.7
5	COPD	3992	5.0	32.5	COPD	3117	4.4	20.4	COPD	7109	4.7	25.7
6	Prostate cancer	3423	4.3	28.2	Breast cancer	2760	3.9	19.2	Colorectal cancer	5398	3.6	19.7
7	Colorectal cancer	2955	3.7	23.6	Colorectal cancer	2443	3.4	16.3	Diabetes	4337	2.9	15.7
8	Suicide	2837	3.6	23.9	Diabetes	1966	2.8	12.7	Suicide	3698	2.5	15.3
9	Diabetes	2371	3.0	19.1	Influenza and pneumonia	1425	2.0	8.3	Prostate cancer	3423	2.3	12.3
10	Cancer (unk/ill-defined primary site)	1515	1.9	12.1	Cancer (unk/ill-defined primary site)	1307	1.8	8.4	Cancer (unk/ill-defined primary site)	2822	1.9	10.2
11	Pancreatic cancer	1425	1.8	11.1	Heart failure, complications, ill-defined disease	1267	1.8	7.4	Breast cancer	2787	1.9	10.2
12	Liver disease	1246	1.6	9.6	Cardiac arrhythmias	1217	1.7	7.1	Pancreatic cancer	2599	1.7	9.4
13	Liver cancer	1202	1.5	9.2	Pancreatic cancer	1174	1.7	7.9	Influenza and pneumonia	2592	1.7	9.0
14	Influenza and pneumonia	1167	1.5	9.8	Hypertensive disease	1162	1.6	6.7	Heart failure, complications, ill-defined disease	2196	1.5	7.6
15	Leukaemia	1109	1.4	8.9	Non-rheumatic valve disorders	989	1.4	5.8	Cardiac arrhythmias	1966	1.3	6.9
16	Melanoma of the skin	1099	1.4	8.8	Accidental falls	958	1.4	5.8	Accidental falls	1932	1.3	6.8
17	Parkinson disease	1088	1.4	9.2	Ovarian cancer	950	1.3	6.5	Liver disease	1862	1.2	6.9
18	Land transport accidents	1015	1.3	8.5	Suicide	861	1.2	7.0	Non-rheumatic valve disorders	1855	1.2	6.5
19	Accidental falls	974	1.2	8.2	Musculoskeletal system/connective tissue diseases	805	1.1	5.0	Liver cancer	1827	1.2	6.6
20	Oesophageal cancer	966	1.2	7.4	Kidney failure	792	1.1	4.8	Leukaemia	1825	1.2	6.7
	<b>Top 20 leading causes</b>	<b>52,972</b>	<b>66.5</b>	<b>–</b>	<b>Top 20 leading causes</b>	<b>48,423</b>	<b>68.3</b>	<b>–</b>	<b>Top 20 leading causes</b>	<b>98,046</b>	<b>65.1</b>	<b>–</b>

<sup>1</sup> ASR: Age-standardised rate per 100,000 population

\* Australian Institute of Health and Welfare. MORT (Mortality Over Regions and Time) books: State and territory, 2014–2018. 2020. Canberra: AIHW. Reference amended post-print given error in original document.

**Table 3.17 Leading causes of death by age group,<sup>1</sup> Queensland, 2018<sup>116</sup>**

<b>Under 1 year (total)</b>	<b>214</b>	<b>1–14 years (total)</b>	<b>85</b>
Complications of pregnancy and delivery	56	Accidental drowning	10
Ill-defined and unknown causes	25	Pedestrian in transport accident	7
Congenital malformations – circulatory	21	Brain and similar cancers	6
Prematurity and poor growth	18	Car occupant in transport accident	5
Digestive system disorders	11	Intentional self-harm	5
<b>15–34 years (total)</b>	<b>718</b>	<b>35–64 years (total)</b>	<b>5143</b>
Intentional self-harm	268	Digestive cancers	638
Accidental poisoning	65	Coronary heart disease	488
Car occupant in transport accident	61	Respiratory cancers	445
Ill-defined and unknown causes	20	Intentional self-harm	412
Other forms of heart disease	17	Breast cancer	199
<b>65–84 years (total)</b>	<b>13,321</b>	<b>85+ years (total)</b>	<b>11,379</b>
Digestive cancers	1506	Coronary heart disease	1687
Coronary heart disease	1426	Dementia	1656
Respiratory cancers	1141	Stroke	1034
COPD	956	Other forms of heart disease	897
Stroke	702	COPD	527

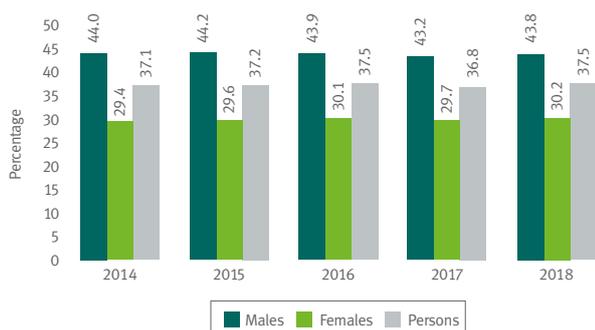
1 Single year count of deaths

## Premature and potentially avoidable deaths

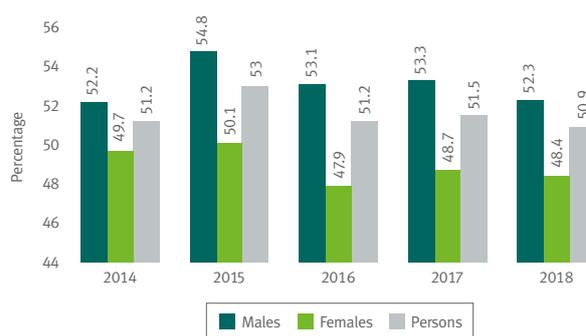
Premature deaths are defined as those that occur in persons aged less than 75 years (see Table 3.17 for leading causes by age).<sup>78</sup> As highlighted throughout this report, many premature deaths are potentially avoidable. Potentially avoidable deaths are those that occur in people less than 75 years of age from conditions that are potentially preventable through individualised care and/or treatable through existing primary or hospital care. Nationally, potentially avoidable death rates fell by 45% from 1998 to 2018.<sup>78</sup>

In Queensland in 2018, there were 11,565 (37%) premature deaths (7255 males and 4310 in females)—50.9% were considered potentially avoidable (Figures 3.12 and 3.13). The proportion of premature deaths that were potentially avoidable was 52.3% for males and 48.4% for females.

**Figure 3.12 Proportion of all deaths that were premature, Queensland, 2014–2018<sup>78</sup>**



**Figure 3.13 Proportion of all premature deaths that were potentially avoidable, Queensland, 2014–2018<sup>78</sup>**



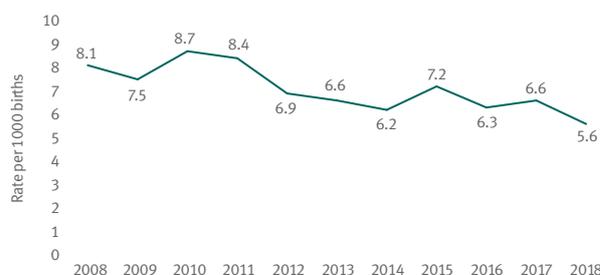
## Deaths in Aboriginal and Torres Strait Islander people in Queensland

In Queensland in 2018, there were 963 deaths for persons identified as Aboriginal and Torres Strait Islander, a 3-year average death rate of 9.6 per 1000 persons.<sup>115</sup> Males accounted for 57% of deaths. There were 751 (78%) premature deaths. The median age at death for Aboriginal and Torres Strait Islander people was 61.6 years; 59 years for males and 65 years for females. The median age at death in 2008 was 57.3 years. The leading cause of death for both males and females was ischaemic heart disease (Table 3.18).<sup>116</sup> There were 29 infant deaths for a standardised infant mortality rate of 5.6 per 1000 births (Figure 3.14).<sup>115</sup>

The single-year age-specific death rates per 1000 persons and number of deaths were<sup>115</sup>:

- < 1 year: 5.6 (29)
- 1–4 years: 0.2 (6)
- 5–14 years: 0.2 (11)
- 15–24 years: 0.9 (45)
- 25–34 years: 1.5 (56)
- 35–44 years: 3.2 (85)
- 45–54 years: 6.1 (141)
- 55–64 years: 12.3 (186)
- 65–74 years: 25.6 (192)
- 75+ years: 85.4 (212).

**Figure 3.14 Aboriginal and Torres Strait Islander infant mortality rate,<sup>1</sup> Queensland, 2008–2018<sup>115</sup>**



1 Caution is required with 2010 rates which may be inflated given administrative processes

**Table 3.18** *Leading causes of death, Aboriginal and Torres Strait Islander people, Queensland, 2018*<sup>116</sup>

Cause of death	Males	Females	Persons	Rank	Rate <sup>1</sup>
Ischaemic heart diseases	77	43	120	1	127.9
Cancer of trachea, bronchus, lung	41	35	76	2	78.0
Diabetes mellitus	33	37	70	3	74.3
Intentional self-harm	45	16	61	4	26.4
Chronic lower respiratory diseases	25	35	60	5	65.0
Dementia, inc Alzheimer's disease	9	27	36	6	68.8
Cerebrovascular diseases	13	19	32	7	46.7
Cancer of colon, sigmoid, rectum and anus	16	14	30	8	31.2
Cirrhosis and other liver diseases	26	2	28	9	23.5
Accidental poisoning	15	6	21	10	10.9

1 Standardised rate per 100,000 population

## The first 1000 days

The first 1000 days of a child's life refers to the period from conception to two years of age and is now recognised internationally as the critical period that shapes their health, growth, neurodevelopment and wellbeing across the lifespan.<sup>117</sup> Adult conditions such as coronary heart disease, chronic lung diseases, stroke, diabetes, cancer and mental health conditions are now being linked to pathways that originated during or prior to the first 1000 days.<sup>117</sup>

A large range of factors are now known to affect biological and developmental functioning, including pre-conception factors (for example, genetic and epigenetic transmissions from parents and grandparents), pregnancy factors (maternal nutrition, stress) and early childhood environments and experiences including neglect or abuse.<sup>117</sup>

Both maternal and paternal factors are important particularly in the periconceptional period during which poor maternal and paternal physiology, body composition, metabolism and diet can induce increased risk of chronic disease in children.<sup>118</sup> These factors can be broadly characterised as biological, social determinants of health, ecological factors and individual factors. Supporting mothers and fathers prior to, during and after pregnancy and promoting an optimal environment up to the child's second birthday has become a priority internationally.

Here we present key indicators for a healthy start to life. There are limited population-based data on infant health indicators beyond the postnatal period, particularly regarding important developmental milestones.

### At a glance

#### *The first 1000 days*

*In Queensland in 2018:*

The fertility rate had declined by 10% from 2011

Almost a third of mothers were born overseas

5473 (9%) of babies were born premature

11% of women smoked during their pregnancy



**There has been a 48% decline in teenagers giving birth in Australia since 2006.**

### Births

The total fertility rate in Queensland in 2018 was 1.8 babies per woman aged 15–49 years—a 10% decline from the rate in 2011 (2.0 babies per woman).<sup>120</sup> In 2018, there were 60,503 babies born to 59,644 mothers in Queensland.<sup>119</sup> Most mothers gave birth in public hospitals (45,257)—the remainder gave birth in private hospitals (13,832), at home (141) and prior to arrival at a facility (414). In the period 2008–2018, there was a 24% decline in the number of mothers giving birth in a private hospital.

This was the first pregnancy for 24,450 women (Figure 3.15)—1328 women had had five or more previous pregnancies.<sup>119</sup> Assisted conception was reported for 6.0% of women compared to 2.3% in 1998. There were 826 twin and 16 other multiple pregnancies. Onset of labour was spontaneous in 26,975 women (38 % of these were augmented) and 19,212 women were induced. The three most common reasons for induction of labour were<sup>119</sup>:

- diabetes complicating the pregnancy (15%),
- psychosocial other administrative circumstances (13%)
- prolonged pregnancy (12%).

In 13,456 (23%) women there was no onset of labour (infant/s delivered by caesarean section) compared to 20% of women in 2008. The most common primary reasons for caesarean section were foetal distress, meconium liquor, uterine inertia and social circumstances.<sup>119</sup>

### Maternal factors

**Aboriginal and Torres Strait Islander women:** 7% of mothers giving birth in Queensland in 2018 were Aboriginal and Torres Strait Islander women (4178 women).<sup>119</sup> Of these, 3294 identified as Aboriginal women, 468 as Torres Strait Islander and 416 as both Aboriginal and Torres Strait Islander. There were no mothers for whom Aboriginal and Torres Strait Islander status was not stated, a 100% improvement on identification in the perinatal data collection since 2008.

**Country of birth:** Women who were born overseas comprised 29% of mothers in 2018 with the most common country of birth being New Zealand (5.4%). Mothers from Asian countries accounted for 12% and those from African countries for 3.5%.<sup>119</sup>

**Age:** 3% of Queensland mothers were aged less than 20 years at the birth, a decline of 47% from 2009 (5.7%) and 21% were aged 35 years or older in 2018.<sup>119</sup>

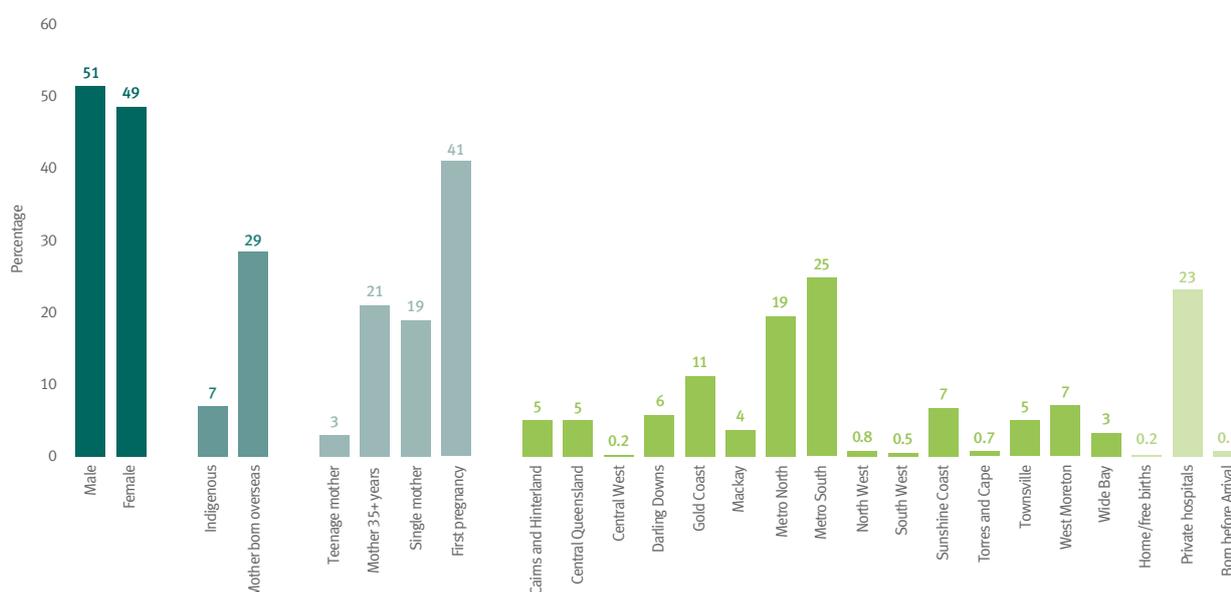
**Teenage mothers:** The teenage birth rate decreased by 48% from 2006 to 2017, from 17.6 to 9.2 live births per 1000 females aged 15–19 years in Australia.<sup>87</sup>

**Aboriginal and Torres Strait Islander teenage mothers in Australia:** Births to Australian Aboriginal and Torres Strait Islander teenage mothers have decreased by 34% from 2006 to 2017, from 70 to 46 live births per 1000 teenage females.<sup>87</sup>

**Single mothers:** Of all women giving birth in 2018, 11,300 (19%) were single mothers. The number of single mothers giving birth has risen consistently since 2008 in which 6951 (12%) women were single mothers.<sup>119</sup>

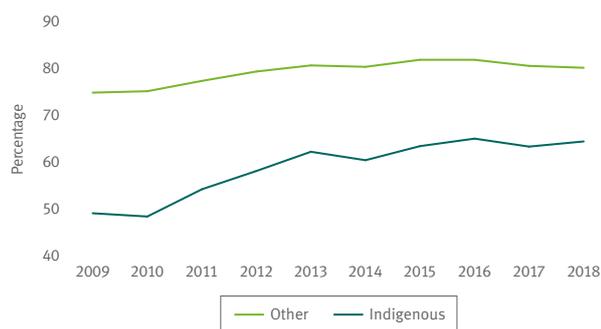
**Antenatal visits:** 79% of women made eight or more antenatal visits during their pregnancy in 2018, with Aboriginal and Torres Strait Islander women less likely to do so than other Queensland women (65% compared with 80%).<sup>119</sup> Antenatal attendance for both Aboriginal and Torres Strait Islander and other Queensland women has improved by 31% and 7.0% since 2009 respectively (Figure 3.16).

**Figure 3.15 Proportion of births<sup>1</sup> by selected characteristics, Queensland, 2018<sup>119</sup>**



<sup>1</sup> Births are for all women who gave birth in Queensland, including mothers with residence interstate or overseas. Births by HHS in the figure are by the mother's place of residence

**Figure 3.16 Mothers who had eight or more antenatal visits during pregnancy, Queensland, 2009–2018<sup>119</sup>**



**Pregnancy, labour and birth complications:** Previous uterine scars and premature rupture of membranes with onset of labour within 24 hours were the most common complications of pregnancy reported among mothers birthing in Queensland in 2018 (18%).<sup>119</sup> Gestational diabetes was reported in 8098 (14%) women and hypertension complicating pregnancy was reported in 3535 (5.9%) women. Poor foetal growth was reported in 3475 (5.3%) women.

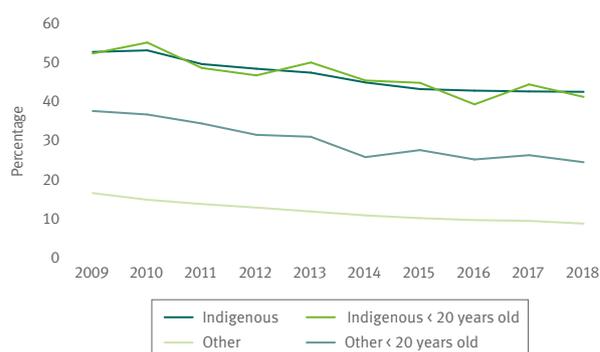
Precipitate delivery, where birth occurs within three hours of labour commencing, was reported for 18,112 births (30%), with foetal distress and/or meconium liquor reported in 12,533 (21%) of births. Primary postpartum haemorrhage was experienced by one in ten (6066) Queensland women giving birth in 2018.<sup>119</sup>

**Perinatal mental illness:** Perinatal mental health issues can have serious negative impacts on the attachment relationship between parent and infant, on family functioning, and on the future physical and mental health of parents and children. Suicide during pregnancy or in the first 12 months after birth is a leading cause of maternal death in Australia.<sup>121</sup>

From 2004 to 2017, there were 59 deaths by suicide either during pregnancy or between 0–42 days after birth.<sup>122</sup> During pregnancy, approximately 15% of Queensland mothers and 5% of Queensland fathers are likely to experience clinically significant perinatal depression and/or anxiety.<sup>123</sup> Populations more at risk include LGBTQ+ parented families, Aboriginal and Torres Strait Islander families, and culturally and linguistically diverse families.<sup>124</sup>

**Smoking status:** There has been a decline in smoking during pregnancy for all women in the past 10 years (Figure 3.17). Overall, 11% of women smoked at some time during their pregnancy in 2018 (6709 women)<sup>119</sup>—42.6% of Aboriginal and Torres Strait Islander women and 8.9% of other Queensland women smoked. The proportion of younger pregnant women who smoke remains high. Among pregnant women aged less than 20 years, 41% of Aboriginal and Torres Strait Islander women and 25% of other Queensland women smoked during their pregnancy in 2018.<sup>119</sup>

**Figure 3.17 Smoking in pregnancy, Queensland, 2009–2018<sup>119</sup>**



**Weight status:** Twenty-one per cent of women were obese at the time of conception in 2018 (30% of Aboriginal and Torres Strait Islander mothers).<sup>119</sup> Among Queensland women aged 18–45 years overall, 22.6% were obese in 2018.<sup>125</sup>

**Alcohol consumption during pregnancy:** Among Australian women in 2016, 49% reported they drank alcohol before knowing they were pregnant and 25% drank after they knew.<sup>87</sup> Alcohol consumption in pregnancy is a new indicator in the perinatal data collection and trends over time are not available.

**Influenza and pertussis vaccination during pregnancy:** Globally, maternal vaccination during pregnancy is now considered an important and effective public health strategy given the impact of these infections during pregnancy and early infancy.<sup>126–129</sup> In 2018, 42% of women had had an influenza vaccine in their pregnancy and 68% had received a pertussis-containing vaccine (see [Section 5, Immunisations](#), for more details).

**In 2018, less than half of pregnant women had received the influenza vaccine in their pregnancy.**

## Paternal factors

It is increasingly recognised that paternal factors influence foetal development, pregnancy outcomes and short- and long-term infant health. Studies of paternal characteristics, however, remain relatively limited.<sup>130</sup> A recent systematic review of 81 studies identified that paternal age and paternal lifestyle factors were associated with psychiatric disorders such as autism, autism spectrum disorders and schizophrenia later in life, as well as associations with stillbirth, birth defects, orofacial clefts and trisomy 21.<sup>130</sup> Paternal height, but not BMI, was associated with birth weight. Paternal smoking was linked to an increase in small-for-gestational age (SGA) and birth defects as well as childhood cancers.<sup>130</sup>

Early skin-to-skin contact between newborns and their fathers had positive impacts on a range of infants' outcomes, including temperature conservation, bio-physiological markers and behavioural responses.<sup>131</sup> Skin-to-skin also positively influenced paternal outcomes, including parental role attainment, infant interactions, and reduced stress and anxiety.<sup>131</sup> The role of medications (particularly those known to be teratogenic), mental health, alcohol and illicit substance use in fathers prior to and at the time of conception are also important risk factors.<sup>131</sup>

Paternal factors are not collected in national or Queensland perinatal data collections and therefore population level information is not available.

### Newborn characteristics

**Gestation:** Nine per cent (5473) of babies were premature (born before 37 weeks) in 2018 with 510 (0.8%) born before 28 weeks. The proportion of Aboriginal and Torres Strait Islander babies born premature was 14%.<sup>119</sup>

**Low birthweight:** In 2018, 4360 (7.3%) of babies weighed less than 2500g at birth—876 (1.5%) babies weighed less than 1500g. Aboriginal and Torres Strait Islander infants were more likely to be low birthweight than other Queensland infants (12% compared with 6.8%) and accounted for one in nine low birthweight babies.<sup>119</sup>

**High birthweight:** 5872 (9.7%) of babies weighed 4000g or more at birth in 2018. The proportion was 9.2% and 9.7% in Aboriginal and Torres Strait Islander and other Queensland infants respectively.<sup>119</sup>

**Infant deaths:** There were 402 stillborn infants in 2018, and a further 191 who died in the first 28 days, for a total of 593 perinatal deaths and a rate of 9.4 deaths per 1000 births. Of the stillbirths, the time of death was before labour commenced in 83% of cases and 10% occurred during labour but before delivery.<sup>119</sup>

### Breastfeeding

In 2018, 94% of newborns had been breastfed at some stage between birth and discharge from hospital.<sup>119</sup> Seventy-six per cent had been breastfed only and 6% had not received any breastmilk. There has been no marked change in exclusive breastfeeding of infants up to discharge since 2014.

Women at highest risk of not meeting breastfeeding recommendations are those who are daily smokers, aged less than 25 years, Aboriginal and Torres Strait Islander, culturally and linguistically diverse, those with the lowest education levels, experienced significant disadvantage or who had a preterm birth, caesarean or other birth complication.<sup>132</sup> Nationally in 2014–15, only 25% of children aged 6–24 months of age had been exclusively breastfed until six months of age. The 2014–15 National Aboriginal and Torres Strait Islander Social Survey reported 7% of infants had been exclusively breastfed to six months.<sup>132</sup>

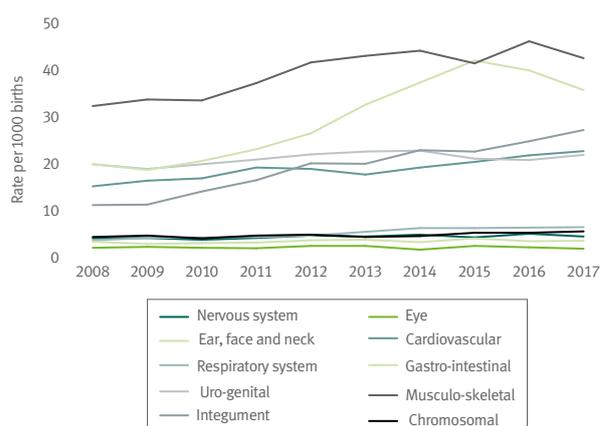
### Congenital anomalies

Congenital anomalies (CAs) represent one of the main causes of foetal death, infant mortality and morbidity, and long-term disabilities. In 2017, there were 10,374 CAs reported in Queensland.<sup>133</sup> The annual number of cases reported has increased progressively since 2008 when there were 7096 cases reported (Figure 3.18). The reasons for some of the trends shown are unclear and should be interpreted cautiously as they may reflect improved diagnosis and reporting systems over that time. However, increases in congenital heart defects have been observed in Europe and are thought to be related to the increases in maternal obesity and diabetes.<sup>134</sup>



The causes of CAs are thought to be complex interactions between genes and environment. Reviews of the risk factors for CAs have identified links between maternal and paternal smoking and alcohol use, folic acid deficiency, obesity, uncontrolled maternal diabetes mellitus, uncontrolled maternal phenylketonuria, monozygotic twins, advanced maternal age and some medications.<sup>135,136</sup> The evidence was less strong for illicit drug use, advanced paternal age, radiation exposure, air pollution and exposures to other environmental toxins and contaminants.

Figure 3.18 Congenital anomalies, Queensland, 2008–2017<sup>133</sup>



## Hearing screening

Optimal hearing from birth is essential to child development and hearing problems have long-term educational, social and financial implications for the child, their family and society generally. The Queensland Healthy Hearing Program offers free newborn hearing screening to all babies born in public and private Queensland hospitals. Infants identified in the screening as needing ongoing care are referred to paediatric audiology clinics across Queensland. More than 99% of newborns are screened through the program.

A Queensland study of three tertiary maternity hospitals reported that, of 28,286 infants screened, 347 (1.2%) were referred for ongoing follow-up.<sup>137</sup> In the 2017–18 period, 59,082 newborns were screened by Children’s Health Queensland’s Health Hearing Program and hearing loss was diagnosed in 147 (2.4 per 1000) babies.<sup>138</sup> Risk factors are not identified in approximately 50% of cases of hearing impairment at birth.<sup>139</sup>

## Fetal alcohol spectrum disorder

FASD is a diagnostic term used to describe impacts on the brain and body of individuals prenatally exposed to alcohol. FASD is a lifelong disability. The prevalence of FASD in Australia is difficult to determine due to several factors, including a lack of routine assessment and screening for maternal alcohol use and FASD. State and Territory data suggest rates of 0.01 to 0.68 per 1000 births in the total population.<sup>140</sup> Other estimates suggest 2% of all Australian babies may be born with some form of FASD.<sup>141</sup>



Queensland Health Asset Library

Among Aboriginal and Torres Strait Islander babies nationally, the incidence of FASD may range from 1.9 to 4.7 per 1000 births.<sup>140</sup> In 2017, there were 51 births (67% Aboriginal and Torres Strait Islander) in Queensland in which FASD was identified for an overall rate of 0.1 per 1000 births (0.9 per 1000 for Aboriginal and Torres Strait Islander births).<sup>133</sup> In 2018, the *National Fetal Alcohol Spectrum Disorder Strategic Action Plan 2018–2028*<sup>142</sup> was released. It was developed to provide a clear pathway of priorities and opportunities to improve the prevention, diagnosis, support and management of FASD in Australia.

## Chronic conditions

Chronic conditions are diseases and disabilities that have lasted, or are expected to last, more than six months. They result in complex health needs, reduced quality of life and premature mortality.<sup>125</sup> Many are the consequences of lifestyle factors and social determinants of health. The proportion of a population with chronic conditions increases with age, as does the complexity of the condition and many people have more than one condition (termed comorbidities or multimorbidity).

Globally, chronic diseases are replacing communicable diseases as the predominant causes of death with a 40% increase in chronic disease deaths from 2007 to 2017.<sup>91</sup>

Prevalence estimates in this section are from the Australian National Health Survey (NHS) 2017–18<sup>125</sup> and the National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) 2018–19<sup>71</sup> which are self-report surveys. Remote areas or people not living in private dwellings are not included in the NHS. NATSIHS results are not compared with those from the NHS due to different methodologies and to maintain consistency with the goals and approach of the NATSIHS—a focus on the health and wellbeing of Aboriginal and Torres Strait Islander people.

## At a glance

### Chronic conditions

77% of Australians have one or more long-term health condition

Prevalence of chronic conditions is highest in the most disadvantaged of the population

The prevalence of mental health/behavioural conditions has doubled since 2001

In 2018–19, 63% of Aboriginal and Torres Strait Islander people living in Queensland reported having one or more long-term health condition



Queensland Health Asset Library

Prevalence data for chronic conditions included any long-term health condition and a subset referred to as ‘selected chronic conditions’. Selected chronic conditions include arthritis, asthma, back problems, cancer, COPD, diabetes, hay fever and allergic rhinitis, heart, stroke and vascular disease, hypertension, kidney disease, mental and behavioural conditions and osteoporosis.

### Overall

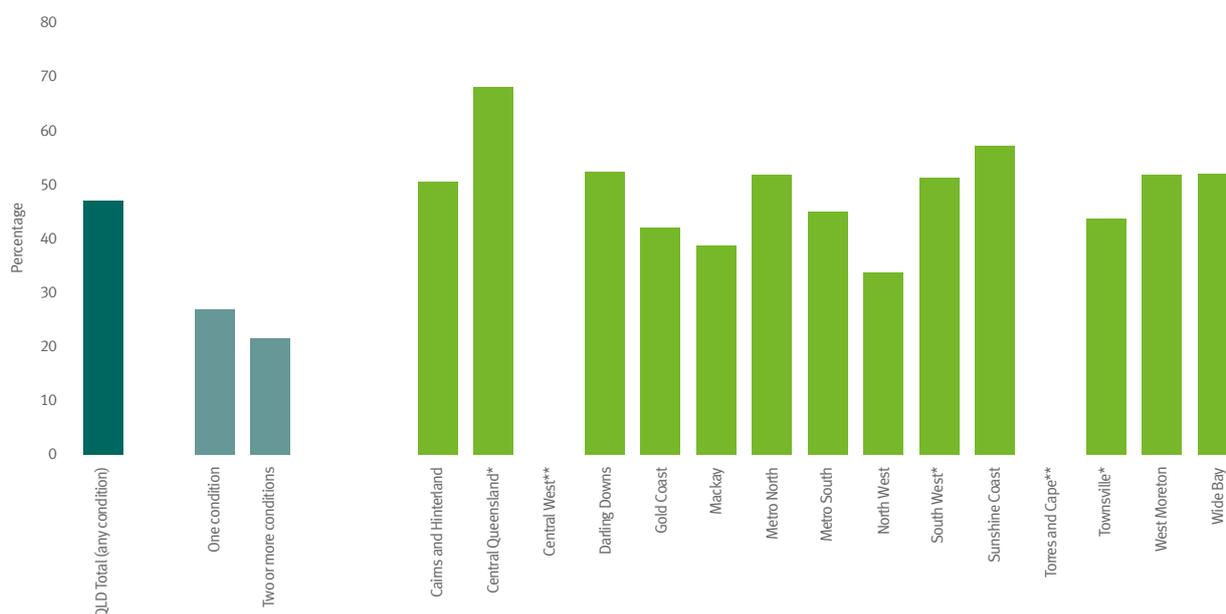
In 2017–18, 77% of Australians reported having at least one long-term health condition and 58% reported having more than one.<sup>125</sup>

- Almost half (47%) of Queenslanders reported they had one or more of the selected chronic conditions (20% had more than one), an increase from 43% in 2007–08 (Figure 3.19).<sup>125</sup>
- Chronic conditions of the eye and adnexa were among the top three long-term health conditions across all age groups (Table 3.19).
- Queensland had significantly higher prevalence of chronic obstructive pulmonary disease (COPD) (3.4% compared with 2.5%) and mental and behavioural conditions (23% compared with 20%) compared with Australia. All other conditions were comparable to the national prevalence.
- Eye, respiratory and musculoskeletal/connective tissue conditions were the top three conditions for both males and females although prevalence differed by sex within several disease categories (Table 3.19).

Trends in selected chronic conditions from 2001 to 2017–18 are presented in Figure 3.20.<sup>125</sup>

- The most notable increase was for mental and behavioural conditions (2.5 times higher in 2017–18 compared to 2001).
- The prevalence of back pain declined from approximately 23% to 13% from 2001 to 2011–12, however, rose again to 16% in 2014–15 and did not change in 2017–18.
- The prevalence of arthritis declined from 14% to 12% over the same time period.

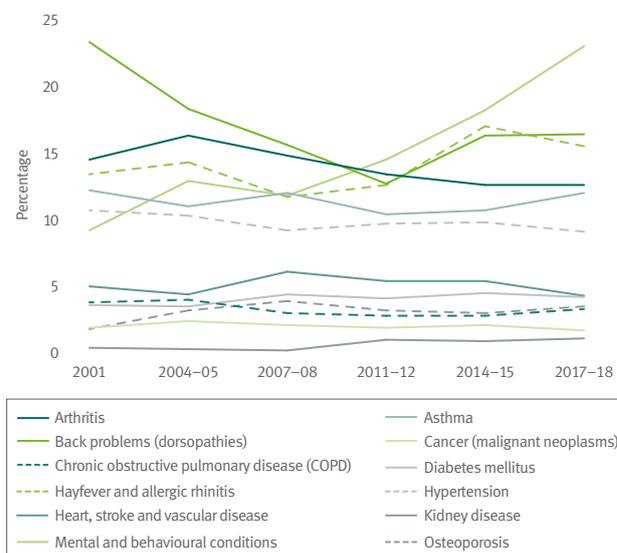
**Figure 3.19** Prevalence of one or more selected chronic conditions, Queensland, 2017–18<sup>125</sup>



\* Data have a high margin of error and should be interpreted with caution \*\* Prevalence is less than 0.0

- There was no meaningful change in the prevalence of other conditions.

**Figure 3.20** Trends in selected chronic conditions,<sup>1</sup> Queensland, 2001 to 2017–18<sup>125</sup>



#### 1 Age-standardised prevalence

Across most of the specific conditions in Figure 3.20, prevalence was higher in those who had not completed Year 12 compared to those with a Bachelor degree, had severe disabilities, were from the most disadvantaged areas compared to the most advantaged and were not in the labour force compared to those who were employed (Table 3.20).<sup>125</sup>

Prevalence was similar between those in outer regional/remote areas to those in major cities. The prevalences of asthma, cancer and mental and behavioural conditions in people born overseas (6.6%, 0.8% and 15% respectively) were almost half that of those who were Australian-born (13.4%, 1.9% and 25% respectively).

**Table 3.19 Prevalence (%) of self-reported long-term conditions by age group and sex, Queensland, 2017–18**  
(Top 3 in each age group and sex are in bold)<sup>125</sup>

	Age group (years)					Sex		
	0–24	25–44	45–64	65–74	75+	Males	Females	Persons
<b>Certain infectious and parasitic diseases</b>	*0.2	*0.6	0.9	0.0	0.0	0.4	0.6	0.6
<b>Neoplasms</b>								
Malignant neoplasms (cancer)	0.0	*0.3	2.0	3.8	10.4	2.0	1.3	1.6
Total neoplasms	*0.3	*0.6	2.3	5.2	11.4	2.2	1.7	2.0
<b>Diseases of the blood and blood forming organs</b>								
Anaemias	1.0	2.7	1.9	2.3	4.4	0.6	3.3	2.0
Total diseases of the blood and blood forming organs	1.0	2.8	2.2	3.0	4.8	1.0	3.7	2.4
<b>Endocrine, nutritional and metabolic diseases</b>								
Disorders of thyroid gland	*0.2	3.0	6.9	10.3	10.0	1.2	7.0	4.1
Diabetes mellitus	*0.3	1.5	7.4	12.2	17.2	5.1	4.0	4.5
High cholesterol	0.3	1.1	8.9	18.5	22.3	5.6	5.2	5.4
Total endocrine, nutritional and metabolic diseases	1.8	6.3	20.1	34.6	39.7	10.9	14.4	12.7
<b>Mental and behavioural problems</b>								
Alcohol and drug problems	*0.6	1.9	2.2	1.8	*0.8	2.0	0.9	1.4
Total mood (affective) problems	7.5	14.2	17.9	15.9	9.9	11.7	13.7	12.8
Total anxiety related problems	14.5	16.2	18.1	14.7	9.1	13.0	17.9	15.6
Total mental and behavioural problems	<b>19.5</b>	<b>24.1</b>	26.5	22.9	16.9	21.2	24.3	22.7
<b>Diseases of the nervous system</b>								
Migraine	2.9	8.8	8.5	3.8	2.4	3.6	8.3	6.1
Total diseases of the nervous system	3.6	9.6	11.0	6.7	4.0	5.0	9.6	7.5
<b>Diseases of the eye and adnexa</b>								
Cataract	0.0	0.0	1.7	5.7	10.2	1.2	2.0	1.7
Glaucoma	0.0	0.0	1.4	2.4	2.6	0.5	1.1	0.9
Short sighted/myopia	10.6	22.7	39.5	47.4	44.5	22.1	30.4	26.4
Long sighted/hyperopia	9.9	15.9	60.6	68.6	65.6	30.2	35.2	32.7
Other disorders of ocular muscles binocular	4.4	9.7	10.9	12.9	15.4	7.9	9.6	8.9
Total diseases of the eye and adnexa	<b>22.7</b>	<b>43.6</b>	<b>86.9</b>	<b>93.0</b>	<b>92.5</b>	<b>50.5</b>	<b>58.9</b>	<b>54.8</b>
<b>Diseases of the ear and mastoid</b>								
Deafness (complete and partial)	3.1	5.6	16.4	27.9	44.1	15.9	7.6	11.7
Total diseases of the ear and mastoid	3.7	9.5	22.3	34.6	47.9	19.7	11.0	15.4
<b>Diseases of the circulatory system</b>								
Heart attack and other ischaemic heart diseases	0.0	0.0	2.9	6.5	7.8	2.0	1.5	1.8
Stroke and other cerebrovascular diseases	0.0	*0.3	1.4	3.5	8.2	1.3	1.3	1.3
Hypertension	0.3	2.0	15.0	34.3	44.7	9.6	10.7	10.1
Total diseases of the circulatory system	1.9	5.9	24.1	<b>51.0</b>	<b>62.0</b>	15.5	17.2	16.4
<b>Diseases of the respiratory system</b>								
Chronic obstructive pulmonary disorder	1.0	2.1	4.7	9.3	7.5	3.2	3.5	3.4
Asthma	12.0	11.5	12.8	11.1	14.1	11.0	12.9	11.9
Hayfever and allergic rhinitis	11.0	18.3	16.4	17.7	14.5	13.8	16.8	15.3
Chronic sinusitis	4.6	10.4	14.1	16.8	15.9	8.9	11.4	10.3
Total diseases of respiratory system	<b>23.0</b>	<b>31.3</b>	<b>34.0</b>	37.6	33.7	<b>27.9</b>	<b>31.8</b>	<b>29.9</b>
<b>Diseases of the digestive system</b>								
Stomach/duodenal/gastrointestinal ulcer	*0.3	2.2	4.8	5.0	3.8	2.3	2.6	2.5
Hernia	*0.3	2.1	3.7	7.0	8.2	3.0	2.1	2.6
Total diseases of the digestive system	1.7	5.6	10.1	12.4	15.1	6.5	6.6	6.7
<b>Diseases of the skin and subcutaneous tissue</b>								
Dermatitis and eczema	1.7	0.6	*0.5	0.0	0.0	0.6	1.0	0.9
Psoriasis	1.2	2.6	4.4	3.1	5.2	2.1	3.4	2.8
<b>Diseases of the musculoskeletal system and connective tissue</b>								
Arthritis	*0.3	3.2	24.8	47.1	45.2	11.9	16.4	14.1
Back problems (dorsopathies)	3.9	17.4	26.5	24.2	32.8	17.3	16.3	16.8
Osteoporosis	0.0	*0.3	5.1	12.3	22.1	1.4	5.9	3.8
Total diseases of the musculoskeletal system and connective tissue	5.8	22.9	<b>44.4</b>	<b>62.2</b>	<b>66.0</b>	<b>27.6</b>	<b>29.6</b>	<b>28.6</b>
<b>Diseases of the genito-urinary system</b>								
Kidney disease	0.0	*0.3	1.3	2.6	5.1	0.7	1.2	1.0
Total diseases of the genito-urinary system	0.7	3.1	5.9	7.8	17.2	3.2	5.3	4.3
<b>Congenital malformations, deformations and chromosomal abnormalities</b>	0.9	0.0	*0.4	0.0	*0.5	0.4	0.4	0.4
<b>Symptoms, signs and conditions nec</b>								
Allergy	12.3	13.0	16.2	17.9	17.8	12.2	16.5	14.3
Total symptoms, signs and conditions nec	14.0	16.2	21.4	24.7	26.5	16.5	19.9	18.3

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

Table 3.20 Prevalence (%) of selected chronic conditions by population characteristics, Queensland, 2017–18<sup>125</sup>

	Arthritis	Asthma	Back problems	Cancer	COPD	Diabetes	Hayfever/ allergic rhinitis	CVD	Hypertension	Kidney disease	Mental/ behavioural	Osteoporosis
All Queenslanders	14.1	11.9	16.8	1.6	3.4	4.5	15.3	4.7	10.1	1.0	22.7	3.8
<b>Age group (years)</b>												
0–24	*0.3	12.0	3.9	0.0	1.0	*0.3	11.0	*0.3	0.3	0.0	19.5	0.0
25–44	3.2	11.5	17.4	*0.3	2.1	1.5	18.3	0.6	2.0	*0.3	24.1	*0.3
45–64	24.8	12.8	26.5	2.0	4.7	7.4	16.4	7.0	15.0	1.3	26.5	5.1
65–74	47.1	11.1	24.2	3.8	9.3	12.2	17.7	15.3	34.3	2.6	22.9	12.3
75+	45.2	14.1	32.8	10.4	7.5	17.2	14.5	22.9	44.7	5.1	16.9	22.1
<b>Sex</b>												
Male	11.9	11.0	17.3	2.0	3.2	5.1	13.8	5.0	9.6	0.7	21.2	1.4
Female	16.4	12.9	16.3	1.3	3.5	4.0	16.8	4.5	10.7	1.2	24.3	5.9
<b>Country of birth</b>												
Australia	14.0	13.4	17.0	1.9	3.6	4.3	15.0	4.7	9.2	1.1	25.2	3.5
Born overseas	14.6	6.6	16.2	0.8	2.7	5.0	16.2	4.8	12.9	0.8	14.5	4.8
<b>Labour force status</b>												
Employed	10.3	11.1	18.9	0.8	2.4	3.1	17.7	2.2	6.5	0.7	21.5	1.8
Unemployed	7.1	7.2	11.4	0.0	3.7	6.6	20.2	*1.6	3.8	0.0	*4.1	*1.2
Not in the labour force	33.2	15.4	26.4	4.8	7.0	10.6	16.8	13.4	25.3	2.5	30.5	11.0
<b>Socioeconomic status</b>												
Most disadvantaged	17.9	13.6	18.8	2.2	4.6	6.3	14.5	6.0	12.8	1.0	28.2	5.2
Most advantaged	9.4	12.5	13.7	1.5	3.9	3.8	18.8	4.2	9.3	*0.5	19.0	4.0
<b>Remoteness</b>												
Major Cities	13.3	11.9	16.6	1.6	3.2	4.4	15.6	4.7	9.7	0.9	22.7	3.4
Outer Regional and Remote	16.1	11.9	16.7	2.2	3.6	5.4	14.4	5.0	10.7	1.2	20.3	4.8
<b>Household type</b>												
Person living alone	28.6	11.1	24.8	2.9	8.4	10.0	16.9	9.4	20.4	2.2	31.6	7.7
Couple only	27.0	14.2	24.5	3.2	5.3	6.6	17.8	10.9	20.2	2.3	19.6	8.5
Couple with dependent children	2.7	9.6	10.8	*0.4	1.0	1.4	13.5	0.7	2.7	*0.2	16.1	0.7
One parent with dependent children	5.7	16.7	11.2	0.0	*2.0	*0.7	16.8	2.1	3.2	*0.6	29.0	*0.8
<b>Highest educational attainment</b>												
Postgraduate degree	8.3	8.2	17.0	0.0	2.4	4.5	14.3	*1.0	7.5	0.0	17.1	6.0
Bachelor degree	10.6	10.4	17.4	*1.0	2.3	5.0	21.2	4.3	7.8	1.1	16.7	3.9
Year 12 or equivalent	10.1	11.6	16.3	*0.6	2.3	3.5	16.5	2.7	6.7	*0.3	25.8	1.3
Year 10 or equivalent or below	30.4	13.2	26.0	3.4	7.2	10.9	13.9	12.2	24.4	2.8	30.4	8.8
<b>Disability status</b>												
Profound or severe core activity limitation	43.9	20.4	34.1	5.7	7.4	15.6	16.5	22.2	27.0	3.8	58.6	15.8
Other disability or restrictive long-term health condition	35.2	18.0	37.1	3.6	9.3	9.6	20.0	12.1	22.5	2.6	49.1	9.6

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

## Aboriginal and Torres Strait Islander people

In 2018–19, 63% of Aboriginal and Torres Strait Islander people reported having one or more long-term health condition compared to 65% in 2012–13.<sup>71</sup> The Queensland prevalence was the third lowest among the jurisdictions—nationally it was 67%. Prevalence was higher in non-remote areas (64%) compared to remote areas (58%) and in females (65%) than males (61%). Forty-six per cent reported having two or more conditions.

For selected chronic conditions (Table 3.21)<sup>71</sup>:

- 41% of participants reported having one or more selected chronic conditions
- 16% reported two or more selected conditions
- more people from non-remote areas (43%) reported selected chronic conditions than those in remote areas (31%) which may be due to factors such as access to health services and diagnosis of diseases, cultural factors and, potentially, health literacy.

**Table 3.21 Selected chronic conditions,<sup>1</sup> Aboriginal and Torres Strait Islander people, Queensland, 2018–19<sup>71</sup>**

	Males	Females	Non-Remote	Remote	Total
Arthritis	6.2	11.8	9.5	5.3	9.1
Asthma	11.5	15.4	14.7	9.0	13.7
Allergies	10.8	10.2	11.1	4.8	10.3
Back problems	10.1	12.2	11.5	8.8	11.1
COPD	2.2	3.2	3.3	1.3	2.7
Diabetes	8.9	9.4	8.4	11.9	9.0
Ear/hearing problems	15.7	13.5	14.2	13.3	14.2
Eye/sight problems	32.4	41.2	37.5	32.6	36.8
CVD	5.3	5.0	5.5	2.9	5.2
Hypertension	8.5	8.9	8.3	10.9	8.8
Mental/behavioural	19.0	21.8	23.0	8.0	20.0
One or more condition	39.1	42.5	42.9	31.0	41.2

1 Proportion of persons

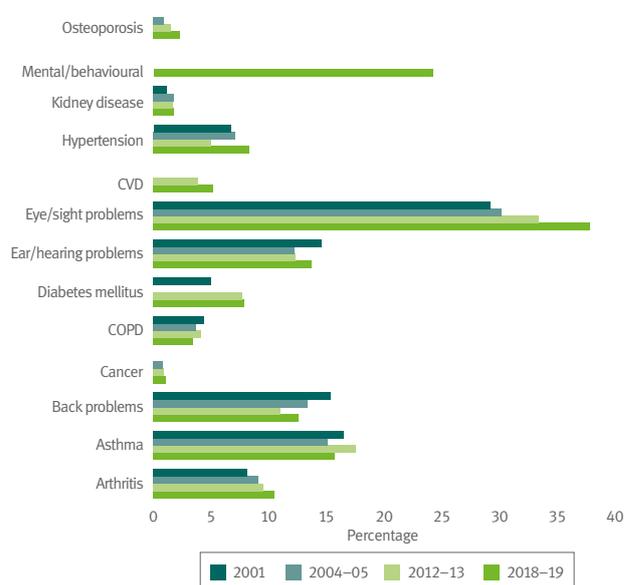
Nationally, trends in selected conditions are presented in Figure 3.21. Mental and behavioural conditions were only collected in the 2018–19 survey. Notable increases from 2001 to 2018–19 include a<sup>71</sup>:

- 159% increase in osteoporosis (from 2004–05)
- 58% increase in diabetes
- 50% increase in kidney disease
- 33% increase in cardiovascular disease (from 2012–13)
- 30% increase in arthritis
- 29% increase in eye/sight problems
- 24% increase in hypertension.

Some of these increases are potentially due to the ageing of Aboriginal and Torres Strait Islander people as life expectancy increases as well as improved access to healthcare, population screening and diagnosis. Other potential causes include the continued high rates of smoking, unhealthy diets and mental health/psychological stress in Aboriginal and Torres Strait Islander people.

**From 2001 to 2018–19 there was a 23% decline in COPD experienced by Aboriginal and Torres Strait Islander people nationally.**

**Figure 3.21 Trends in selected chronic conditions in Aboriginal and Torres Strait Islander people, Australia, 2001 to 2018–19**



1 Data on mental and behavioural conditions not available prior to 2018–19

2 Data on cancer by remoteness not reliable prior to 2018–19

3 Data on cardiovascular disease (CVD) not available prior to 2012–13

4 Data on osteoporosis for 2001 not publishable and not reliable for remote areas prior to 2018–19

## Spotlights

This section features examples of chronic conditions that demonstrate relationships between chronic disease, lifestyle risk factors, and overall health. They are not necessarily current government priorities or considered more or less important than other chronic conditions. While the number of people affected varies by condition, all have significant long-term individual or population health consequences. The condition or its effects often disproportionately affect some communities more than others.



Andrea Piacquadio - Pexels

### Sleep disorders

Inadequate sleep is a known risk factor for, and consequence of, poor health, including the development of many chronic conditions. Several sleep disorders are highly prevalent chronic conditions, for example, obstructive sleep apnoea (OSA). Sleep deprivation negatively affects our familial and social relationships and interactions, our ability to undertake healthy lifestyle behaviours, results in substantial loss of productivity and drowsiness is a significant issue in road safety.<sup>143</sup> In children, longer sleep duration is associated with better body composition, emotional regulation, and growth in children aged 0–4 years.<sup>144</sup> Shorter sleep duration is associated with longer screen time use, poor school performance, more injuries and is more prevalent in lower socioeconomic groups.<sup>144</sup>

In the 2016 Sleep Health Foundation national survey<sup>143</sup>:

- OSA was reported by 8%, significant insomnia by 20%, and restless legs by 18% of adults.

It is estimated that sleep disorders affect 30–40% of infants and before school-age children.<sup>145</sup> Paediatric sleep disorders include teeth grinding, (6–10%), sleep terrors (0.7–2.0%) and sleep walking (up to 7%). Snoring and OSA are common, affecting 3–15% of children, with peak prevalence in the preschool years.<sup>145</sup> Behavioural sleep problems in children are thought to be even more common. These include a child not getting into bed, having difficulty or requiring undue help to settle to sleep, frequent waking in the night and/or getting out of bed, and very early morning awakenings.

**More than one third of Australian adults are not getting adequate sleep.**

Multiple modifiable risk factors for sleep disorders have been identified in children, young people, adults and older people.<sup>146</sup> These include diet, lack of physical activity, overweight and obesity, alcohol and tobacco use, caffeine consumption, home environments, screen time and anxiety and other mental health problems. Australia's world-first national parliamentary enquiry into sleep health in 2019<sup>147</sup> endorsed placing sleep as the third pillar of health alongside diet and exercise.

### Endometriosis

Endometriosis is a chronic inflammatory condition in women that occurs when tissue like the lining of the uterus is found in other parts of the body such as the ovaries, fallopian tubes and the lining of the pelvic cavities.<sup>148</sup> Hormone-induced bleeding of these tissues leads to inflammation and scarring which cause adhesions between pelvic organs. It is estimated that endometriosis cost approximately \$7.4 billion in Australia in 2017–18 mostly through reduced quality of life and lost productivity.<sup>148</sup> It is an important cause of infertility with estimates suggesting between 25–50% of women who are infertile have endometriosis.<sup>148</sup> The risk of incident infertility in women aged less than 35 years is twice as high in those with endometriosis compared to those without.<sup>149</sup> Endometriosis is often associated with decreased social and economic participation, comorbidities and progression to chronic pelvic pain,<sup>150</sup> as well as an increased risk of some ovarian cancers.<sup>151</sup>

The Australian Longitudinal Study on Women's Health found that approximately 11% of women born from 1973 to 1978 were diagnosed with endometriosis by age 40–44.<sup>152</sup> Of those born from 1989 to 1995, 6.6% had been diagnosed by age 25–29. The average delay between onset of disease and diagnosis is estimated to be seven to 12 years.

A greater risk of endometriosis has been consistently reported for early age at menarche, short menstrual cycle length, and lean-type BMI, whereas a lower risk has been consistently associated with greater parity.<sup>151</sup> Conflicting results have been observed for physical activity in childhood and adulthood, dietary factors, environmental toxins, lactation, nightshift work and cigarette smoking.<sup>151</sup>

The *National Action Plan for Endometriosis*<sup>150</sup> was launched in 2018 to improve the treatment, understanding and awareness of endometriosis.



Queensland Health Asset Library

### Rheumatoid arthritis

Rheumatoid arthritis (RA) is a disabling autoimmune disease characterised by inflammation of the joints causing pain, swelling, stiffness and loss of function in the joints. RA is more common in women (1.5 times higher than men) and people aged 75 years or older (estimated prevalence of 6.6% in 2017–18) although onset of disease can occur early in life.<sup>125</sup> In 2017–18, 1.9% (about 458,000) Australians reported RA and it represented 13% of arthritic conditions.<sup>125</sup> People with RA were more than five times likelier to report poor self-assessed health status and 2.5 times more likely to experience very high levels of psychological distress than people without RA.<sup>125</sup> The Global Burden of Disease study estimated the prevalence of RA in Australia to be between 250–275 per 100,000 population with an age-standardised incidence of 15.0–17.5 per 100,000 population in 2017.<sup>153</sup> In Australia, age-standardised hospitalisation rates for RA increased from 32 to 49 per 100,000 from 2006–07 to 2016–17.<sup>153</sup>

Genetic factors contribute to about 50–60% of the risk of developing RA, however, smoking has been clearly identified as an important behavioural risk factor.<sup>154</sup> While the level of evidence is less clear, other environmental risks are thought to include particulate exposure, periodontal disease, bronchiectasis, diet, obesity and the oral contraceptive impact on respiratory, oral, intestinal and genital tract mucosal sites.<sup>155</sup>

### Non-cystic fibrosis bronchiectasis

Bronchiectasis (BE) unrelated to cystic fibrosis is the abnormal widening of the airways in the lungs usually caused by damage to the airway walls. It is characterised by a persistent cough with excess amounts of mucus and, often, airflow obstruction.<sup>156</sup> Recurrent exacerbations (flare-ups) result in declining lung function and, if not appropriately managed, premature mortality. Multimorbidity is frequent in BE, further affecting survival.<sup>157</sup> BE is increasingly recognised internationally as a disease of importance in both children and adults and the risk is highest those who experience socioeconomic disadvantage, including Aboriginal and Torres Strait Islander people. BE hospitalisations are considered potentially preventable.<sup>110</sup>

There is little prevalence information for BE in Australia. Nationally, the hospitalisation rate for BE as a principal diagnosis increased steadily from 2008–09 to 2017–18 (from 20 to 27 per 100,000 population respectively).<sup>158</sup> BE hospitalisation rates in Queensland from 2008–09 to 2018–19 by age group, sex and Aboriginal and Torres Strait Islander status are presented in the Appendix (Table A24).

- The average length of stay in hospital when BE was recorded as a principal diagnosis was 6.1 days compared to 2.8 days for all hospitalisations.
- In 2018, there were 983 deaths in Australia where BE was recorded as the underlying (387) or associated (596) cause of death.<sup>158</sup>
- Aboriginal and Torres Strait Islander people in remote areas have among the highest reported rates of BE worldwide.<sup>159</sup>
- The estimated direct cost of a paediatric BE hospitalisation in Queensland in 2016 dollars was AUD \$30,182 per hospitalisation which excludes indirect costs such as time off work for parents/carers.<sup>160</sup>

Recurrent respiratory infections in infancy, post-infectious progression to chronic cough (including vaccine-preventable respiratory infections), smoking, obesity, asthma, chronic rhinosinusitis, gastro-oesophageal reflux, neurodevelopmental disorders and immune deficiencies are identified risk factors.<sup>161</sup> Risk factors for chronic cough and recurrent respiratory infections in Queensland children include low birthweight, early gestational age, being aged less than 12 months, low income, the presence of eczema, childcare and being born premature.<sup>162-164</sup>

To improve our understanding of bronchiectasis, the Australian Bronchiectasis Registry was established in 2016 by respiratory specialists in collaboration with The Lung Foundation Australia.<sup>165</sup>

### Dementia

Dementia describes a group of similar conditions characterised by gradual impairment of brain function. In 2017 it was the second leading cause of death in Australians and the fourth leading cause of DALYs in 2015.<sup>82,166</sup> In 2018, dementia was estimated to cost Australia more than \$15 billion and 1.6 million people were involved in the care of someone with dementia.<sup>167</sup> The estimated number of persons in Queensland living with dementia has risen from 54,700 people in 2011 to 87,700 in 2020.<sup>168</sup> In 2020, there were an estimated 5520 people living with younger onset (less than 65 years of age) dementia in Queensland and, in the absence of a medical breakthrough, the number of people living with younger onset dementia is expected to increase to an estimated 5820 people by 2028 and 7360 people by 2058.<sup>168</sup> Hospitalisations are frequent and vary by geographical location and socioeconomic status (Table 3.23). Seventy-one per cent are of the highest clinical complexity with an average of eight comorbid conditions recorded.

There is some evidence that people from certain ethnic communities are at higher risk of dementia than others.<sup>169-171</sup> For example, South Asian people seem to develop dementia, particularly vascular dementia, more often than white Europeans. People from South Asia are well known to be at a higher risk of stroke, heart disease and diabetes, and this is thought to explain the higher dementia risk. These effects in South Asian people are thought to be related to a mix of differences in diet, smoking, exercise and genes.



**Table 3.23 Dementia hospitalisations by remoteness and socioeconomic area, Australia, 2016–17<sup>172</sup>**

Remoteness	%	Rate <sup>1</sup>
Major cities	71	327
Inner/outer regional	28	283
Remote/very remote	1	348
Socioeconomic area		
Most disadvantaged	23	323
Quintile 2	22	309
Quintile 3	20	325
Quintile 4	18	314
Most advantaged	17	296

<sup>1</sup> Age-standardised rate per 100,000, standardised to the 2001 Australian population

While non-modifiable risk factors such as age, genetics and family history are important in the development of dementia, several lifestyle factors may reduce or delay the risk of developing dementia. These include physical activity, diet, reducing smoking and alcohol use, sleep patterns, hearing loss, the wearing of ear and head protection in contact sports and early recognition and appropriate management of depression.<sup>173,174</sup>

### Frailty

Frailty is a condition that results from age-related decline in body systems which collectively result in vulnerability to sudden changes in health status that are often triggered by minor stressor events.<sup>175</sup> Pre-frailty is a term used to describe persons with some but not all of the criteria necessary to diagnose frailty. Persons with frailty have higher rates of unplanned hospitalisations and readmissions, falls, delirium and medication-related adverse events. Frailty is growing in importance as a health concern given the ageing population and people living longer with multimorbidity. All older adults are at risk of developing frailty, although risk levels are substantially higher among those who experience comorbidities, low socioeconomic position, poor diet, and sedentary lifestyles.<sup>176</sup>

**Frail patients aged 80 years or older are more than twice as likely to die in hospital than their non-frail counterparts.<sup>177</sup>**

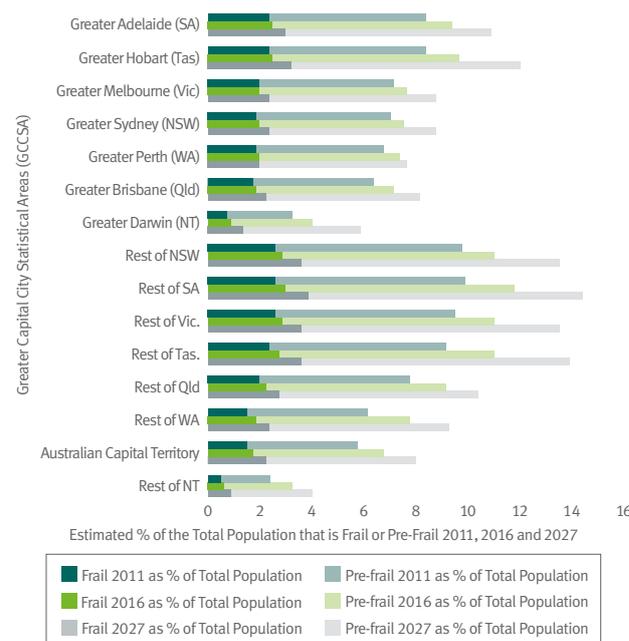
In 2016, it was estimated that approximately 415,769 people in Australia aged 65 years or more were frail and almost 1.7 million people were pre-frail.<sup>178</sup> By 2027, these numbers were expected to reach 609,306 frail and 2,248,977 pre-frail if the current prevalence continues.<sup>179</sup> The fastest growth in the prevalence of frailty was estimated to be in outer metropolitan, regional and remote areas.

In Queensland in 2016, the prevalence of frailty in those aged 65 years and older living the greater Brisbane region was estimated to be 1.5% and 5.7% were pre-frail (Figure 3.22).<sup>178</sup> The prevalence of frailty in this age group in 2027 is estimated

to be 1.8% with pre-fail to rise to 6.5%. For those in the rest of Queensland, the prevalence of frailty in 2016 was 1.8% rising to 2.2% in 2027 and for pre-frailty, the corresponding prevalences were 7.3% and 8.3% respectively.<sup>178</sup> A study of 592 older people, median age 88 years, living in 10 aged care facilities in Queensland reported a prevalence of frailty of 44% and pre-frailty of 46%.<sup>180</sup>

A statewide project was launched in 2018 to improve the care of frail older people in Queensland hospitals.<sup>181</sup>

**Figure 3.22 Estimates of frailty prevalence, Australia, 2011, 2016 and 2027<sup>178</sup>**



The increase in frail, older patients presenting to Queensland Health facilities poses a significant challenge to providing appropriate and safe care. As the demand for healthcare will continue to rise within a constrained fiscal environment, the need for alternate models of cost-effective care must be implemented and optimised.

A collaboration with consumers, clinicians, partners across the care continuum and health system leaders from across Queensland has resulted in system-wide improvements through the scaling of models of care for frailty across Queensland throughout 2019–2020. These models focus on:

- support for Residential Aged Care Facilities (RACFs) through partnering with RACFs to increase choice of care locations for residents and improve the quality and safety of care provided across the care continuum
- front loading frailty assessment, prioritising care needs and fast tracking frail older persons through the emergency department
- introducing interactive programs into inpatient wards to maintain functional activity and reduce complications like delirium and deconditioning resulting in increased discharge back to patients’ homes.

## Cancer

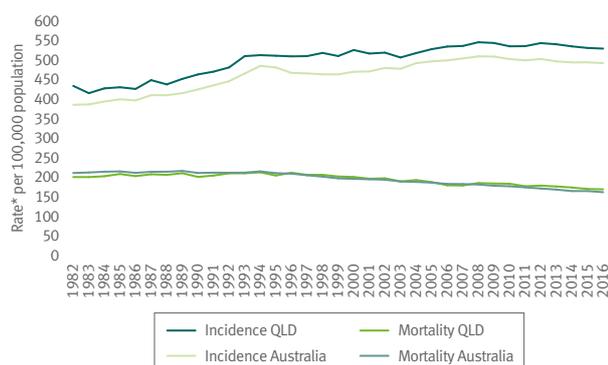
Cancer is a group of diseases that are due to abnormal growth of cells in any part of the body that invade adjoining parts of the body and/or spread to other parts of the body (metastasis). At the end of 2016, there were an estimated 1,128,106 people alive in Australia who had been diagnosed with cancer since 1982.<sup>182</sup>

Cancer does not discriminate and affects people from all ages and backgrounds worldwide. Globally, cancers are the second leading cause of death and make a major contribution to burden of disease through years of life lost.<sup>91</sup> For many cancers, particularly breast cancer, improvements in early diagnosis and treatment in countries with advanced healthcare systems such as Australia, have resulted in more people surviving cancer and having improved quality of life while they have a cancer diagnosis. Nationally since 2000, colorectal cancer incidence and lung cancer mortality rates have declined more than any of the other cancers.<sup>182</sup> However, in order of ranking, lung, colorectal, pancreatic, prostate and breast cancer remain the leading causes of cancer-related deaths (all ages combined) in Australia.<sup>182</sup>

Between 30–50% of cancers are considered preventable.<sup>183</sup> Smoking, poor diet, physical inactivity, alcohol use, infections (particularly *Helicobacter pylori*, hepatitis B and C, human papillomavirus and Epstein-Barr virus), environmental pollution, radiation (solar or UV radiation) and occupational carcinogens (for example, asbestos) are important preventable causes.

**Cervical cancer may be eliminated in Australia in 20 years if current vaccine and screening coverage is maintained.**

**Figure 3.23** Cancer incidence and mortality, Queensland and Australia, 1982–2016<sup>182</sup>



\*Age-standardised rate

### Overall

In 2017, there were 30,121 new cancer cases reported in Queensland, an age-standardised rate of 541 per 100,000 persons (Table 3.24).<sup>184</sup> Incidence was higher in males (625 per 100,000 or 16,873 cases) than females (466 per 100,000 or 13,248 cases). By age group, the number and rate of cancers reported in 2017 were<sup>184</sup>:

- 0–14 years: 155 (16 per 100,000)
- 15–29 years: 501 (49 per 100,000)
- 30–44 years: 2017 (204 per 100,000)
- 45–64 years: 9815 (770 per 100,000)
- 65 years and older: 17,633 (2410 per 100,000).

From 2015 to 2017, there was an annual average of 1750 incident cases of cancer in Aboriginal and Torres Strait Islander people living in Queensland. The average annual age-standardised rate was 588 cases per 100,000 persons.<sup>18</sup>

For all Queenslanders, rates were highest in males and in persons aged 65 years and older for all selected cancers affecting both sexes. The highest number of cases and incidence rates were for prostate cancer (12,277 cases) followed by melanoma (11,961 cases).<sup>182</sup> Since 2007, prostate cancer rates have declined from 187 cases per 100,000 in Queensland males and melanoma rates in all Queenslanders have increased progressively from 65 cases per 100,000. Cervical cancer rates have ranged between seven to nine cases per 100,000 females.<sup>182</sup>

Among children aged 0–14 years in 2017, there were 51 diagnoses of leukaemia, 24 central nervous system (CNS) and brain cancers and 11 diagnoses of lymphoma.<sup>184</sup>

Cancer incidence varied by socioeconomic status and HHS however the highest incidence for all cancers combined was in the most disadvantaged and in the Central West HHS.<sup>184</sup>

## At a glance

### Cancer

In 2017, there were 30,121 new cancer cases reported in Queensland, an age-standardised rate of 541 per 100,000 persons

There were 155 cancers diagnosed in children aged 0–14 years in 2017

Among selected cancers, five-year survival is 95% for prostate cancer and 11% for pancreatic cancer



**Table 3.24 Cancer incidence rates,<sup>1</sup> Queensland, 2015–2017<sup>184</sup>**

	All cancers	Prostate	Female breast	Melanoma	Colorectal	Lung	CNS & Brain	Lymphoma	Leukaemia	Pancreas	Cervical
2017 only											
Persons	540.7	150.9	126.0	77.0	58.1	48.6	6.9	24.2	17.4	11.7	8.1
Males	625.4	150.9	–	94.6	66.7	58.2	8.4	28.9	22.6	13.5	–
Females	465.6	–	126.0	61.3	50.2	40.4	5.6	20.0	12.7	10.1	8.1
Average annual rates 2015–2017											
Indigenous	587.7	128.8	121.2	20.5	60.3	98.3	3.3	21.0	14.8	20.0	18.7
Other	531.7	149.2	125.8	72.0	59.6	46.9	7.1	23.3	16.2	11.8	7.8
Most disadvantaged	557.1	140.0	124.0	71.6	62.3	59.8	7.5	22.0	17.2	12.8	9.9
Quintile 2	551.9	149.2	123.6	73.6	63.5	52.0	6.2	22.4	16.5	11.7	9.2
Quintile 3	528.4	144.4	124.2	76.1	58.2	45.6	7.2	23.4	16.6	12.8	8.6
Quintile 4	523.0	154.4	126.3	75.7	57.5	40.6	6.9	24.6	16.6	11.3	6.3
Least disadvantaged	522.7	164.5	132.7	82.6	55.5	33.0	6.9	25.1	14.8	10.7	5.8
Cairns and Hinterland	558.4	170.7	122.1	71.0	58.2	54.6	4.9	21.6	14.6	12.8	7.9
Central Queensland	538.9	150.3	113.6	66.2	67.2	53.5	8.9	24.8	15.4	13.7	7.9
Central West	603.4	205.3	183.4	89.8	70.3	51.7	6.5	30.5	4.1	14.1	4.2
Darling Downs	525.4	153.4	118.6	81.8	61.8	37.4	6.1	21.8	15.6	11.7	10.9
Gold Coast	535.9	141.8	132.6	80.7	58.9	48.5	7.1	21.6	18.6	13.0	10.0
Mackay	533.7	154.4	118.7	68.3	62.7	45.8	6.0	23.3	15.9	10.0	12.9
Metro North	542.3	154.9	133.9	78.5	57.9	45.0	7.2	23.2	16.0	10.6	6.6
Metro South	514.9	132.6	122.6	66.6	57.6	47.2	7.0	24.8	15.5	12.7	7.1
North West	530.6	120.8	98.2	44.5	74.2	73.3	9.1	12.5	17.8	14.2	5.1
South West	506.9	105.2	138.5	62.5	68.1	36.7	13.7	15.7	16.2	11.4	8.3
Sunshine Coast	534.6	159.9	123.7	83.7	58.5	42.7	7.1	25.2	16.4	9.6	8.4
Torres and Cape	587.2	164.4	135.8	36.7	56.7	62.9	5.1	14.8	10.8	22.6	32.8
Townsville	575.9	152.3	125.5	73.7	61.8	53.9	6.6	25.9	18.1	11.5	11.2
West Moreton	544.4	143.7	121.1	78.3	63.9	52.4	5.9	19.1	18.2	13.4	7.0
Wide Bay	580.4	149.9	125.3	86.6	64.2	57.3	8.4	23.3	19.8	14.7	5.7

1 Age-standardised rate per 100,000 population



## Cancer mortality and survival

Mortality and five-year survival vary by cancer type, age and sociodemographic groups. Further, the presence of comorbidities increases the risk of poor survival and death. Detailed survival and mortality statistics for 60 cancers in Australia are available from the AIHW.<sup>182</sup>

In Queensland in 2016, there were 9182 deaths from all cancers combined, a mortality rate of 167 deaths per 100,000 persons.<sup>182</sup> There were 5303 deaths (211 per 100,000) in males and 3879 (132 per 100,000) deaths in females. Cancer mortality rates in Queensland have declined from 203 deaths per 100,000 persons in 2006 but remained higher than the Australian rate overall in 2016 (160 per 100,000). By cancer type, the mortality rates per 100,000 persons for selected cancers in 1996 and 2016 are presented in Table 3.25.

**Table 3.25 Selected cancer mortality rates,<sup>1</sup> Queensland, 1996 and 2016<sup>182</sup>**

	1996	2016
Lung	42.1	31.3
Colorectal	28.5	18.7
Breast	27.6	19.3
Leukaemia <sup>2</sup>	22.4	18.0
Prostate	16.9	12.5
Pancreas	9.7	9.9
Lymphoma	7.8	5.3
Melanoma	5.9	4.5
Brain	5.8	5.4
Cervical	2.1	1.0

1 Age-standardised rate per 100,000 population

2 Data for Leukaemia are for 1997 and 2016

Cancer survival is usually based on the proportion of people with a new diagnosis of cancer that are still alive five years later. Given people with cancer may die of causes other than the cancer, relative survival is a measure that adjusts for mortality that normally occur by various ages in Australia.<sup>182</sup>

From 2012 to 2016, 69.2% of persons on average diagnosed with all cancers combined survived five years after diagnosis (68.2% of males and 70.5% of females).<sup>182</sup> This compares to 50.5% of persons diagnosed from 1987 to 1991. Survival was highest for persons aged 25–29 years (90.8%) and progressively declined as people aged—five-year survival was 39.4% in those aged 85 years and older. Survival for selected cancers by sex is presented in Table 3.26.

**Table 3.26 Five-year survival for selected cancers by sex, Australia, 2012–2016<sup>182</sup>**

	Males (%)	Females (%)	Persons (%)
Prostate	95.4	–	95.4
Melanoma	90.2	94.3	91.9
Breast	84.8	91.1	91.1
Lymphoma	75.4	78.4	76.7
Cervical	–	73.7	73.7
Colorectal	69.6	70.6	70.0
Leukaemia	65.6	68.2	66.7
Brain	21.3	23.5	22.2
Lung	16.0	22.4	18.6
Pancreas	10.5	11.0	10.7

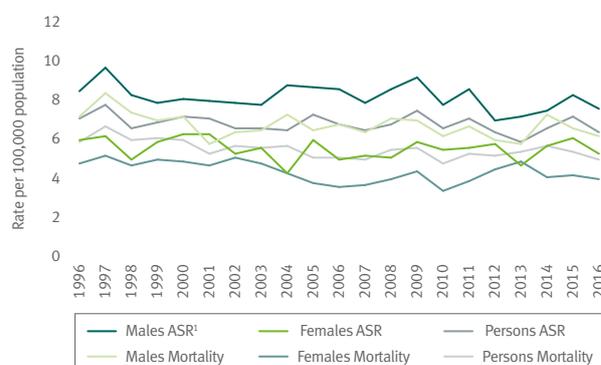
## Spotlights

This section presents some further detail on selected cancers for which there are new initiatives or for which improving survival remains challenging. They are not necessarily current government priorities or considered more or less important than other cancers.

## Brain cancer

Brain cancers are a group of cancers which either start in the brain and almost never spread to other parts of the body or are metastases from cancers that began elsewhere. Brain cancer disproportionately affects young people and it is the second leading cause of cancer and the leading cause of disease-related deaths in children.<sup>116</sup> Survivors of childhood brain cancers experience persistent health concerns across their lifespan.<sup>185</sup> There are no known prevention measures and, for some types of brain cancer, no effective treatments.<sup>186</sup>

Survival from brain cancer has not improved for the past 30 years.<sup>16</sup> In 2020, it is estimated that 1880 new cases of brain cancer will be diagnosed in Australia (1113 males and 767 females) and there will be 1518 deaths (921 males and 597 females).<sup>186</sup> Similar to Australia, there has been no clear trend in brain cancer incidence or mortality over the past 20 years in Queensland (Figure 3.24). Age-standardised rates are consistently higher in males than females.

**Figure 3.24 Brain cancer incidence and mortality, Queensland, 1996–2016<sup>182</sup>**

1 ASR: age-standardised rate per 100,000 population

In 2017, the Australian Government announced the Australian Brain Cancer Mission.<sup>187</sup> The Mission has the goal of doubling survival rates and improving the quality of life of people living with brain cancer over the next decade to 2027, with the longer-term aim of defeating brain cancer. In 2019, Australia's first institution dedicated to brain cancer research in children was established in Queensland.



### Pancreatic cancer

The pancreas secretes enzymes that aid digestion and hormones that help regulate the metabolism of sugars. Pancreatic cancer is often detected late, spreads rapidly and has a poor prognosis. It is the fifth most common cause of cancer death overall. Early-stage pancreatic cancer rarely causes symptoms.<sup>188</sup> This frequently results in the cancer being advanced and spreading to other organs by the time it is diagnosed. Identifying risk factors for pancreatic cancer is complex, however, chronic pancreatitis, alcohol consumption, smoking, dietary sugars, type 2 diabetes and obesity have been linked to increased susceptibility.<sup>189-191</sup> The BRCA1 and BRCA2 genes associated with breast cancer are also linked to pancreatic cancer.<sup>192</sup>

In Queensland in 2017,<sup>184</sup> there were 668 new cases of pancreatic cancer diagnosed, 365 (55%) occurred in males and there were 19 cases in persons aged 15–44 years. Fifty-three cases were reported in Aboriginal and Torres Strait Islander persons. Although the highest age-standardised rates were reported in the Torres and Cape HHS for the period 2015–2017 (Table 3.24), the number of cases diagnosed was seven.

Five-year survival following pancreatic cancer is slowly improving in Australia. For 1987–1991, an average of 3.2% of persons diagnosed survived to five years.<sup>182</sup> This had increased to 10.7% for 2012–2016. The current treatment options for pancreatic cancer are surgery, radiation therapy, chemotherapy, targeted therapy, and immunotherapy.

## Notifiable communicable diseases

Communicable diseases are caused by bacteria, viruses, parasites, fungi, and prions. Depending on the disease, these can be acquired by exposure to infected humans and animals, and contaminated environments.

Communicable diseases have declined in prominence as major causes of disease burden in developed countries globally as a result of various public health interventions such as vaccination programs, sanitation, and improved standards of living. The global burden of antibiotic resistance presents new challenges with respect to treating infections and preventing deaths.<sup>193</sup>

Communicable diseases of public health significance are notifiable by law in Queensland and this section presents the notification rates for selected infections from 2015 to 2019. We also provide summary data for COVID-19 and anti-microbial resistance.

Notifications are known to under-represent the true incidence of communicable diseases as notifications depend on individuals presenting with the disease, having the appropriate tests undertaken to confirm a diagnosis, and the results being reported to Queensland Health. Most notifiable diseases in Queensland are reported from laboratories and it is recognised that Aboriginal and Torres Strait Islander status is often not recorded, therefore, information presented about Aboriginal and Torres Strait Islander people in Queensland is incomplete.

Communicable diseases can result in significant morbidity and mortality, particularly affecting vulnerable groups in the Queensland population such as very young people and those who have underlying chronic conditions.

Communicable disease notifications are available on the [Queensland Health website](#).<sup>194</sup>

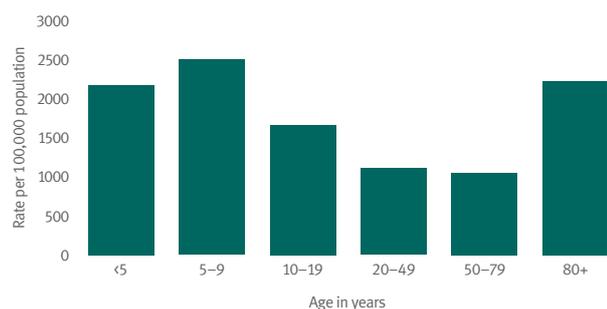
**Notification rates for HIV declined by 24% from 2015 to 2019.**

### Specific diseases

#### Influenza

In 2019, Queensland experienced the highest number of influenza notifications since influenza was made notifiable with 68,152 laboratory-confirmed cases reported.<sup>194</sup> During 2019, there were 3155 influenza-associated public hospital admissions, of which 339 were admitted to intensive care units (ICUs). Of the 2019 hospital admissions, 413 influenza-associated public hospital admissions were in children aged less than five years with 31 of these admitted to ICUs.

**Figure 3.25** Influenza notification rates for all cases notified from 1 January to 31 December 2019, Queensland, by age group<sup>194</sup>



During 2019 influenza notification rates were highest in children aged five to nine years followed by adults aged 85 years and older (Figure 3.25).

Queensland children aged between six months and less than five years are now eligible for free influenza vaccine funded through the National Immunisation Program. Influenza vaccine is also available free of charge for pregnant women, people aged 65 years and older, people aged six months and older with high-risk medical conditions and all Aboriginal and Torres Strait Islander people aged six months and older.

### Measles

During 2019, there were 74 measles cases notified in Queensland, the highest number of notifications in Queensland since 1997.<sup>194</sup> Most cases (66, 89%) were concentrated in South East Queensland and eight cases were reported from North Queensland. People aged 15–29 years made up most of the notified cases with 35 notifications in this group.

Most measles cases notified during 2019 (52, 70%) were acquired in Australia and of these 49 cases were acquired in Queensland. Of the overseas-acquired cases, nine acquired their infection in New Zealand.

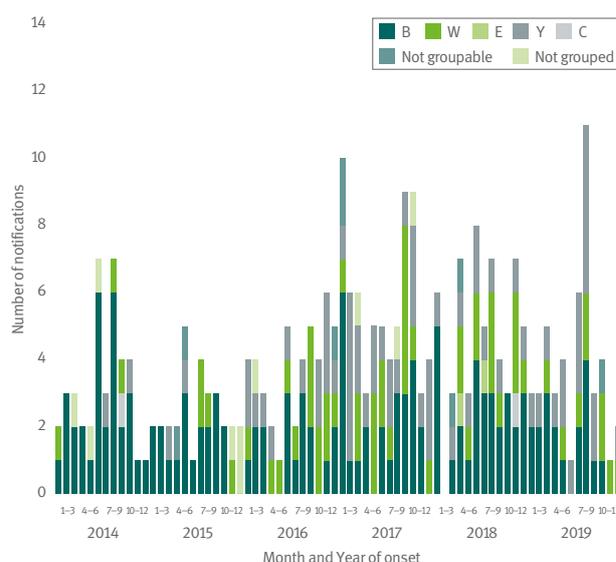
Of the 74 measles cases, almost half (36) were not vaccinated. Of the remainder, 13 were partially vaccinated, 11 cases were fully vaccinated, 11 cases had no documentation of vaccination and three were not eligible for vaccination because of their age (younger than 12 months of age at the time of infection).

### Invasive meningococcal disease

In 2019, there were 46 cases of invasive meningococcal disease, four of whom died. This compares with 58 cases with three deaths in 2018, and 69 cases with eight deaths in 2017.<sup>194</sup>

Of the 46 notifications, 18 cases were serogroup B, 18 cases were serogroup Y, nine cases were serogroup W and one was a clinical notification. Serogroups W and Y are still being notified in Queensland following their emergence in 2014 (Figure 3.26). The highest number of notifications was reported among people 18 years of age and older (30, 65%). Children under the age of five years represented 20% of the cases.

**Figure 3.26** Invasive meningococcal disease notifications by serogroup, Queensland, 2014–2019<sup>194</sup>



## At a glance

### Notifiable communicable diseases

In 2019, 139,622 notifiable diseases were reported to Queensland Health<sup>194</sup>

Infectious syphilis notifications almost doubled from 2015 to 2019 in Queensland with an increase from 11.7 to 22.2 notifications per 100,000 population per year

A cluster of tuberculosis cases was identified during 2018 among predominantly Aboriginal and Torres Strait Islander people in Queensland

Rheumatic heart disease was made notifiable in Queensland in September 2018—422 cases were notified in 2019

In 2019, the number of measles cases notified was highest since 1997 with 74 notifications



## HIV

The number of notified HIV cases in Queensland decreased from 201 cases (4.1 per 100,000 population per year) in 2015 to 157 cases (3.1 per 100,000 population per year) in 2019.<sup>194</sup> This was mainly driven by a 23% reduction of HIV cases in men who have sex with men, the predominant transmission route of HIV in Queensland. Whilst there were small numbers of HIV notifications in Aboriginal and Torres Strait Islander people (increasing from 8 to 20 cases per year during 2015–2019), HIV was over-represented in Aboriginal and Torres Strait Islander people who accounted for 7% of HIV notifications.

## Infectious syphilis

Across Queensland there was a marked increase in infectious syphilis notifications from 572 cases (11.7 per 100,000 population per year) in 2015 to 1132 cases (22.2 per 100,000 population per year) in 2019.<sup>194</sup> This upward trend was largely driven by a 66% increase in cases among Aboriginal and Torres Strait Islander men and women in North Queensland who reported heterosexual sex as their risk exposure, and a 59% increase in non-Aboriginal and Torres Strait Islander cases among men who have sex with men in South East Queensland. Aboriginal and Torres Strait Islander people in Queensland had an infectious syphilis notification rate 8.6 times higher than the rate for other Queenslanders (see the Syphilis Report<sup>195</sup> for details).

## Tuberculosis

Tuberculosis (TB) remains well controlled in Queensland. Notification rates from 2015 to 2019 have ranged from 3.7–4.0 per 100,000 population per year<sup>194</sup> which is very low by global comparison.<sup>196</sup> Most TB cases in Queensland contracted their infection in countries other than Australia. Of 194 TB notifications in Queensland in 2019 and preceding years, most TB cases were seen in those born overseas (85%) and mostly from higher burden TB countries where their infection was likely acquired.

Threats to TB control are presented by multi-drug resistant TB (MDR-TB), TB in disadvantaged groups within our communities, and ongoing transmission in Aboriginal and Torres Strait Islander people in selected geographical areas. In Queensland, TB among Aboriginal and Torres Strait Islander people occurs at significantly higher rates (5.0 per 100,000 per year in 2019) than in Australian born, non-Aboriginal and Torres Strait Islander persons (0.4 per 100,000 per year in 2019).

Whole genome sequencing analysis has refined existing genomic typing techniques and has enabled recognition of a long-standing outbreak of TB predominantly affecting Aboriginal and Torres Strait Islander people with evidence of ongoing transmission. As at 30 June 2020, a total of 40 outbreak cases have been identified since 2002, including 36 laboratory linked cases and four epidemiologically linked cases. Five cases occurred in 2019 and a single case in 2020 at the time of reporting.

Multi-drug resistant TB cases are uncommon making up fewer than 4% of total Queensland TB notifications during 2015–2019. Rapid identification of MDR-TB cases has been possible since the introduction of the GeneXpert MTB/RIF assay in 2010. HIV/TB co-infection remains very uncommon with a five-year average of 2% of TB cases, unlike selected other countries where such occurrence is a major public health challenge.<sup>196</sup>

## Rheumatic heart disease

Rheumatic heart disease (RHD) is a chronic, disabling and sometimes fatal disease that can remain after illness caused by an autoimmune response to a group A streptococcus infection.<sup>197</sup>

Aboriginal and Torres Strait Islander people, particularly those living in rural or remote settings, and those living in urban settings where there is household crowding are known to be at high risk.

RHD became notifiable in Queensland on 1 September 2018. Of the 422 notifications for RHD received during 2019<sup>194</sup>:

- the majority were from the Torres and Cape (32%) and Cairns (31%) HHS
- 64% involved Aboriginal and Torres Strait Islander people
- 72% were for existing diagnoses of RHD.

RHD and Acute Rheumatic Fever are managed through the Queensland RHD Control Program. This incorporates a statewide unit that is based in Cairns and works across Aboriginal Medical Services and HHSs.

## Salmonellosis

Salmonellosis is a gastrointestinal illness caused by the bacterium *Salmonella* of which there are multiple strains. In May 2020, an outbreak of *Salmonella* Typhimurium infections predominantly affecting children was detected. By 8 July 2020, 23 laboratory confirmed cases had been notified in Queensland.<sup>194</sup> Seventeen cases occurred in children aged less than 11 years and six people had been hospitalised. There were a further 10 possible cases (not laboratory confirmed) reported across eight households.

Cases occurred in eight Queensland HHSs and eight interstate cases were also identified in New South Wales (6), the Northern Territory (1) and South Australia (1).

Of the Queensland cases, 22 reported contact with, or handling of, chickens in the week prior to illness and 19 of these had recently purchased one-week old chicks from 14 different produce and pet stores. These stores were supplied chicks from a single poultry farm. Whole genome sequencing of *Salmonella* Typhimurium isolates from humans and those detected at the breeder farm have shown all isolates to be highly related genetically. At the time of this report, investigations were ongoing.

This was the first known outbreak of salmonellosis linked to backyard chickens in Queensland. Backyard poultry can harbour and shed *Salmonella* that cause illness in humans, even though the birds are healthy and clean. The public health advice for owners of backyard poultry includes:

- always wash your hands with soap and running water immediately after touching backyard poultry, their eggs, their enclosures, or anything in the area where they live and roam
- use hand sanitiser if soap and water are not readily available
- adults should always supervise children around poultry and ensure they wash their hands afterwards
- do not let children snuggle or kiss the birds, touch their mouth, or eat or drink around poultry
- do not let poultry inside the house.

### Rockhampton dengue Type 2 outbreak 2019

The first recorded outbreak of dengue in Rockhampton in recent times occurred in 2019 with the first locally-acquired case identified on 23 May 2019. This case had no history of travel to a location with endemic dengue.

An Incident Management Team was established with incident control by the Central Queensland Public Health Unit. Environmental health investigation and mosquito surveillance and control activities were conducted in partnership with the Rockhampton Regional Council. To assist the environmental health response, a Prevention and Control Program was authorised under the *Public Health Act 2005*.

There was a total of 21 cases, 13 confirmed, with eight probable cases notified during the outbreak.<sup>194</sup> Vector control activities included a total of 1935 premise visits and 1874 premise inspections, with 884 premises requiring mosquito control treatment. The outbreak was declared over on 9 October 2019.

### COVID-19

As of 30 September 2020, Queensland had recorded 1157 cases of COVID-19, 4.3% of national cases (27,078). Among the Queensland cases, six died (0.7% of deaths nationally). The age and sex of cases is presented in Table 3.27.



**Table 3.27 Age and sex distribution of COVID-19 cases, Queensland, 2020<sup>198</sup>**

Age (years)	Males	Females	Total
0–9	9	10	19
10–19	24	22	46
20–29	100	156	256
30–39	88	98	186
40–49	90	76	166
50–59	82	78	160
60–69	94	94	188
70–79	65	53	118
80–89	14	4	18

\*As at 30 September 2020

Of the Queensland cases<sup>198</sup>:

- 237 were locally acquired via close contact with a confirmed case
- 41 were locally acquired with no known contact
- 21 were interstate acquired
- 858 were overseas acquired.

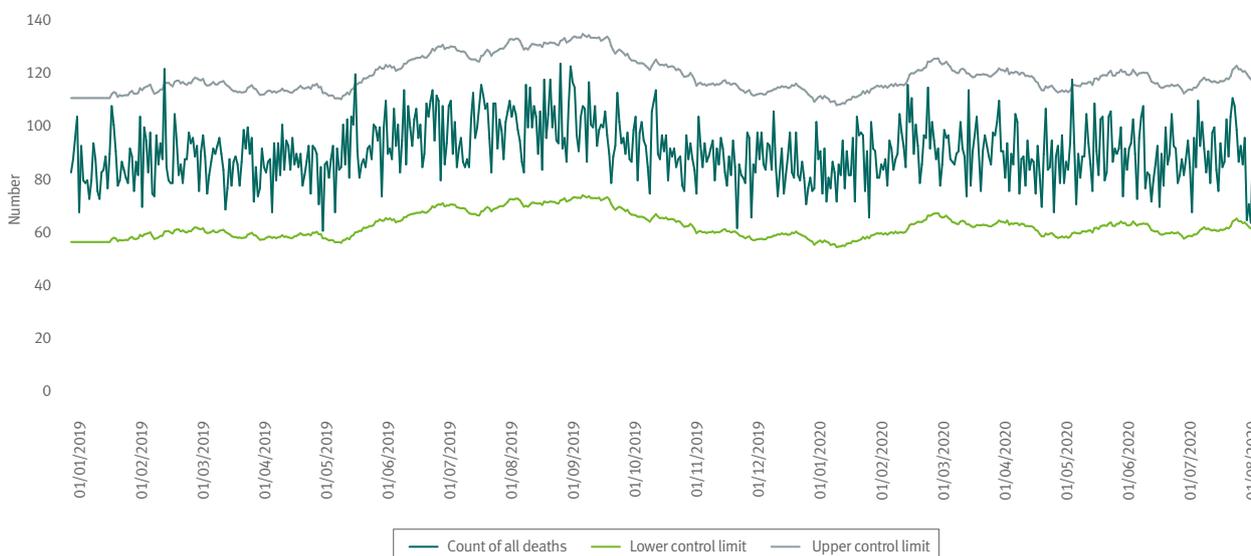
More than 1,110,990 tests were conducted in 915,281 persons for a testing rate of 17,892 per 100,000 population and 105,161 people were quarantined.

Surveillance of all cause deaths in Queensland was implemented to enable rapid detection of excess deaths that may be occurring during COVID-19. The system would trigger further investigation if the number of deaths exceeded certain limits on consecutive days based on historical trends. As of 8 August 2020, there has been no evidence of an increase in all-cause deaths (Figure 3.27).

### Antimicrobial resistance (AMR)

Alongside improvements in living standards and vaccines, antimicrobials such as antibiotics have been one of the most important contributors in recent human history to reducing global morbidity and mortality due to infections, particularly bacterial infections.<sup>199</sup> However, their widespread use and

**Figure 3.27 All cause deaths (excluding COVID-19 deaths), Queensland, 1 January 2019 to 8 August 2020**



misuse has led to the emergence of micro-organisms that are resistant to available antimicrobials, including the advent of “super bugs” that are resistant to all known antimicrobials. The pandemic of AMR is now considered one of the greatest threats to human and animal health today.<sup>193</sup> Antimicrobial monitoring and stewardship have become important strategies to address this growing problem globally.

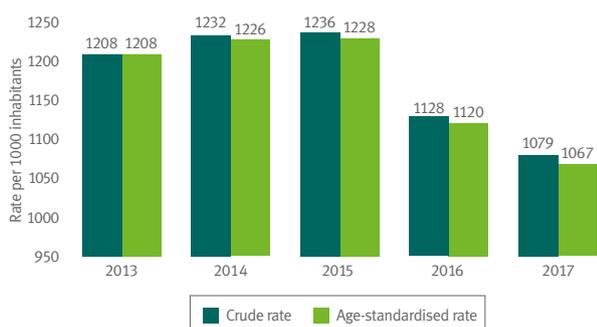
Australia has a national system for AMR and antibiotic usage surveillance in human health called the Antimicrobial Use and Resistance in Australia (AURA) surveillance system.<sup>199</sup> Queensland Health hosts OrgTRx the application that supports the National AMR Passive Surveillance System (APAS). At the present time surveillance data on AMR are collected from New South Wales, Victoria, ACT, South Australia, Tasmania and Western Australia. This work is ongoing and supported by the Australian Commission on Safety and Quality in Health Care. Data on Antibiotic usage is collected by a statewide system MedTRx and Queensland data are fed into the National Antimicrobial Usage Surveillance Program (NAUSP) hosted in South Australia.

In Australia, including Queensland, AMR is of particular concern among residents of aged care facilities and remote and very remote communities. The Queensland Statewide Antimicrobial Stewardship Program (QSAMPS) has been established to support prescribing of antibiotics in remote and regional hospitals with a dedicated team of infectious diseases specialists and pharmacists.<sup>200</sup>

Declines in community-prescribing of antibiotics were observed from 2013 to 2017 (Figure 3.28).<sup>199</sup>

- In hospitals participating in the AURA reporting system, almost 24% of antimicrobial prescriptions were assessed as inappropriate in 2017.
- Azithromycin resistance in *Neisseria gonorrhoeae* (cause of gonorrhoea) rose sharply from 2015 with resistance at 9.3% in 2017.
- Resistance to benzylpenicillin in *Neisseria meningitidis* (cause of meningococcal disease) was almost 6% and reduced susceptibility reached almost 45% in 2017.
- Approximately 10% of residents in aged care in 2017 were prescribed at least one antimicrobial and in more than half of these, there were no signs or symptoms of infection.
- Patients in primary care continue to be given antibiotics for conditions in which there is no benefit (for example, 52% of patients with influenza).

**Figure 3.28 Pharmaceutical benefits scheme antibiotic prescription rates, Australia, 2013– 2017<sup>199</sup>**



## Injury

Injuries resulting from traffic collisions, drowning, poisoning, falls, burns and violence kill more than five million people worldwide annually, accounting for 9% of global mortality.<sup>201</sup> For every death, there are dozens of hospitalisations, hundreds of emergency department visits and thousands of doctors’ appointments. Most non-fatal injuries result in some form of temporary disability, however, a significant number incur life-long, debilitating physical and mental disorders.

Injuries, and the associated morbidity and mortality, are direct consequences of interactions in our social and physical environments and they are predominantly preventable. Injuries may be intentional or non-intentional and strategies to reduce injury need to account for their complex causal pathways.

Some of the highly successful, global, public health initiatives to reduce the burden of injury include:

- mandating seat belts, bike helmets and swimming pool fences
- home modifications to prevent falls in older persons
- child proofing containers containing poisons and drugs
- early identification and treatment of depression to reduce self-harm and suicide
- improving road safety.

## Hospitalisations

In 2018–19 there were 35,622 admissions to Queensland public hospitals for selected injuries, consuming 171,900 patient days (average of 4.8 days per admission).<sup>106</sup> For all injuries and poisoning (187,407), hospitalisation rates were highest for those aged 65 years and older (Figure 3.29), and for these admissions, the most common external cause of the injury was falls (49%) followed by other causes (33%), road trauma (14%) and assaults (4.7%) (Figure 3.30). Injury admissions were more common for males across all age groups, except for those aged 65 years and older in which admissions for women were more common. In-hospital deaths occurred in 408 admissions (1.1%). Work-related injuries accounted for 1768 episodes (5.0%) and occurred predominantly in males aged 35–64 years—0.4% resulted in in-hospital death. Sport and leisure accounted for 5201 episodes, again predominantly in males in all age groups, and injuries related to home duties and education activities accounted for 2671 episodes.<sup>106</sup>

**Figure 3.30 Injury hospitalisations by external cause and type of activity, Queensland, 2018–19<sup>106</sup>**

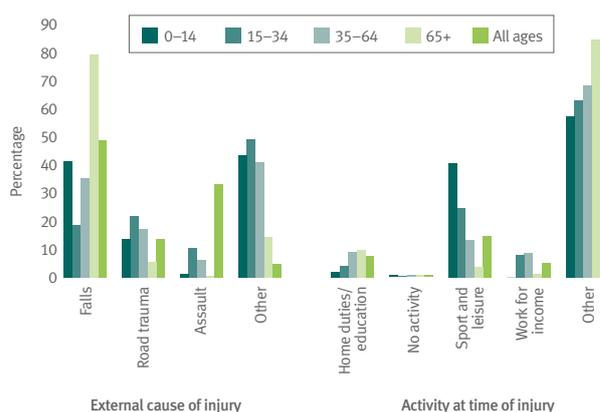
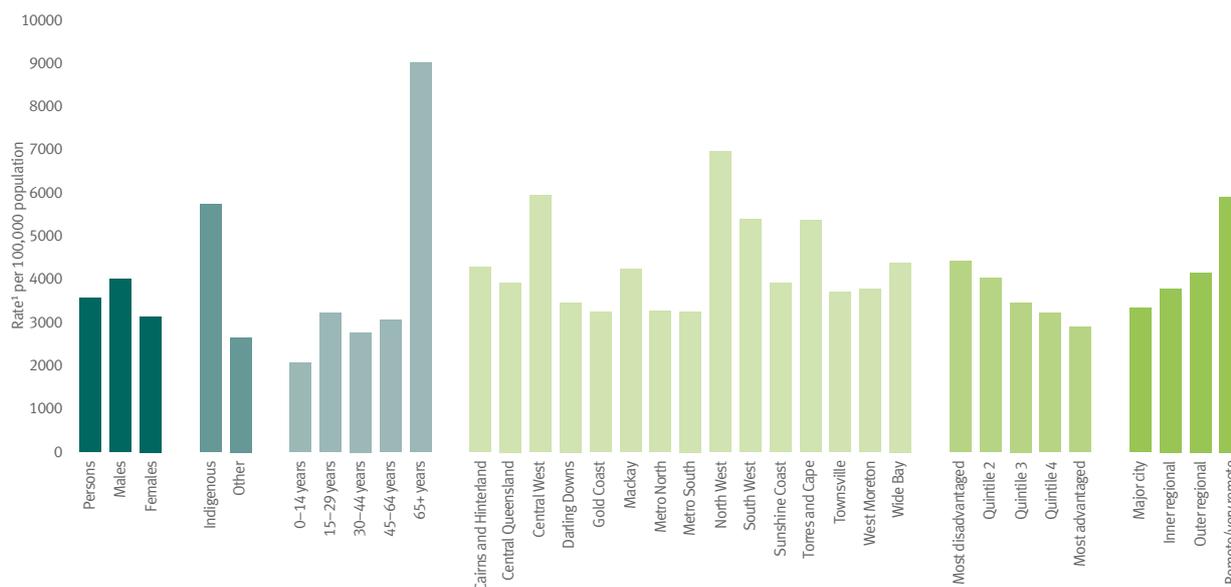


Figure 3.29 Hospitalisation rates<sup>1</sup> for all injury and poisoning (187,408),<sup>2</sup> Queensland, 2018–19



1 Age-standardised rate per 100,000 population

2 Excludes complications of medical and surgical care and includes public and private admissions

There were 3134 episodes for children aged 0–14 years with an average length of stay of 2.9 days—16 episodes resulted in in-hospital death. The largest number of episodes were due to falls involving playground equipment (355 episodes), and fractures of the forearm, upper arm and shoulder were the most common type of injury (886 episodes). Other hospitalisations included<sup>106</sup>:

- being bitten or struck by a dog was the external cause in 104 episodes
- intracranial injuries accounted for 136 episodes
- poisoning by non-opioid analgesics/antipyretics resulted in 51 episodes
- burns of the ankle, foot, head and neck accounted for 79 episodes.

For people aged 15–34 years, there were 8030 episodes with an average length of stay of 3.6 days.<sup>106</sup> The most common external cause of the injury was being an occupant of a car or rider or a motorcycle rider (974 episodes)—assault by bodily force was the main external cause in 517 episodes. Intentional self-harm by a sharp object was the thirteenth most common injury cause (193 episodes). Fractures of the lower leg (931 episodes) and of the skull and facial bones (639 episodes) were the top two principal diagnoses. In-hospital deaths occurred in 58 episodes.

There were 11,902 episodes for people aged 35–64 years with an average length of stay of 4.4 days and there were 74 in-hospital deaths.<sup>106</sup>

- Falls accounted for 3432 of the top 20 external causes of the episodes and 35% of all episodes in this age group.
- Road trauma accounted for 17% of episodes.
- Intracranial injury was the fourth most common principal diagnosis with an average length of stay of 7.5 days.

## At a glance

### Injury

Falls, road trauma and assault are leading causes of injury

Hospitalisations due to contacts and bites by snakes and dogs have increased progressively since 2010

The national drowning death rate for Aboriginal and Torres Strait Islander people has declined by 37% over the past 10 years

Accidental poisoning was the the second most common cause of death in persons aged 25–44 years



Royal Flying Doctor Service

The 65 years and older age group was the only group in which injuries were more common in females than males.<sup>106</sup> There were 13,366 episodes in this age group with an average length of stay of 6.4 days and 260 in-hospital deaths. Falls accounted for 80% of the episodes of care with slipping or tripping being the most common external cause. Road trauma accounted for 5.5% of episodes. Fracture of the femur was the most common principal diagnosis (3037 episodes), followed by intracranial injury (1241 episodes).

In 2016–17, age-adjusted injury hospitalisation rates were higher in Queensland than Australia overall<sup>202</sup>:

- the rate for Queensland females was 2076 per 100,000 compared to 1760 for Australia
- the rate for Queensland males was 2801 per 100,000 compared to 2414 for Australia.



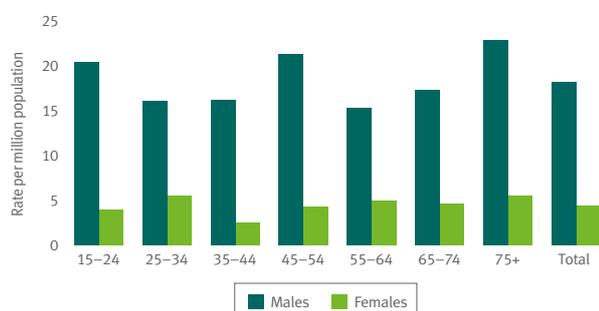
## Spotlights

This section presents data on some specific injuries that are highly preventable. They are not necessarily current government priorities or considered more or less important than other injuries.

### Traumatic spinal cord injury

Persisting traumatic spinal cord injury (TSCI) leads to life-long disability with significant physical, psychological and economic burden. Quality of life is both a determinant and outcome of the ability of people with TSCI to meaningfully participate in the community over the lifespan.<sup>203</sup> Personal factors including gender, age at injury, marital status, education and social support as well as environmental factors including natural and built environment, government and business policies, availability of assistance outside the home and societal attitudes influence participation.<sup>203</sup> A Queensland study identified that employment (paid or unpaid) was the strongest predictor of community participation given it provided a compelling case of benefit versus effort required.<sup>203</sup>

**Figure 3.31** Persisting traumatic spinal cord injury in persons aged 15 years and older, Australia, 2016–17<sup>204</sup>



Nationally, 227 new cases of traumatic spinal cord injury were reported to the Australian Spinal Cord Injury Register in 2016–17 of which 220 resulted in persisting injury.<sup>204</sup> Almost half (49%) of the cases were cervical spine injuries. The three-year rate for persisting TSCI in Queenslanders aged 15 years and older from 2014–15 to 2016–17 was 13.1 per million population, compared to the Australian rate of 11.9 per million.<sup>204</sup> For Australia overall, the rate in males (18.1 per million) was approximately four times higher than that of females (4.4 per million) (Figure 3.31). Nationally, rates have declined from a high of 18.9 per million population in 1995–96.<sup>204</sup> Across Australia, rates are highest in those living in remote areas (31.5 per million)—land transport crashes and falls were the most common causes of the injury.<sup>205,206</sup>

### Traumatic brain injury

Traumatic brain injury (TBI) is an injury with a broad spectrum of symptoms and disabilities and is an important cause of lifelong disability and death worldwide.<sup>207</sup> An estimated 69 million individuals worldwide sustain a TBI each year.<sup>208</sup> People with TBI can have a range of physical, mental, cognitive and social problems. The majority of TBIs are a result of motor vehicle crashes. Other causes of TBI include falls, bicycle accidents, assaults and sports injuries and the latter cause a higher proportion of mild TBIs. Concussion is increasingly recognised as an important risk factor for degenerative brain diseases such as dementia.<sup>209</sup>

Current data on the incidence and prevalence of TBIs in Queensland are limited. As indicated above, intracranial injuries are common among injury hospitalisations. A North Queensland study of ED presentations for TBI in people aged 15–64 years from 2007 to 2015 reported an overall incidence of 97.8 presentations per 100,000 population.<sup>210</sup> The incidence for Aboriginal and Torres Strait Islander people was approximately twice that of other Queenslanders and 2.3 times higher in males than females.<sup>210</sup>

Traumatic brain injury is highly preventable. The use of seatbelts and installation of air bags in motor vehicles, helmet use in cyclists, protective head gear in contact sports, reduction in alcohol and drug fuelled violence and mechanisms to reduce falls in all ages are important strategies.

### Drowning

In 2018–19, there were an estimated 860 drowning incidents in Australia of which 276 were fatal.<sup>211</sup> Queensland recorded 64 drowning deaths that year. Males accounted for 86% of drowning deaths in Queensland. People aged 18–34 years accounted for 31% of the deaths and 14 deaths occurred in children aged 0–14 years.<sup>211</sup> Most deaths (41) occurred in the summer and spring months and the most common locations were rivers/creeks/streams (25), the beach (18) and swimming pools (11). All flood-related drowning deaths that occurred in Australia in 2018–19 (7) occurred in Queensland.<sup>211</sup>

## Drowning deaths in Queensland have declined by 12% on the 10-year average, partly attributable to improved pool fencing legislation.<sup>212</sup>

While specific annual data were not available, 40 drowning deaths in Queensland over the period 2008–09 to 2017–18 were for Aboriginal and Torres Strait Islander people (nationally there were 143 deaths), with a crude rate of 1.9 deaths per 100,000 population. The national drowning death rate for Aboriginal and Torres Strait Islander people declined by 37% over that period.<sup>211</sup>

### Accidental poisoning

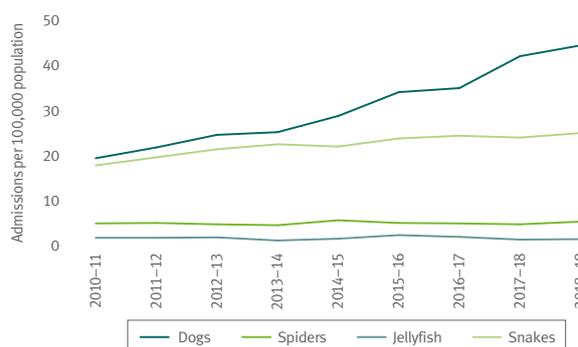
In 2018, there were 236 deaths in Queensland (179 males and 57 females) due to accidental poisoning by, and exposure to, noxious substances.<sup>78</sup> Of these deaths, 62% were due to unspecified drugs, medicaments and biological substances. Deaths due to accidental poisoning by, and exposure to, antiepileptic, sedative-hypnotic, anti-parkinsonism, psychotropic drugs, narcotics and hallucinogens accounted for 71 deaths. Accidental poisoning was the third most common cause of death in people aged 15–24 years and the second most common cause in persons aged 25–44 years.<sup>78</sup>

There are limited current data on non-fatal poisonings for Queenslanders. Nationally in 2015, there were 204,906 calls (including recalls for the same exposure) to the four Australian Poisons Information Centres (PICs), one each in New South Wales, Queensland, Victoria and Western Australia.<sup>213</sup> This equates to a rate of 861 calls per 100,000 population. Calls from Queensland were 20% of all calls, a rate of 843 per 100,000 population per year. Most calls (69%) were from the general public and 64% were related to unintentional exposures and medication errors accounted for 18% of calls. The most common age group for exposures were adults aged 20–74 years (40%) and children aged 1–4 years (36%). The most common exposures overall were household cleaners (10%) and paracetamol-containing analgesics (7.3%). Exposures in adults aged 74 years and older were commonly medication errors, particularly cardiovascular drugs (24%).

### Bites and stings

In 2018–19, there were 3799 admitted episodes of care for selected bites and stings in Queensland public and private acute hospitals.<sup>106</sup> Of these, 2227 were due to dog bites or being struck by a dog, 1246 were contacts with or bitten by a venomous snake, 263 were contacts with or bitten by spiders and 63 were due to contacts with jellyfish. Both dog and snake related incidents have progressively increased each year since 2010–11 (851 dog contacts and 778 snake contacts) whereas spider and jellyfish incidents remained relatively stable (Figure 3.32).<sup>106</sup> Data on non-admitted episodes for the same time period were not available.

**Figure 3.32 Hospitalisation rates for selected bites and stings, Queensland, 2010–2019<sup>106</sup>**



The reasons for the increase in hospitalisations related to contact with dogs are not readily explained. Dog ownership in 2016 was estimated to be 38% of Australian households (37% in Queensland) with an average of 1.3 dogs per household.<sup>214</sup> This was a 2.8% increase from 2013 although the average number of dogs per household remained unchanged. Over the longer term, 38% of Australian households owned dogs in 1994.<sup>215</sup> Dog-related injuries are highest in young children and most of the dogs responsible are known to the owner.<sup>216</sup> A previous Australian study suggested increases in hospitalisations may be related to increased awareness of the infectious risks associated with dog bites and an increasing use of surgical procedures to repair damage.<sup>217</sup>

In Australia, most snake bites are known to occur around a person's residence and within a major city or inner regional area and males are twice as likely as females to be hospitalised for a snake bite.<sup>218</sup> The increase in hospitalisations due to snake contacts and bites may be associated with increasing housing development in rural areas and warmer weather with snakes more active for a longer period of the year.<sup>219</sup>

## Dental and oral health

Oral diseases, including tooth decay, gum disease, and oral cancers, affect almost half of the global population, with untreated dental decay the most common health condition worldwide.<sup>220,221</sup> Although oral diseases are largely preventable, persisting high prevalence globally reflects social and economic inequalities and inadequate funding for prevention and treatment.<sup>220</sup> As with most non-communicable diseases (NCDs), oral conditions are chronic and are strongly associated with socioeconomic gradients. This section focuses on tooth decay and gum disease.

Oral disease can destroy the tissues in the mouth, leading to lasting physical and psychological disability.<sup>222</sup> Tooth loss can reduce the functionality of the mouth, making chewing and swallowing more challenging, which in turn can compromise nutrition. Poor nutrition can impair general health and exacerbate existing health conditions.<sup>222</sup> Poor oral health is also associated with several chronic diseases, including diabetes, stroke, cardiovascular and lung diseases and adverse pregnancy outcomes.<sup>223</sup>

Improving oral health outcomes requires:

- reducing the risk of decay
- a focus on healthy eating
- good oral hygiene
- regular access to dental services beginning in the infant years
- access to fluoride through community water supplies and oral care products.

### Adult oral health

This section draws on data collected in two national studies of adult oral health in 2004–06 and 2017–18.<sup>224</sup> Broadly, the findings indicate that the oral health of Queenslanders aged 15 years and older has improved across a range of indicators and compares favourably to other states and territories.

Across all age groups, decay experience—defined as teeth that are decayed, missing or filled because of decay—is decreasing.



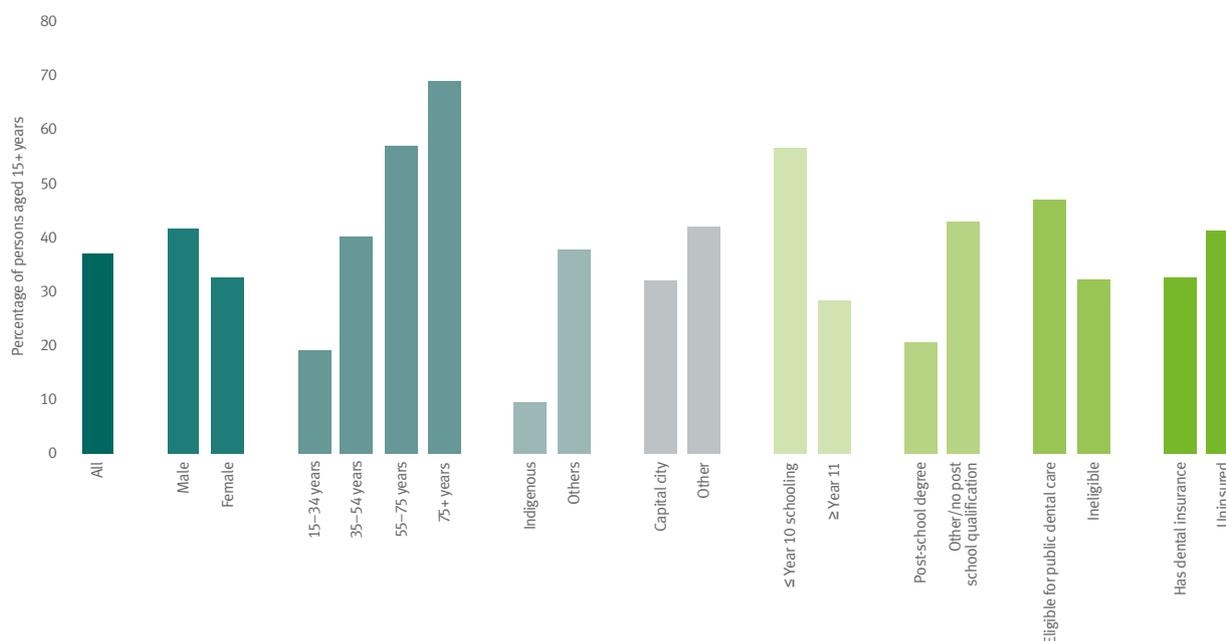
### Prevalence of complete tooth loss

Complete tooth loss reflects individuals’ past experiences of dental disease and the removal of teeth as treatment. The percentage of Australians aged 15 years and older reporting complete tooth loss in 2017–18 was 4.0%. More females (1.4 times) reported complete tooth loss than males.<sup>224</sup>

In Queensland, the prevalence of complete tooth loss in persons aged 15 years and older in 2017–18 was<sup>224</sup>:

- 3.5% overall, 2.9% in males and 4.0% in females
- 1.0% in those aged 35–54 years, 6.7% in those aged 55–74 years and 19% in those 75 years and older
- 2.9% in Aboriginal and Torres Strait Islander persons
- 7.8% in those who had Year 10 or less of schooling and 1.6% in those who had Year 11 or more
- 1.5% in those with dental insurance compared to 5.5% in those who were uninsured.

Figure 3.33 Proportion of persons with moderate-severe periodontitis, Queensland, 2017–18<sup>224</sup>



### Inadequate natural dentition among dentate people

An alternative marker of oral health status for adults is the retention of less than 21 natural teeth. This represents a loss of one third or more of the complete dentition of permanent teeth.

In Queensland in 2017–18, the percentage of people aged 15 years and older with fewer than 21 teeth was<sup>224</sup>:

- 10.1% overall, 10.9% in males and 9.4% in females
- 45% in those aged 75 years and older
- 22% in Aboriginal and Torres Strait Islander people and 9.7% in other Queenslanders
- 8.2% in those living in the capital city and 12% in those living in other places.

### Severity of tooth loss due to pathology

Teeth missing due to pathology may be extracted because of extensive disease, which makes other treatments very difficult, very expensive or impossible, or because of the preference of the patient or the dentist.

In Queensland, the mean number of missing teeth due to pathology in persons aged 15 years and older in 2017–18 was<sup>224</sup>:

- 4.4 overall, 4.5 in males and 4.3 in females
- 3.9 in Aboriginal and Torres Strait Islander people.

The prevalence of missing teeth was:

- 13% in persons aged 75 years and older
- 7.4% in those with Year 10 or less of schooling and 2.9% in those with Year 11 or more
- 5.2% in those without dental insurance and 3.6% in those insured.

### Prevalence of untreated coronal decay

The prevalence of untreated coronal dental decay is the percentage of dentate people who have one or more decayed surfaces on the crowns of their teeth. Untreated coronal dental decay reflects both the prevalence of dental decay in the population and access to dental care for treatment. The prevalence of untreated coronal decay in the Australian dentate adult population in 2017–18 was 32%.<sup>224</sup> In Queensland, the prevalence was:

- 23% overall, 21% in females and 24% in males
- 24% in those aged 15–34 years, 25% in those 35–54, 20% in those 55–74 years and 14% in those aged 75 years and older
- 24% in Aboriginal and Torres Strait Islander people.

### Dental decay experience

The number of decayed, missing and filled teeth (DMFT) reflects a person's lifetime experience of dental caries. The index is cumulative, so an individual's DMFT index cannot decrease over time.

For persons aged 15 years and older in Queensland in 2017–18<sup>224</sup>:

- each person had an average of 11.6 teeth decayed, missing or filled, similar to the national average of 11.2 teeth
- those aged 55–74 years had five times as many teeth (20.7) decayed, missing or filled than those aged 15–34 years (4.3).

### Moderate or severe periodontitis

Periodontitis is inflammation of the tissues surrounding the tooth affecting the gum, the ligaments and the bone. Globally, periodontitis is the sixth most prevalent chronic condition.<sup>222</sup> The underlying cause of periodontitis is bacteria that accumulate in dental plaque, and smoking is a predominant risk factor. Regular and timely dental treatment can prevent moderate periodontitis from progressing to the severe form.<sup>222</sup> In 2017–18, 37% of Queenslanders aged 15 years and older had moderate or severe periodontitis (Figure 3.33).<sup>224</sup>

### Child oral health

Dental caries was the fourth leading cause of years of life lived with disability in females aged 5–14 years in Australia in 2015 and the sixth leading cause in males of the same age.<sup>82</sup> Several studies have highlighted the short and long-term negative impacts of poor dental health on overall child and parent quality of life.<sup>225-227</sup> As with adults, dental disease and decay in children follows a strong socioeconomic gradient.<sup>228</sup> The Longitudinal Study of Australian children reported that the odds of dental caries over time for Queensland children was 1.5 times higher compared to New South Wales.<sup>229</sup>

## At a glance

### Dental and oral health

Among Queenslanders aged 15 years and older in 2017–18:

The prevalence of complete tooth loss in persons aged 15 years and older was 3.5% overall—2.9% in males and 4.0% in females

There was an average of 11.6 teeth decayed, missing or filled teeth per person

37% had moderate to severe periodontitis

In Queensland children aged 5–14 years in 2012–14, the prevalence of untreated decay and overall caries experience in the primary dentition was 30% and 50% respectively.



The most recent population-based oral and dental health data for Australian children are from the 2012–14 National Child Oral Health Study.<sup>230</sup> This study only included children aged 5–14 years attending school and therefore current critical data on the formative years for child oral health in Queensland are not available. For Queensland children aged 5–10 years in the study:

- the mean number of untreated decayed or filled tooth surfaces in primary dentition was 1.6 and 2.3 (1.3 and 1.5 nationally)
- the mean number of decayed, missing or filled surfaces was 4.3 and 2.1 for decayed, missing or filled teeth
- the prevalence of untreated decay and overall caries experience in the primary dentition was 30% and 50% respectively.

Among children aged 6–14 years, 23% had at least one fissure sealed tooth.

### Dental caries hospitalisations in children

In Queensland in 2018–19, there were 3257 hospitalisations for dental caries in children aged 0–15 years, an overall rate of 313 hospitalisations per 100,000 children.<sup>106</sup> Rates were highest for children aged 4–11 years (476 per 100,000) followed by children aged 0–3 years (199 per 100,000). The rate for those aged 12–15 years was 79 per 100,000.

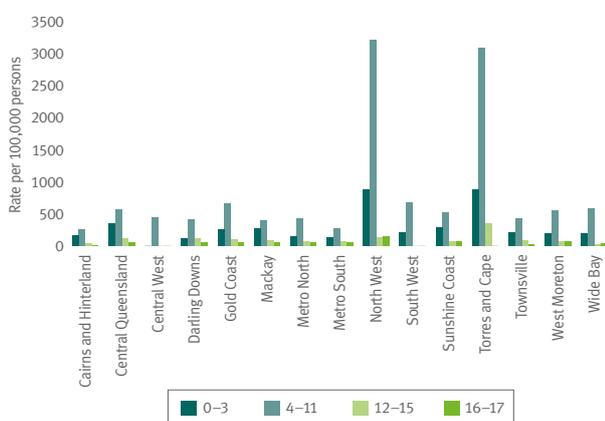
From 2008–09 to 2018–19, there were significant declines in hospitalisation rates for childhood dental caries in Queensland<sup>106</sup>:

- 39% in those aged 0–3 years
- 34% in those aged 4–11 years
- 18% in those aged 12–15 years.

However, these declines were not consistent by regions of the state with 33% and 35% declines in South East Queensland and regional areas of the state respectively but a 35% increase in hospitalisations for children from rural/remote regions. This increase was predominately due to a 41% increase in hospitalisations for children aged 4–11 years in those regions.

Hospitalisation rates were highest for children in the North West and Torres and Cape HHSs for children aged 0–11 years (Figure 3.34).

**Figure 3.34 Paediatric dental caries hospitalisation rates by age group, Queensland, 2018–19<sup>106</sup>**



## Mental health and wellbeing

A healthy mental state relies on a complex interplay of social, psychological and biological factors. It is a sense of wellbeing in which individuals realise their own abilities, can cope with the normal stresses of life, can work productively and are able to contribute to their community.

While most people will experience good mental health and wellbeing most of the time, many Queenslanders will experience difficulties with their mental health at some point in their lives. For some, these challenges may be temporary, for others they may be persistent over a long period.

Mental health deteriorates with stressful work conditions, rapid social change, discrimination and exclusion, an unhealthy lifestyle and physical ill-health. Increasingly, the impact of the physical environment on mental health is being recognised, particularly during and after times of natural disaster.<sup>231,232</sup>

### Terminology

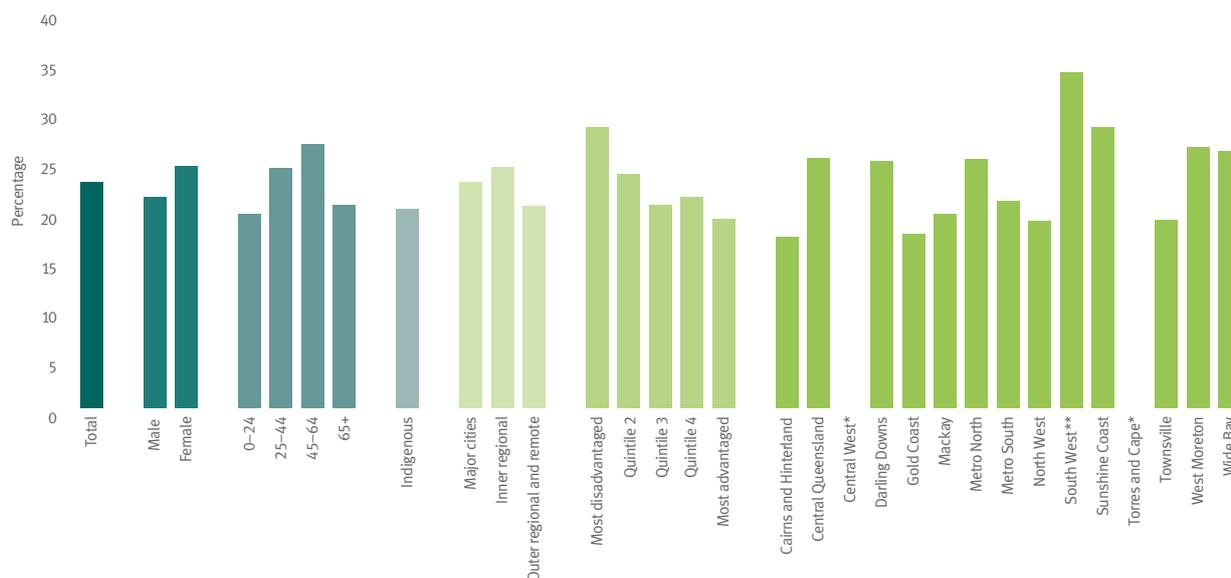
There are a broad range of health states that contribute to the categories “mental health” and “wellbeing”. Data in this report are derived from hospital and death statistics, the ABDS<sup>82</sup> which uses hospitalisations and deaths data from administrative datasets and self-reported data collected in the National Health Survey.<sup>125</sup> Administrative data sets generally reflect medical diagnoses of mental and behavioural diseases and disorders (for example, schizophrenia or bipolar disorder) whereas self-reported data may or may not reflect whether a specific medical/psychiatric diagnosis has been made.

“Wellbeing” as reported here reflects self-reported emotional wellbeing and an individual’s sense of being healthy rather than a specific medical condition or diagnosis. In self-reported surveys, it is often difficult to separate physical and emotional or mental wellbeing as they are frequently inter-connected. While the main focus of this section is on mental health, we also report overall self-reported health status given the physical-mental connection and that, as shown throughout this report, one may be the cause or outcome of the other.

### Self-reported health

A self-assessment of health status, reflecting a person’s own perception of their health, gives a measure of the overall health of the population. In 2020, 85% of Queensland adults considered themselves to be in excellent, very good or good health.<sup>233</sup> Overall, just under one in seven, or 15%, rated their health as fair or poor.<sup>233</sup> For Queensland’s Aboriginal and Torres Strait Islander adults, 43% considered their health to be excellent or very good in 2018–19 with 24% reporting it as fair or poor.<sup>71</sup> Age and experiencing disadvantage were associated with a higher likelihood of reporting fair or poor health. A quarter of Queenslanders experiencing the most disadvantage reported fair or poor health, compared to only 9.6% of the most socioeconomically advantaged. Similarly, 24% of those aged 65 years or older reported fair or poor health, compared to 9.2% of those aged 18–29 years.<sup>233</sup>

Figure 3.35 Proportion of persons with self-reported mental and behavioural problems, Queensland 2017–18<sup>125</sup>



\* Data not reportable

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

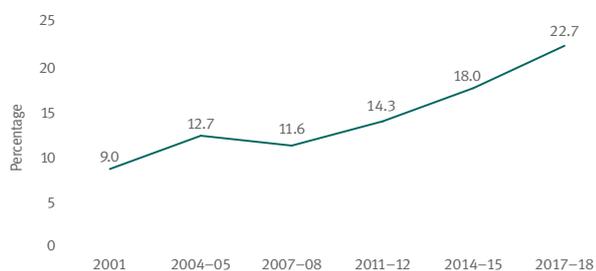
Mental health and physical health are fundamentally linked and associated with overall wellbeing. Poor mental or physical health can impact on a person’s ability to engage in their usual daily activities. In 2017–18, 7.8% of Queensland adults experienced severe or very severe bodily pain in the previous four weeks.<sup>125</sup> Among those with this level of pain, 42% reported a long-term mental or behavioural problem, nearly twice the proportion of the Queensland population overall.

In 2020,<sup>94</sup> Queensland adults averaged 2.6 days in the past 30 days when their usual activities were limited due to poor physical or mental health. This varied by socioeconomic status and was 1.7 times higher among the most disadvantaged Queenslanders (3.2 days) than the most advantaged (1.9 days).<sup>94</sup>

### Self-reported mental and behavioural problems

In 2017–18,<sup>125</sup> more than one in five (23%) Queenslanders self-reported a long-term mental or behavioural problem (20% nationally) (Figure 3.35). Compared to previous years the proportion of Queenslanders with self-reported mental or behavioural problems has more than doubled since 2001 (Figure 3.36). This may be an indication of increased awareness, improved mental health literacy and/or a reduction in stigma pertaining to mental health problems and more people reporting rather than increased prevalence.

Figure 3.36 Trends in self-reported mental and behavioural problems, Queensland, 2001 to 2017–18<sup>125</sup>



## At a glance

### Mental health and wellbeing

In Queensland:

85% of adults consider themselves to be in excellent, very good or good health in 2020

23% of adults self-reported a long-term mental or behavioural problem in 2017–18

In 2018, there were 767 suspected suicides by Queensland residents—a rate of 15 per 100,000 population



Budd photography

Anxiety related disorders were reported most commonly (16%) followed by mood disorders (13%). Alcohol and drug problems were reported by 1.4% of people.<sup>125</sup>

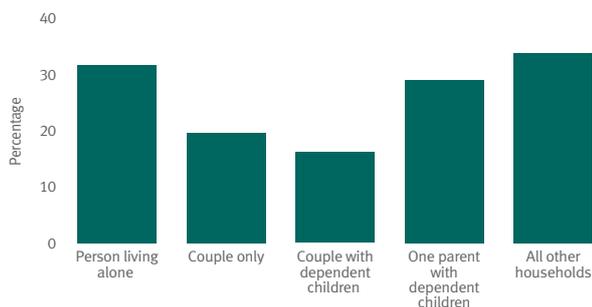
Slightly more females (24%) than males (21%) reported a mental or behavioural problem (Figure 3.38). Females were 27.4% more likely to report an anxiety-related problem than males (18% compared to 13%). However, females were about half as likely to report an alcohol or drug related problem (0.9% compared to 2.0%).<sup>125</sup>

There was no notable difference in reported mental and behavioural problems by location, however, among the least socioeconomically advantaged Queenslanders, the prevalence of mental or behavioural problems was 1.5 times that of the most advantaged (28% compared to 19%).<sup>125</sup>

For Aboriginal and Torres Strait Islander adults in 2018–19,<sup>71</sup> 10% reported depression (6.8% of males and 13% of females) and 13% reported anxiety (9.0% of males and 18% of females) with the prevalence of both conditions three to five times higher in non-remote areas compared to remote areas.

Queenslanders living as a couple, with or without children, were less likely to report a mental or behavioural problem than those living in other household compositions (Figure 3.37).

**Figure 3.37** Proportion of persons with self-reported mental and behavioural problems by household type, Queensland, 2017–18<sup>125</sup>



For Queenslanders living with profound or severe core activity limitation, the prevalence of self-reported mental or behavioural problems was nearly four times that of those without a disability or restrictive long-term health condition (59% and 15% respectively).<sup>125</sup>

The prevalence of mental health and behavioural conditions in persons born overseas was 15% compared to 25% among Australian-born Queenslanders.<sup>125</sup> Among persons who were employed, the prevalence was 22% compared to 31% among those not in the labour force and 41% among those who were unemployed in 2017–18. The latter needs to be interpreted with caution given a high margin of error.

The NHS 2017–18<sup>125</sup> did not report mental health and behavioural conditions by other demographic groups presented in Section 1. Brief summaries of current data from other sources are presented below. Readers are referred to the corresponding references for more information.

## Children

While more recent and Queensland specific population-based data are lacking, in 2013–14 one in seven or 560,000 children in Australia were assessed as having one or more mental disorders in the previous 12 months.<sup>234</sup> The prevalence had remained relatively stable since 1998.<sup>235</sup>

- Mental ill-health was more common in families already facing other challenges such as unemployment or family breakup.
- One in 13 (8%) 11–17 year-old young people had a major depressive disorder with the prevalence highest in girls aged 16–17 years (20%).
- One in 12 (8%) adolescents aged 12–17 years had self-harmed in the previous 12 months.
- Approximately 25% of school students had experienced bullying at some stage during their schooling.<sup>236</sup>
- Children with a physical or mental health disorder were twice as likely to have been bullied.<sup>237</sup>

## Carers

In 2015, 81% of carers of people with autism had suffered financially because of their role, 37% had lost (or were losing) touch with existing friends and 56% had experienced a change in their physical or emotional wellbeing.<sup>27</sup> The corresponding proportions for carers of people with other conditions were 52%, 24% and 39% respectively. In 2015, 14% of carers reported they had used respite care for their main recipient of care.

## Refugees

Many refugees arrive having experienced trauma either directly or indirectly, multiple losses and, for some, torture and violence. These can be compounded in the resettlement process with multiple psychological, social and emotional wellbeing stressors.<sup>238</sup> A 2016 systematic review reported the prevalence of torture among participants from refugee backgrounds ranged from 1 to 76% (median 27%).<sup>239</sup> Establishing the prevalence of mental health conditions in refugees is complex, however, systematic reviews estimate it varies from 4–80% for any mental health condition. Estimates for specific conditions were<sup>240,241</sup>:

- 4–40% for anxiety
- 5–44% for depression
- 9–36% for post-traumatic stress disorder.

A recent systematic review of barriers to healthcare seeking for mental health among refugees found the dominant issues were<sup>243</sup>:

- cultural barriers, including mental health stigma and knowledge of dominant models of mental health
- structural barriers, including financial strain, language proficiency, unstable accommodation, and a lack of understanding of how to access services
- barriers specific to the refugee experience, including immigration status, a lack of trust in authority figures and concerns about confidentiality.

## International students

The mental health of international students has been receiving increasing attention given growing evidence to support its importance as a public health concern and following a coronial inquest in 2019 into the suicide of a student in Melbourne.<sup>47,243,244</sup> This inquest identified 27 suicides in international students from 2009 to 2015 and acknowledged this was likely to be an under-estimate. Studies also suggest students are reluctant to seek formal help.<sup>47</sup> The inquest reported<sup>243</sup>:

- a lower prevalence of diagnosed mental illness among the international student suicide cohort (15%) than in the Australian-born student suicide cohort (67%)
- 22% of the international student suicide cohort attended a health service for a mental health related issue within six weeks of death compared to 57% of the Australian-born suicide cohort.

There is some evidence that students may be at risk of mental health issues prior to their arrival, particularly given many are young adults at the age at which mental health issues arise. An Australian study involving 12,204 prospective international students aged 16–58 years from 175 countries found that 20% of international students reported very low life satisfaction prior to arrival in Australia<sup>245</sup>:

- 57% may be more vulnerable to depression and distress based on their trait loneliness score; with 10% at very high risk
- 51% may be more vulnerable to depression and distress based on their trait stress score; with 11% at very high risk
- 42% may be more vulnerable to distress based on their trait anxiety score, with 12% at very high risk
- 23% of student prospects reported an extreme level of pressure to succeed in their future studies in another country.

## LGBTIQ+

While many studies demonstrate significant concern about the mental health and wellbeing of LGBTIQ+ people, many gaps remain given the lack of large population-based studies and the different groups that have been included in these studies. Although many LGBTIQ+ Australians live healthy lives, research indicates a disproportionate number experience poorer mental health outcomes and have higher risk of suicidal behaviours than their peers.<sup>246</sup>

For a comprehensive review of what is known about mental health in the LGBTIQ+ population, visit the National LGBTI Health Alliance report (2020 update).<sup>246</sup> Some key statistics include the following:

The prevalence of mental disorders<sup>246</sup>:

- 41% of homosexual/bisexual people aged 16 and older met the criteria for a mental disorder and had symptoms in the last 12 months
- 37% of LGBTI people aged 16 and older reported being diagnosed or treated for any mental disorder in the past three years
- 20% of people in the general population aged 16 years and older met the criteria for a mental disorder and had symptoms in the last 12 months.

The risk of attempted suicide compared to the general population<sup>246</sup>:

- LGBTI young people aged 16–27 years are five times more likely to attempt
- transgender people aged 18 and older are nearly 11 times more likely to attempt
- people with an intersex variation aged 16 and older are nearly six times more likely to attempt.

## Prisoners

Prisoners often come from disadvantaged backgrounds and have poorer mental health than the general population. Being in prison and detention can exacerbate these conditions or precipitate their onset. For Queensland prisoners in the 2018 National Prison Health Survey<sup>61</sup>:

- 39% had a previous diagnosis of a mental health disorder on entry to prison (40% nationally)
- 37% on discharge had ever been told they had a mental health disorder (37% nationally)
- 9.0% of those with a mental health disorder had a worsening of their condition whilst in prison, for 48% it stayed the same and for 22% it got “a lot” better
- 30% self-assessed their mental health status on prison entrance as fair or poor (13% of discharges)
- 22% reported “a lot” of distress related to their upcoming release
- 17% of entrants reported a history of self-harm (21% nationally)
- 1.0% of entrants were identified as being at risk of suicide or self-harm and 4% of discharges had self-harmed while in prison (5% nationally).

## Residents of aged care facilities

Good mental health is one of the key factors of healthy ageing. Mental health problems in older people can arise, or be exacerbated by, several issues including loss of partners/loved ones, declining physical health and the loss of independence, particularly for those admitted to aged care facilities.

Among permanent residents of aged care in Australia on 30 June 2019<sup>247</sup>:

- 87% were diagnosed with at least one mental health or behavioural condition
- 49% had a diagnosis of depression.

Detailed data on the types of mental health or behavioural conditions and the characteristics of those with these conditions were not reported.



A 2013 study reported that residents with depression were more likely to have high care needs than other residents (73% versus 53%).<sup>248</sup> With respect to symptom severity, 24% had mild, 16% had moderate and 13% had major symptoms, an increase from 19%, 11% and 10% respectively in 2008. The prevalence of depression symptoms was<sup>248</sup>:

- 44% in newly-admitted residents in Queensland compared to 45% nationally
- 49% in people born in countries where English was not the main language compared to 44% in Australian born residents
- 37% in newly-admitted Aboriginal and Torres Strait Islander residents
- 51% in men and 52% in women
- 42% in residents aged less than 50 years.

Two-thirds of residents with symptoms were seeking or had a previous diagnosis.

### The homeless

The relationship between homelessness and mental health is complex and bi-directional. Poor mental health is both a key risk factor for, and outcome of, homelessness.<sup>249</sup> The Australian “Journeys Home” study has followed a sample of 1682 people who were either homeless or at risk of homelessness in 2011 over six waves.<sup>250</sup> At baseline, 62% had been diagnosed with at least one of five conditions:

- bipolar effective disorder (11%)
- schizophrenia (8.9%)
- depression (54%)
- post-traumatic stress disorder (PTSD) (20%)
- anxiety disorder (41%).

The prevalence of any condition increased as the duration of homelessness increased.

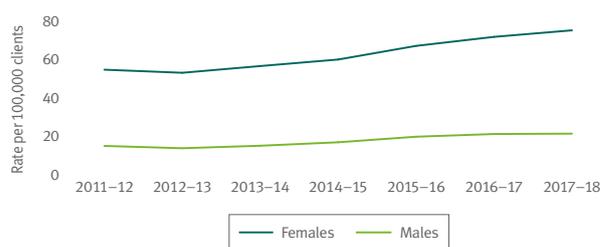
Mental health issues are significant among young people who have periods away from home due to family conflict and other stressors. The 2015 Mission Australia Youth Survey (17,146 youth aged 15–19 years) reported 21% had a probable serious mental illness and 14% had spent time away from home as they felt they could not return.<sup>251</sup> Almost a third (32%) of those with a probable mental illness had spent time away from home compared to 8.6% of those without illness. For Queensland (22% of respondents), the corresponding proportions were 29% and 8.2% respectively. Those with probable illness were more likely to be concerned or extremely concerned about a range of issues (Table 3.28).

**Table 3.28** Proportion of young people aged 15–19 years concerned/very concerned about specific issues, by probable serious mental illness status, Queensland, 2015<sup>251</sup>

	Probable serious mental illness	No probable serious mental illness	Difference
Depression	55.8	10.4	45.4
Coping with stress	73.3	29.4	43.9
Body image	53.2	19.4	33.8
School or study problems	59.5	26.8	32.7
Suicide	31.8	5.7	26.1
Family conflict	37.2	13.1	24.1
Bullying/emotional abuse	30.6	8.8	21.8
Discrimination	21.9	7.6	14.3
Personal safety	19.7	8.6	11.1
Drugs	12.7	6.0	6.7
Alcohol	8.5	3.8	4.7
Gambling	5.2	2.7	2.5

Nationally, the rates of clients seeking specialist homelessness services as a result of family or domestic violence have been progressively increasing in both males and females since 2011–12 (Figure 3.38).<sup>251</sup>

**Figure 3.38** Rates of clients of homelessness services seeking assistance due to family or domestic violence, Australia, 2011–12 to 2017–18<sup>251</sup>



## Psychological distress

Psychological distress is a measure of mental health and wellbeing based on a 10-question index that includes measures of nervousness, agitation, psychological fatigue and depression over the past four weeks.

In 2017–18, approximately 14% of Queensland adults reported high or very high levels of psychological distress<sup>125</sup> with prevalence varying by age and sex (Table 3.29).

**Table 3.29** Prevalence of psychological distress, Queensland, 2017–2018<sup>125</sup>

	Age group (years)					
	18–24	25–34	35–44	45–54	55–64	65+
<b>Total</b>						
Low	47.0	57.3	60.7	61.3	61.8	67.7
Moderate	28.2	24.6	24.9	20.9	18.5	18.7
High/very high	18.9	14.2	11.8	15.4	15.4	10.7
<b>Males</b>						
Low	*50.5	54.2	60.8	65.0	64.7	74.5
Moderate	27.4	24.4	25.4	19.2	16.2	14.1
High/very high	19.5	15.0	9.4	13.4	12.9	9.4
<b>Females</b>						
Low	*46.0	57.7	60.9	59.1	56.7	62.3
Moderate	27.5	24.2	24.7	22.0	21.6	22.8
High/very high	18.2	15.3	12.0	18.0	16.4	11.6

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

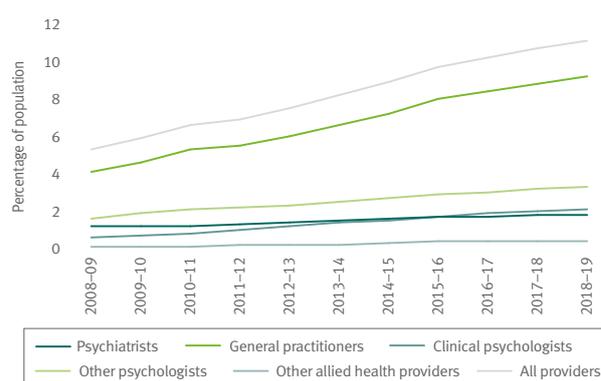
The prevalence of self-reported high/very high levels of psychological distress among Aboriginal and Torres Strait Islander people living in Queensland in 2018–19 was 30% and 31% nationally.<sup>71</sup> Breakdowns by age and sex for Aboriginal and Torres Strait Islander people were not reported. Nationally the prevalence of high/very high levels of distress was 31% for those aged 18 years and older, 31% in non-remote areas and 28% in remote areas (28%), and higher in females (35%) than males (26%).<sup>71</sup>

## Use of mental-health related medications and Medicare-subsidised mental health services

Mental health-related medication prescribing and use of Medicare-subsidised mental health services provide additional insight into the burden of mental health, particularly at the community level.

Consistent with the increasing prevalence of self-reported mental health and behavioural problems, use of Medicare-subsidised mental health-specific services progressively increased in Queensland from 2008–09 to 2018–19 (Figure 3.39).<sup>112</sup> The average annual increase for all services was 5.7% with the largest relative annual increase being for “other allied health professionals” (11%) and clinical psychologists (8.2%).

**Figure 3.39** Trends in Medicare-subsidised mental health service use, Queensland, 2008–09 to 2018–19<sup>112</sup>



In Queensland in 2018–19, there were 8,625,268 mental health-related medication prescriptions, a rate of 1707 prescriptions (subsidised and under co-payment) per 1000 population—the national rate was 1548 per 1000.<sup>112</sup> The majority (87%) of prescriptions in Queensland were provided by general practitioners and the most common medications prescribed were anti-depressants (72%).

Nationally in 2018–19, the proportions of the population prescribed one or more mental health-related medications were<sup>112</sup>:

- 12% of children aged less than 18 years
- 43% of persons aged 85 years and older
- 20% of females and 14% of males
- 16% of urban, 21% of inner-regional, 18% of outer regional, 13% of remote and 7% of very remote residents.

## Suicide

Every life matters and any life lost by suicide is a great sadness for many with far reaching impacts. Suicide has a profound toll, with far-reaching impacts. For each suicide, it is estimated that up to 135 additional people are exposed to and affected by the death.<sup>252</sup> A comprehensive report of suicide in Queensland was published in 2019.<sup>253</sup>

In 2018, there were 767 suspected suicides by Queensland residents—a rate of 15 per 100,000 population.<sup>253</sup> This was a 4.5% decrease on the 2017 rate. Key selected statistics include<sup>253</sup>:

- 77% occurred in males for a rate of 24 per 100,000 males
- the suspected suicide rate in females was 6.9 per 100,000
- rates for males were higher than females in all five-year age groups
- for both males and females, rates were highest for those living in remote areas
- 50 (6.5%) occurred in Aboriginal and Torres Strait Islander people
- 39 (5.1%) occurred in persons identified as LGBTI.

Contributing factors to suicides in Queensland were available in the report for the period 2013 to 2015.<sup>253</sup> Of the 2085 people who died by suicide during that period:

- 44% were reported to have relationship difficulties
- 55% were known to have a history of suicidality
- 27% were unemployed, 14% were retired and 5% were disabled
- technicians, trades workers and labourers accounted for 31%
- 21% were in persons born overseas
- 49% had no known mental health condition
- 54% had no blood alcohol detected at the time.

At the time of report production, the impact of COVID-19 on suicide in Queensland was not yet quantifiable.

# Our health services

*Costs and utilisation*



# Our health services

## Introduction

Queensland Health is divided into 16 Hospital and Health Services (HHS) districts which are responsible for Queensland Health clinical and public health services. Fifteen are specific to geographical regions of the State whilst the Queensland Children's HHS has state-wide responsibility for the health of children and young people and operates the only tertiary paediatric hospital, Queensland Children's Hospital (QCH), located in Brisbane. Several specialist paediatric and adult outreach services are provided to regional and remote communities by Queensland Health.<sup>254</sup>

Queensland is also serviced by multiple private hospitals, non-government organisations (NGOs), Aboriginal and Torres Strait Islander Community Controlled Health Organisations, general practices, seven primary health networks (PHNs) and legions of volunteers and charitable organisations. COVID-19 brought to the forefront the critical role of community helplines and alternative mechanisms for health-service delivery such as telehealth.

In this section we describe the cost of health care in Queensland and provide summary data on health care services that are predominantly funded by federal and/or state governments. We do not include data from the vast range of NGOs mentioned above. Limited data for 2020 are presented given the ongoing COVID-19 pandemic at the time of this report.

## The cost of health care

A total of \$38.9 billion from all sources, including federal and state governments, was spent on health in Queensland in 2017–18 (Table 4.1).<sup>\*</sup> Expenditure in Queensland was 21% of Australian health expenditure (\$185.4 billion), consistent with Queensland's population share (20% in December 2018).<sup>\*</sup>

Per capita recurrent spending (all sources) in Queensland (\$7840 per person) was similar to national spending in 2017–18 (\$7485 per person), and second highest of the jurisdictions following the Northern Territory (Figure 4.1a).<sup>\*</sup>

Recurrent spending on health in Queensland increased annually by an average of 2.4% from 2007–08 to 2017–18, and was the third highest of the jurisdictions (Figure 4.1b).<sup>\*</sup>

From all funding sources, recurrent spending in Queensland was 42% for hospital services (31% public and 10% private) and 11% for specialist consultations in 2017–18.<sup>\*</sup> Primary health care accounted for 37% of total recurrent spending in 2017–18. This level of care included 4.2% for dental services and 1.3% for public health spending.<sup>\*</sup>

**Table 4.1 Health expenditure by source of funding, Queensland, 2017–18\***

	Total \$m	% of total
<b>Government</b>	<b>27,040</b>	<b>69</b>
Australian	15,960	59
State and local	11,080	41
<b>Non-government</b>	<b>11,869</b>	<b>31</b>
Individuals	5,760	49
Health insurance providers	3,331	28
Other	2,778	23
<b>Total health expenditure</b>	<b>38,909</b>	<b>100</b>

## Queensland budget

The Queensland Government spent \$18.1 billion (including federal allocation and GST) on the total health budget in 2018–19.<sup>256</sup> It was the largest component of state government expenditure (37%) followed by education (19%). In 2019–20, health was budgeted to cost \$18.5 billion.<sup>55</sup> This did not account for the advent of COVID-19.

## Cost by disease group

In 2015–16, the most recent year for which data were available, approximately three-quarters of national recurrent expenditure on health could be attributed to specific disease groups and conditions.<sup>255</sup>

Cardiovascular disease was the leading cause of public hospital admitted patient expenditure in 2015–16 (11% of total), followed by injuries (9.3%), gastrointestinal diseases (8.6%), and reproductive and maternal conditions (7.9%).<sup>255</sup>

**Figure 4.1 Recurrent health expenditure and annual growth, by jurisdiction\***



\* Reference: Australian Institute of Health and Welfare. *Health Expenditure Australia 2017–18, Cat.no HWE 77. 2019. Canberra: AIHW*

### Personal health spending

Nationally, in 2017–18 personal out-of-pocket health costs amounted to an average of \$1578 per person, which was 2.5% of average annual income.<sup>255</sup> In spite of fluctuations in the growth of both average personal spending and average annual income, there was a general increase in the proportion of health spending to income over the decade from 2007–08.<sup>255</sup>

### Aboriginal and Torres Strait Islander health expenditure

In 2015–16, all government (Federal and State) direct expenditure on the Aboriginal and Torres Strait Islander healthy lives program was \$6.3 billion nationally, with \$1.7 billion of that expenditure occurring in Queensland, the highest of any jurisdiction.<sup>257</sup> Funding to Aboriginal and Torres Strait Islander specific services comprised 23% of total direct expenditure and 19% of Queensland's direct expenditure with the remainder expended by mainstream services. Per person direct expenditure nationally in 2015–16 was \$8462 and \$7839 for Queensland which was the third lowest of the jurisdictions.<sup>257</sup>

This investment into the health of Aboriginal and Torres Strait Islander people has been well placed as Queensland is leading the way in closing the gap in life expectancy and continues to work towards improving other health inequities.

## Health service utilisation

### Inpatients

In 2018–19, there were 2,731,634 admitted episodes of care to acute public (57%) and private (43%) hospitals in Queensland, equating to a total of 6,533,811 patient days.<sup>106</sup> The hospitalisation rate was approximately 55,400 per 100,000 population. This compares to 1,696,874 episodes, 4,959,314 patient days and a hospitalisation rate of 39,000 per 100,000 population in 2008–09. The average length of stay in public hospitals was 2.5 days compared to 2.2 days in private hospitals in 2018–19.

Of the 2018–19 admissions, 5.6% were for Aboriginal and Torres Strait Islander people—the hospitalisation rate was approximately 67,800 per 100,000 population and the average length of stay was 2.2 days.

For acute public hospitals there were 1,567,258 admitted episodes of care in Queensland in 2018–19,<sup>106</sup> (917,264 (59%) same day episodes and 649,994 (41%) overnight/longer episodes)—a 30% increase from 2014–15. The average length of stay for overnight/longer episodes was 4.6 days.<sup>106</sup>

- Acute care accounted for 95% of admissions and mental health accounted for 2.1%.
- Eighty per cent of episodes were for medical reasons and 14% were for surgical reasons.
- The most common reason for admission was haemodialysis, accounting for 13% of episodes. This was a 15% increase in haemodialysis episodes of care from 2014–15.



Queensland Health Asset Library

### Emergency departments

In 2018–19 there were 1,561,825 presentations to public hospital EDs in Queensland (excluding Group C hospitals), a rate of 309.9 per 1000 population and a 1.5% increase on the average rate since 2014–15.<sup>258</sup> The age-standardised presentation rate for Aboriginal and Torres Strait Islander people was 526 per 1000 population and 256 per 1000 for other Queenslanders. Rates by age, sex and Aboriginal and Torres Strait Islander status are presented in Figures 4.2 and 4.3.

## At a glance

In 2017–18, total government expenditure on health in Queensland was almost \$39 billion

In 2018–19, there were 2,731,634 admitted episodes of care to acute public (57%) and private (43%) hospitals

The rate of calls to 13 HEALTH (13 43 25 84) in 2019–20 was 7236 per 100,000 population

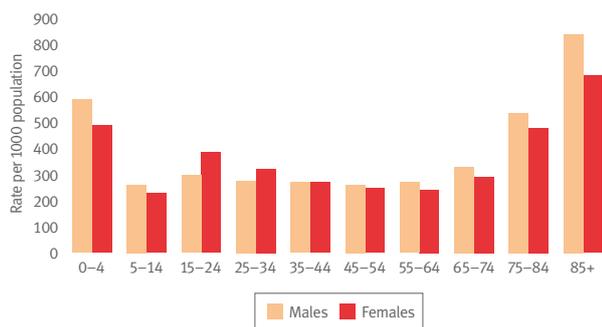
In 2019–20, 23,026 patients were referred for medical retrieval or aeromedical transport

In 2019–20, there were over 182,000 non-admitted telehealth services provided by Queensland Health



Indigenous Respiratory Outreach Care service

**Figure 4.2 ED presentation rates by age and sex, Queensland, 2018–19<sup>258</sup>**



**Figure 4.3 ED presentation rates by age and Aboriginal and Torres Strait Islander status, Queensland, 2018–19<sup>258</sup>**



The majority (99%) of episodes were emergency presentations with planned review visits and pre-arranged admissions accounting for 8613 and 5359 presentations respectively. Triage category 1 (that is, those requiring resuscitation) accounted for 15,133 (1.0%) presentations and the lowest level of urgency, category 5, accounted for 70,229 (4.4%).<sup>258</sup> More than one-third of presentations (35%) arrived by ambulance, air ambulance or helicopter rescue services.

### Outpatient services

In 2018–19, there were 5,643,673 public and private outpatient episodes of care in Queensland acute public hospitals. The top three services were for midwifery (20%), orthopaedics (15%) and physiotherapy (13%).<sup>107</sup> Outpatient services have remained relatively stable since 2016–17.

### Other acute public hospital activity

In 2018–19, there were 5,304,087 pathology services, 502,370 pharmacy services, 1,549,453 diagnostic imaging services and 95,109 other services provided in Queensland acute public hospitals to both public and private patients.<sup>107</sup>

### General practice

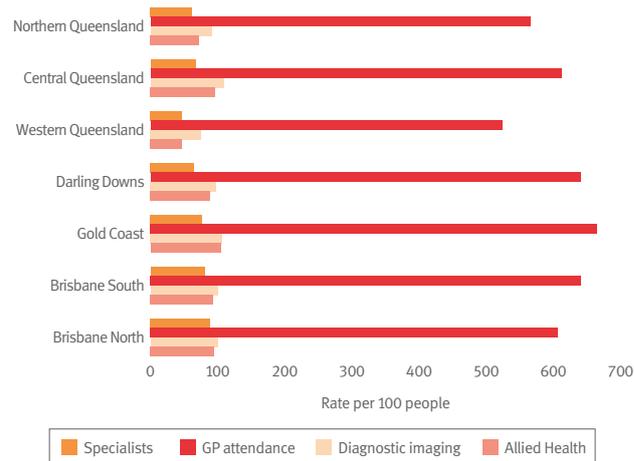
In Queensland in 2018–19, there were 25,265,113 GP attendances. The average number of GP visits per year were<sup>259</sup>:

- 5.1 visits by children aged up to 4 years and 2.5 visits for those aged 5–14 years
- 3.4 visits by young people aged 15–24 years
- 3.9 visits by younger adults aged 25–34 years
- 4.2 visits by adults aged 35–44 years

- 5.5 visits by middle-aged adults (45–64 years)—5.0 visits for 45–54 year-olds and 6.1 visits for 55–64 year-olds
- 10.1 visits by those aged 65 years and older—8.3 visits for 65–74 year-olds, 12 visits for 75–84 year-olds and 14 visits for those aged 85 years and older.

In 2017–18, after accounting for age, the lowest attendance rates for GP services were in the Western Queensland PHN which also had the lowest rates of specialist, allied health and diagnostic imaging services (Figure 4.4).<sup>260</sup>

**Figure 4.4 Medicare subsidised health services by primary health network, Queensland, 2017–18<sup>260</sup>**



### Allied health

Allied health comprises a group of professionals and assistants that provide critical complementary health services including audiology, clinical measurements (for example lung function testing), exercise physiology, medical radiation, music therapy, nutrition and dietetics, occupational therapy, pharmacy, physiotherapy, podiatry, prosthetics and orthotics, social work and speech pathology.

In 2017–18, allied health staff employed by Queensland Health provided 1,005,232 outpatient clinic occasions of service (8% of all outpatient occasions of service) and led 42,231 outpatient clinics.<sup>260</sup> Occasions of service increased by 24% from 2015–16. In addition to public hospital activity, there were high rates of out-of-hospital, Medicare-subsidised services (Figure 4.4). Similar to GP attendances, rates in Western Queensland PHN (46.8 per 100 persons) were approximately half of those in South East Queensland PHNs (93–105 per 100 persons). In addition to Medicare-subsidised services, there were an additional 10,583,341 non-hospitalised allied health services in Queensland in 2017–18 that were subsidised by private health insurance (rate 215 per 100 population).<sup>260</sup>



### Health Contact Centre

The Health Contact Centre (HCC) of Queensland Health provides confidential health assessment and information services to Queenslanders 24 hours a day, seven days a week using multi-channel delivery models. The centre is staffed by nurses, health practitioners and counsellors. Key services, include general enquiries, Quitline, the Schedule 8 Enquiry Service, Immunise Queensland, Way to Wellness, 13 HEALTH (13 43 25 84) Webtest (an alternative option for sexually transmissible infections testing), child health, chronic disease management and triage assessment.

In 2019–20, the HCC interacted with 1,447,391 Queenslanders across multiple channels including phone, SMS, email, letters and the web. The largest volume of inbound calls were to the Triage service for health problems, and COVID-19 response activity, with the most frequent outbound calls being Quitline and Waitlist (Table 4.2).

**Table 4.2 Health Contact Centre activity, 2019–20**

Inbound calls	Number	Rate <sup>1</sup>
13 HEALTH (13 43 25 84)	120,235	2372
13 QUIT	16,989	335
Triage	388,469	7528
Child Health	22,946	452
Schedule 8 enquiries	22,625	446
Way to Wellness	79	1.0
Outbound calls		
Chronic Disease Management	13,705	270
Child Health	3669	72
General Practice access to viewer	13	0.3
Webtest	988	19
Way to Wellness	2681	52
Quitline	116,867	2304
Immunise	95,285	1879
Rapid Contact	7127	140
Waitlist	130,417	2571

<sup>1</sup> Rate per 100,000 population

For completed activities in the triage service (324,633), 5% were for Aboriginal and Torres Strait Islander people, 81% were for other Queenslanders, and identity was unknown or declined for 12%. By age group, there were:

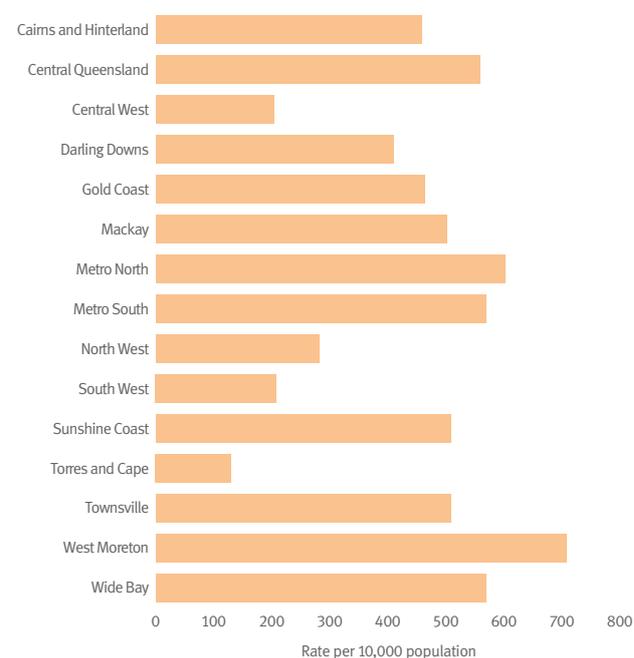
- 95,699 activities (29%) for children aged 0–14 years
- 73,755 (23%) for those aged 15–29 years
- 60,194 (18%) for those aged 30–44 years
- 61,886 (19%) for those aged 45–64 years
- 29,798 (9%) for those aged 65 years and older
- 5767 (2%) of unknown age.

The highest Triage service rate was in the West Moreton HHS (Figure 4.5) and the lowest was in the Torres and Cape HHS.



Queensland Health Asset Library

**Figure 4.5 Triage Service rate by HHS, Queensland, 2019–20**



The top 10 most common protocols administered by the Triage Service in 2019–20 are presented in Table 4.3. The miscellaneous protocol includes activities such as medication enquiries, asymptomatic high blood pressure readings and asymptomatic diabetics with high glucose levels.

**Table 4.3 Top ten Triage Service activities by protocol, Queensland, 2019–20**

Top 10 protocols	2019–20 FY Total
211 Miscellaneous protocol	17,546
23 Colds and flu	14,500
1 Abdominal pain	13,965
19 Chest pain	9657
88 Head injury	7764
56 Fever toddler (age 1–4 years)	6930
104 Vomiting	6557
30 Cough toddler (age 1–4 years)	6372
27 Cough	6306
66 Headache	6137
<b>Total</b>	<b>95,734</b>

### Aeromedical retrievals

Aeromedical services in Queensland are coordinated Retrieval Services Queensland. Retrieval services are provided by the Royal Flying Doctor Service (RFDS), LifeFlight Services, Queensland Ambulance Service, Queensland Government Air Rescue and non-government emergency helicopters.

**There has been a 14% increase in medical retrievals and aeromedical transports in the past five years.**

In 2019–20, 23,026 patients were referred for medical retrieval or aeromedical transport.<sup>261</sup> Of these, 12,091 were by fixed wing aircraft, 5357 by helicopter, 2815 by ambulance, 2818 by calls including those not transferred, advice only and cancelled and 125 by other services. Of the referrals, 8% were classified as critical and 26% as high dependency. Adults accounted for 76% of patients, children for 12% and obstetric and neonatal patients for 12%. The largest number of referrals came from the Darling Downs (2801), Central Queensland (2781), and Wide Bay (2476 Hospital and Health Services).<sup>261</sup>

During the COVID-19 period from February to September 2020, there were 119 aeromedical retrievals for COVID-19 patients—five were confirmed cases and 114 were suspected cases.<sup>261</sup>

In 2018–19, the RFDS provided services to 11,744 patients and immunisations to a further 3019 people in Queensland.<sup>262</sup> There were 1099 primary evacuations and 10,560 inter-hospital transfers. The service conducted 5345 clinics in Queensland of which 35% were nursing, 31% were GP and 4% were dental clinics. In addition, 36,235 telehealth services were provided. A total of 21,021 plane landings occurred in Queensland and 7,671,244 kilometres were flown.



Budd photography

### Telehealth

The Telehealth Support Unit provides system leadership of the Queensland Health telehealth and virtual health program. They work in conjunction with eHealth Queensland and the Telehealth Coordinator workforce across the HHSs to introduce and optimise new models of care. Telehealth can increase equitable access to care, reduce travel for patients, improve rural and remote workforce peer support, manage growing demands on facilities and health services, and support the development of sustainable service delivery models.<sup>263,264</sup>

Virtual care currently uses three main technologies to deliver services:

- **Clinical videoconferencing:** most common method of delivering telehealth services in Queensland. It allows two or more parties to interact with each other by the simultaneous exchange of video and audio, substituting the need for an in-person service.
- **eConsultation:** collecting clinical information and sending it electronically to another site for evaluation. Information typically includes demographic data, medical history, documentation such as laboratory reports and may include images, video and/or sound files.
- **Remote patient monitoring:** technology to enable the monitoring of patients outside of conventional clinical settings, such as in the home or in a remote area.

While telehealth consultations are provided in admitted, emergency, mental health and non-admitted settings, the majority are provided to non-admitted patients. There are more than 100 specialty types currently available including orthopaedics, paediatrics, remote chemotherapy, antenatal, and cardiac stress testing/holter monitoring.

**Non-admitted telehealth services in Queensland had an average annual increase of 40% from 2013–14 to 2019–20.**

### Key telehealth statistics

- Queensland currently has one of the largest managed telehealth networks in Australia with over 8000 systems deployed in more than 200 hospitals and community facilities.
- Since 2013–14, more than 567,000 non-admitted telehealth service events have been delivered.
- In 2019–20, there were:
  - more than 182,000 non-admitted services<sup>265</sup>
  - more than 66,000 mental health services<sup>265</sup>
  - more than 11,000 admitted services<sup>106</sup>
  - nearly 700 emergency services<sup>267</sup>
  - more than 6600 eConsultation services.<sup>268</sup>

Patients in rural and remote locations receive the most telehealth. For example, patients from Central West HHS receive approximately 40% of non-admitted consultations for specialist appointments.

### Telehealth COVID-19 response

The Telehealth Support Unit identified the need to rapidly implement additional telehealth technologies and increase infrastructure capacity in preparation for the pandemic.

The capacity to deliver clinical videoconferencing into a patient's home was increased from 90 concurrent calls to 1600 concurrent calls

The development of a custom Telehealth Virtual Clinic solution which provides streamlined management of high volumes of telehealth consultations, was expedited and implemented to assist in pandemic response strategies.

Web browser based clinical videoconferencing (known as WebRTC) was expedited and implemented within Queensland Health to ensure clinicians had rapid access to technology on any device without the need for additional licences, usernames/ passwords, or application installation. Where appropriate, many clinical services were transitioned to telehealth during the pandemic.

The rapid upscaling of telehealth resulted in twice as many non-admitted service events being delivered in April 2020 than prior to COVID-19, with almost one in 20 non-admitted service events being delivered via telehealth.

### University of Queensland–Centre for Online Health, Queensland Telehealth Evaluation

A recent evaluation of the Telehealth Program in Queensland found the following societal productivity gains for the financial year of 2017–18<sup>269</sup>:

- annual reduction of 27,000 days of travel time to attend specialist outpatient appointments
- annual reduction of 9.6 million kilometres of travel
- annual societal productivity gains of more than \$9 million
- annual reduction of nearly 3000 tonnes of carbon dioxide emissions.

### Primary health care services specific to Aboriginal and Torres Strait Islander people

Aboriginal and Torres Strait Islander people may access primary health care in mainstream services or through specific Aboriginal and Torres Strait Islander primary health services funded by federal and state and territory governments. Data on these services are available through the Australian Government's Online Services Report (OSR)<sup>270</sup> and the national Key Performance Indicators (nKPIs) under the Aboriginal and Torres Strait Islander Australian's health programme (IAHP).<sup>271</sup>



Queensland Health Asset Library

In 2017–18 there were 29 primary health care organisations specifically servicing Aboriginal and Torres Strait Islander people in Queensland and 1,624,320 contacts with clients occurred (an average of 11.5 contacts per client).<sup>270</sup> There were 1,016,210 episodes of care equating to an average of 7.2 episodes of care per client. Queensland had the highest proportions of episodes of care nationally, followed by the Northern Territory and New South Wales. Most services were provided by general practitioners (32%), nurses and midwives (28%) and Aboriginal and Torres Strait Islander health workers and practitioners (17%).

Queensland-based organisations accounted for 15% of the 198 organisations nationally that reported to the OSR,<sup>270</sup> however, they provided services to 29% (140,700) of the 483,000 clients of these services nationally, followed by New South Wales with 116,060 clients. Seventeen Queensland organisations had more than 3000 registered clients and 14 organisations provided services in two or more sites in the State. Service gaps in these organisations were apparent: 62% of Queensland services provided for people with a disability, 48% provided aged care services and 45% provided palliative care services.

### **Alcohol and other drug services**

in Queensland, specialist public sector mental health, alcohol and other drug services are delivered through HHSs and funded non-government providers. Specialist alcohol and other drug services provide treatment for people living with substance use disorders. Treatment may include withdrawal management, pharmacotherapy, psychosocial intervention, rehabilitation and harm reduction services.<sup>272</sup>

In 2018–19, 180 publicly funded alcohol and other drug treatment agencies in Queensland provided 47,831 treatment episodes to 35,123 clients (97% of episodes were for their own alcohol and other drug use).<sup>273</sup> Among clients, 51% were aged 20–39 years and 66% were male.

Alcohol was the most common drug of concern for Queensland clients (34% of episodes in 2018–19). In Queensland, the level of cannabis reported as the principal drug of concern is a result of the police and court diversion programs operating in the state. Cannabis was the second most common (28%), followed by amphetamines, 25%.<sup>273</sup>

Among Queensland clients in 2018–19, there were age differences, with 78% of clients aged 60 years or older having sought treatment for alcohol misuse, and 69% of those aged 10–19 years having sought treatment for cannabis misuse.<sup>273</sup>

For Queenslanders with opioid dependence, pharmacotherapy was delivered through 266 prescribers in 2019, and most dosing points were in pharmacies (532 of 645 sites).<sup>274</sup> On an average day in Queensland in 2019, about 7158 people received opioid pharmacotherapy (63% were males).

# 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 HHSs 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



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>

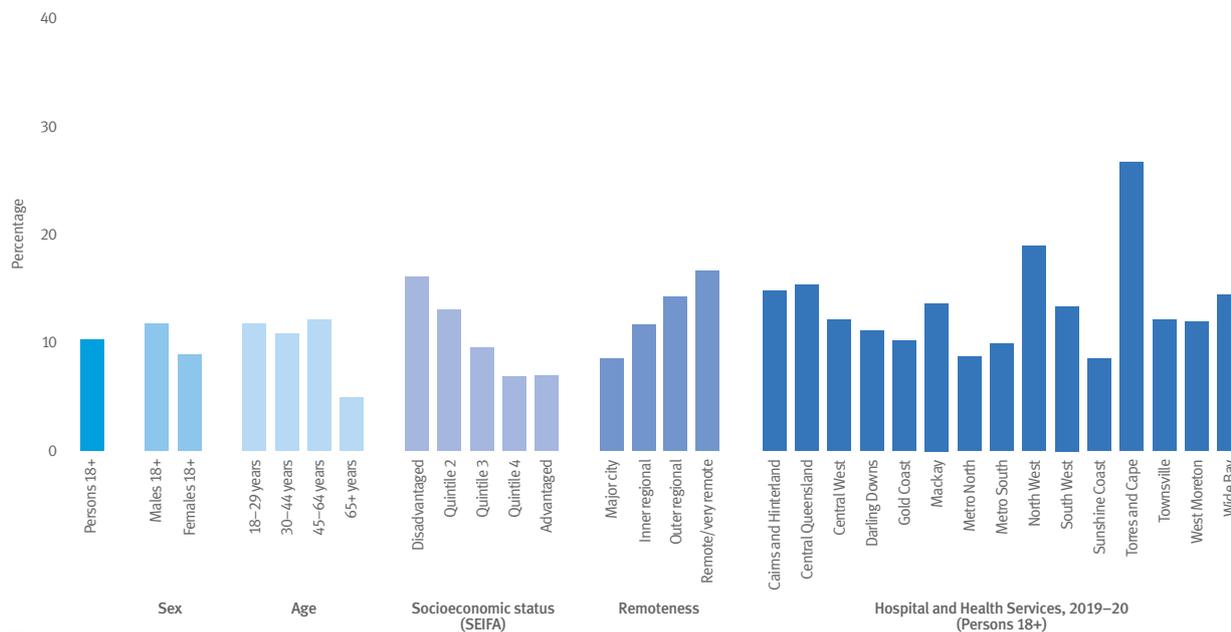
**Smoking cessation:** In 2020, 63% of adults who had ever been smokers had quit.<sup>233</sup> Smoking cessation increased with age ranging from 25% among 18–29 year-olds to 87% among those aged 65 years and older. There were no differences in the proportion of smokers who had quit by sex, remoteness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

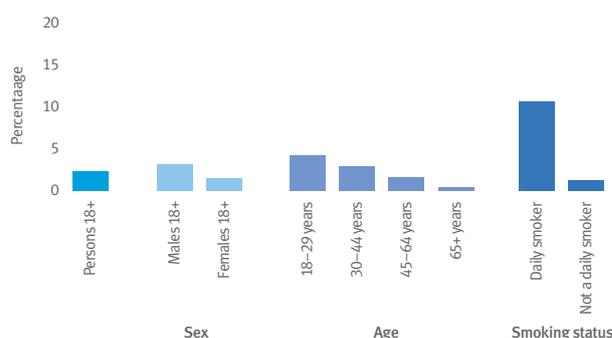
Electronic cigarettes (e-cigarettes) heat liquid, which usually contains nicotine, into a fine vapour to inhale into the lungs. Australian governments have taken an evidence-based and precautionary approach to e-cigarettes based on the risks they pose to tobacco control and population health in terms 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

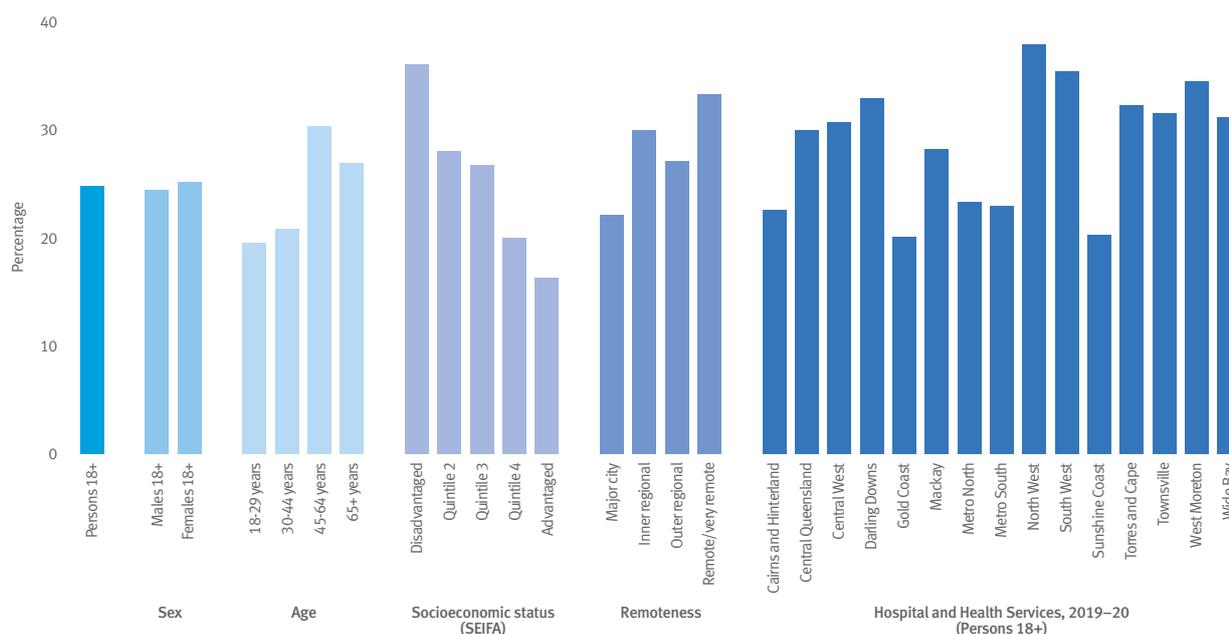
140,000 (16%) children and 1.33 million (34%) adults were overweight

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 HHSs had a higher prevalence of adult obesity (ranging from 20% higher in Central Queensland to 51% higher in North West) and 2 HHSs had a lower prevalence of adult obesity (19% lower in Sunshine Coast and 20% lower in Gold Coast)
- seven HHSs 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 HHSs and Darling Downs/West Moreton HHSs 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	
	Obesity	
	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>:

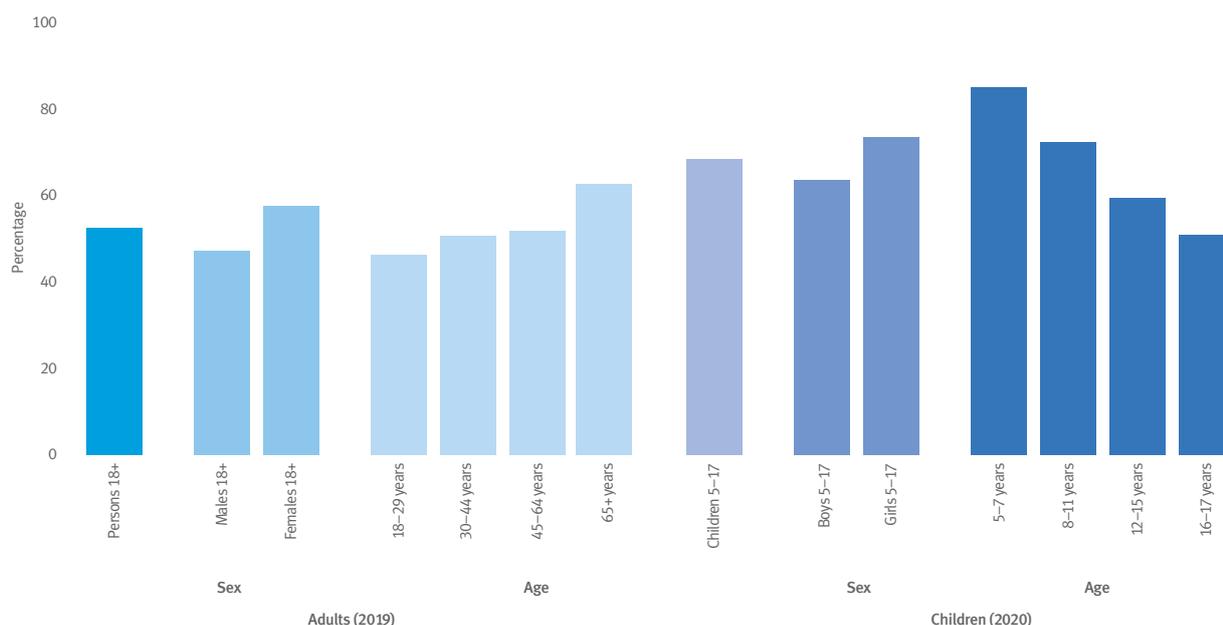
- 68% of children (2020) and 53% of adults (2019) met the recommendation for daily serves of fruit (Figure 5.4)
- 4.6% of children (2020) and 8.0% of adults (2019) met the recommendation for daily serves of vegetables (Table A7)
- 38% of adults (2019) consumed three or more serves of vegetables daily.

**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%

## 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



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%.

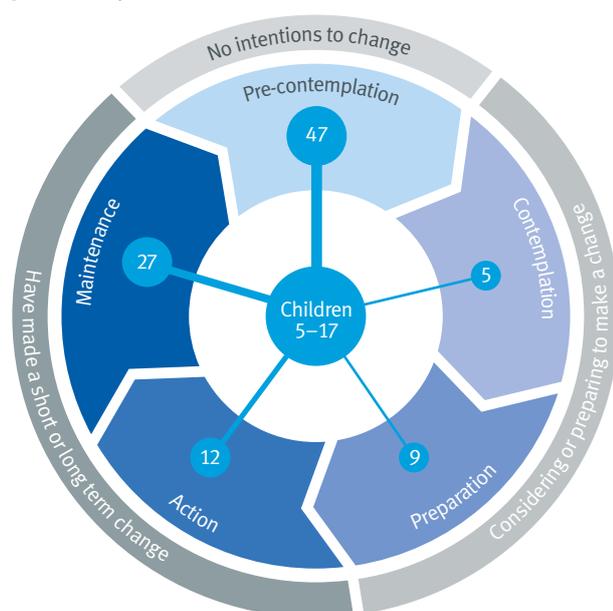
Nationally, from 2003 to 2015, burden attributable to all dietary risk decreased by 19% for cardiovascular disorders.<sup>90</sup> For all other associated disease groups, the burden increased by:

- 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.



# 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>

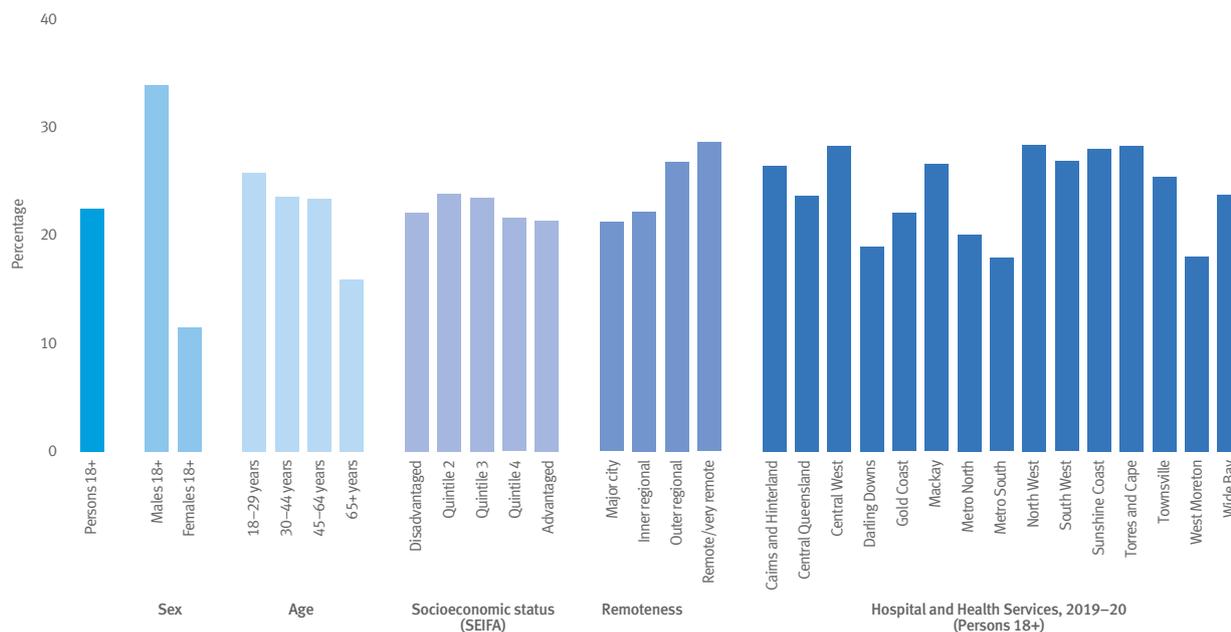
**Age:** For males in 2020, consumption patterns were similar across most ages with about a third of males aged less than 65 years exceeding lifetime risky alcohol drinking levels compared to about a quarter of males aged 65 or older.<sup>233</sup>

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 [QAS](#) 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



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

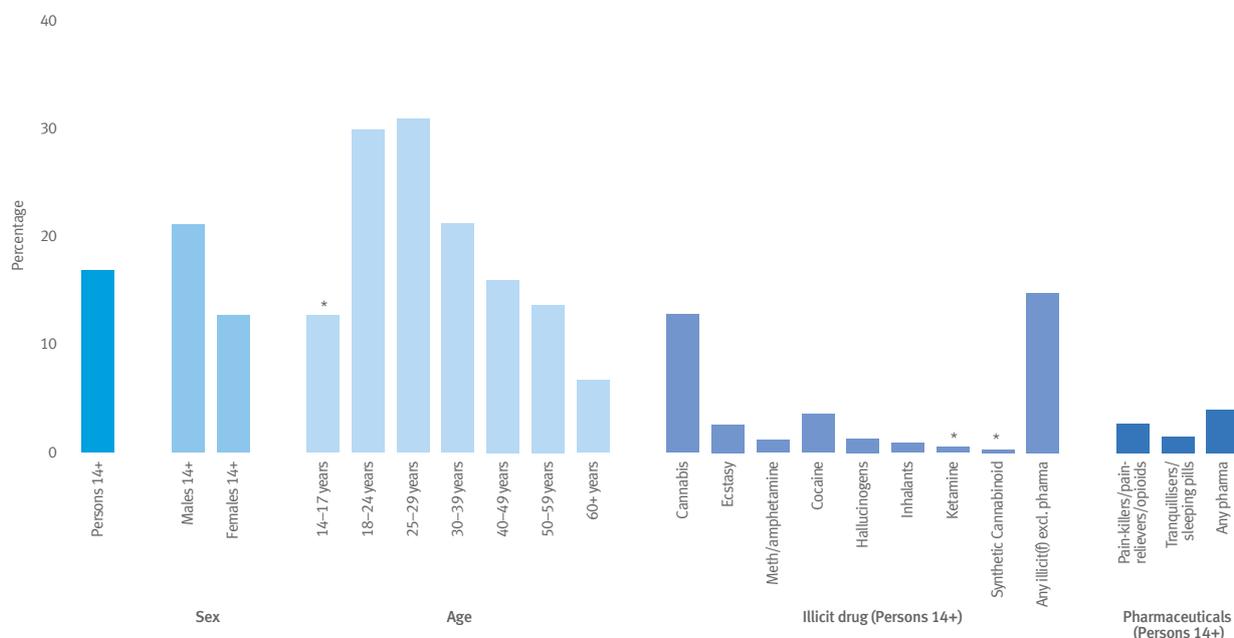
Along with alcohol and tobacco, addressing illicit drug use is challenging at all levels. Not only does it require a comprehensive understanding of the pathways to illicit drug use in diverse individuals, it also requires challenging social norms, peer pressures, the financial motivations of those who 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



**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>

**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*

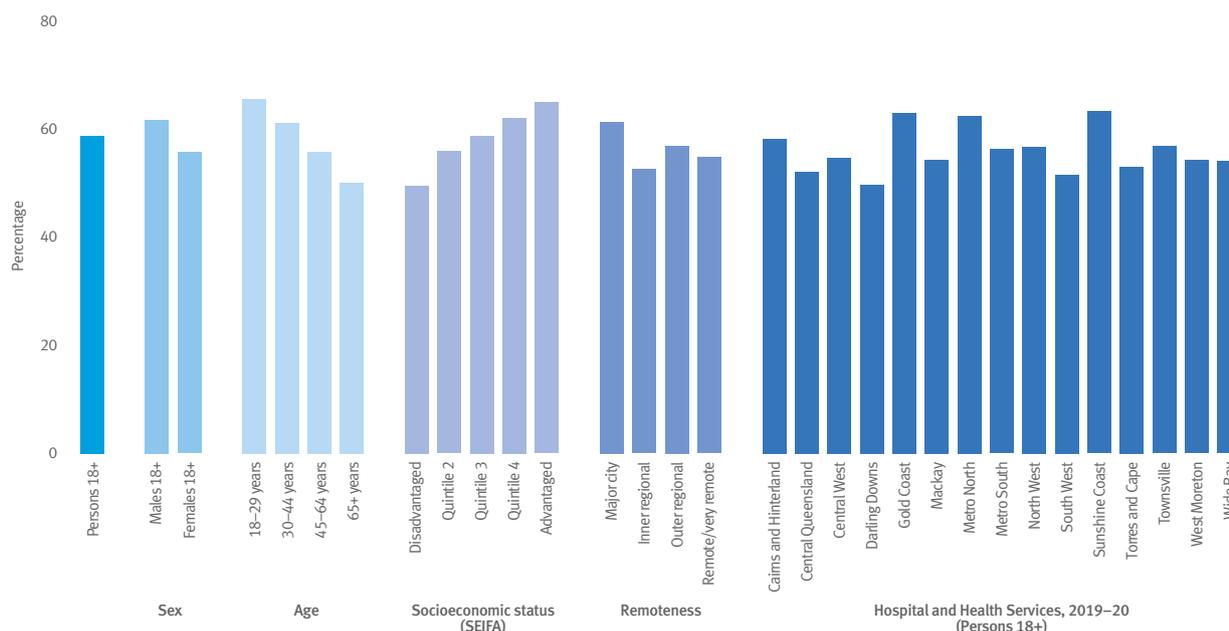
*Positive numbers indicate increasing trends and declining trends are negative numbers*

*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.

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



 See [QSAS](#) for more information

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.



## 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 sunburnt 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 sunburnt 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.

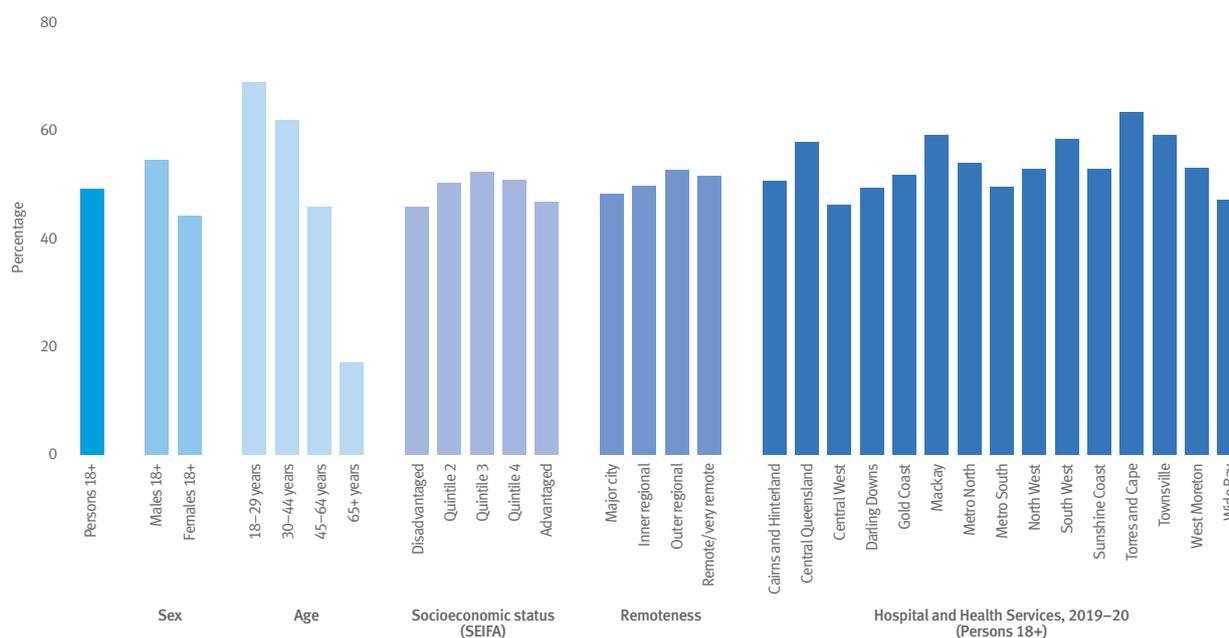
**HHS differences:** In 2019–20, the prevalence of adult sunburn was higher than the state average in four HHSs (Townsville, Mackay, South West, and Central Queensland), and was lower in Wide Bay HHS. In 2018–19, the prevalence of child sunburn was higher in South West HHS and lower in Metro South HHS 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



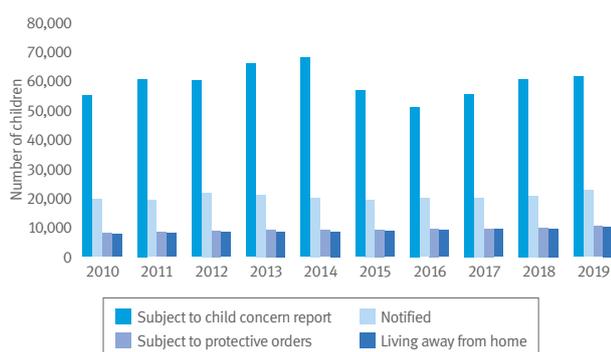
It is estimated that more than half of all children aged 2–17 years globally have experienced physical, sexual, and/or emotional violence or neglect in the past year.<sup>347</sup> As described in other sections of this report, it has profound and life-long impacts on the health and wellbeing of not 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

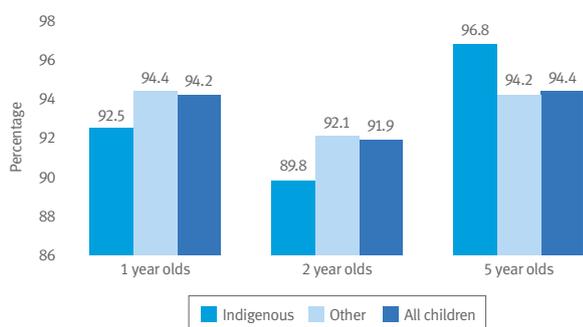
Immunisation is a successful and cost-effective health intervention with benefits to the individual, immediate and extended family and wider community. When sufficient numbers of people are immunised, disease transmission is effectively prevented, a benefit known as herd immunity. Vaccines funded under 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:

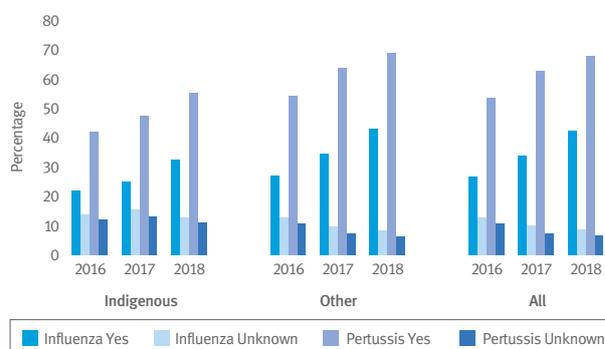
- An Australian study of 58,589 adults aged 60–64 years in 2010 reported 69% had received a pneumococcal vaccine by 2017.<sup>356</sup> Uptake was lower in those with no comorbidities (64.4%), in areas of higher socioeconomic advantage (67.7%) and in patients of practices in outer regional and remote 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.

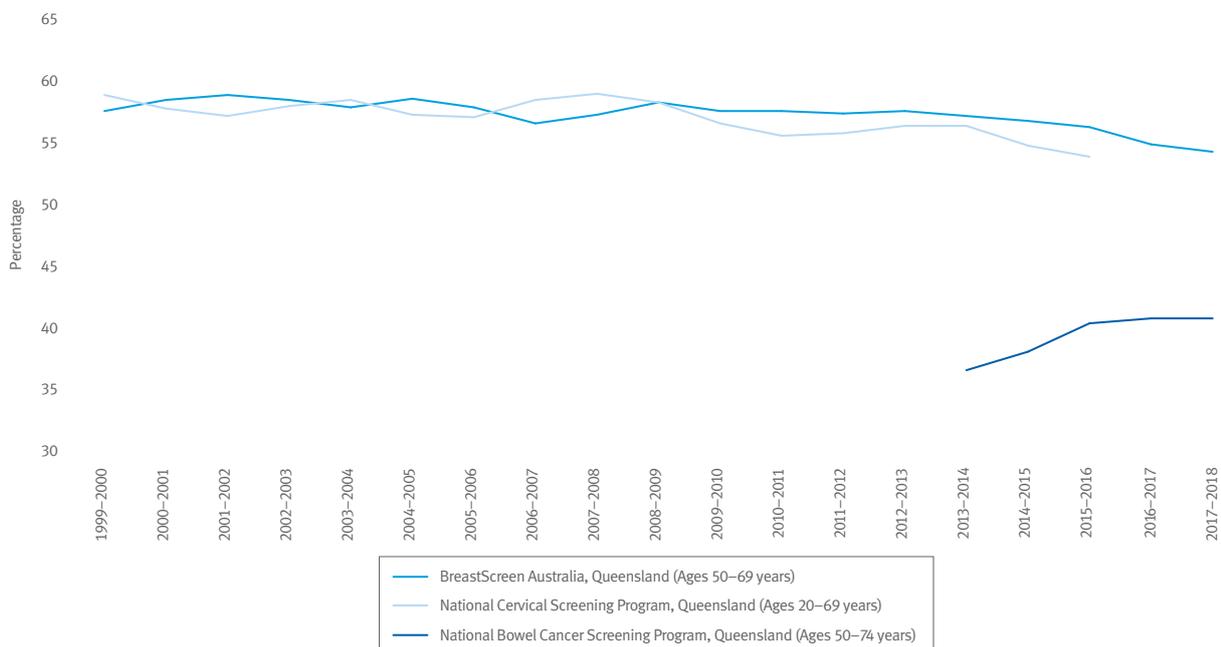
Bowel cancer screening participation was also lowest for those in very remote areas and those in the most disadvantaged socioeconomic group<sup>364</sup>:

- 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

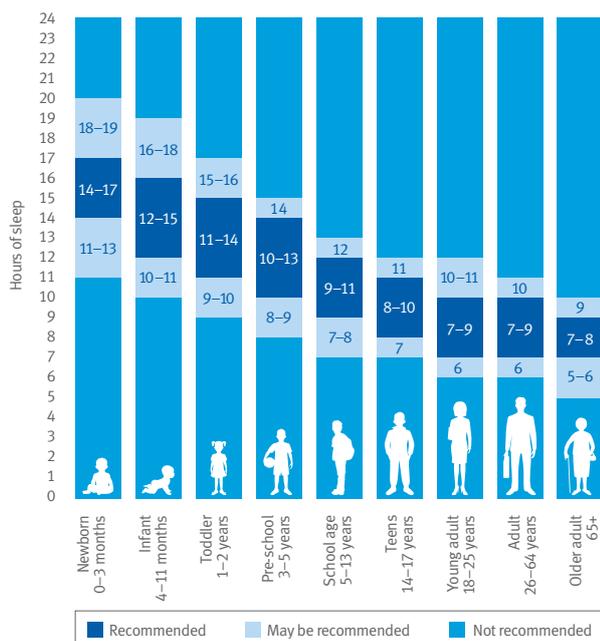
Up to 45% of Australian adults experience inadequate sleep duration or poor sleep health

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



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



## 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

- 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 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.

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

	Total N=1100	Sex		Age in years					
		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



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

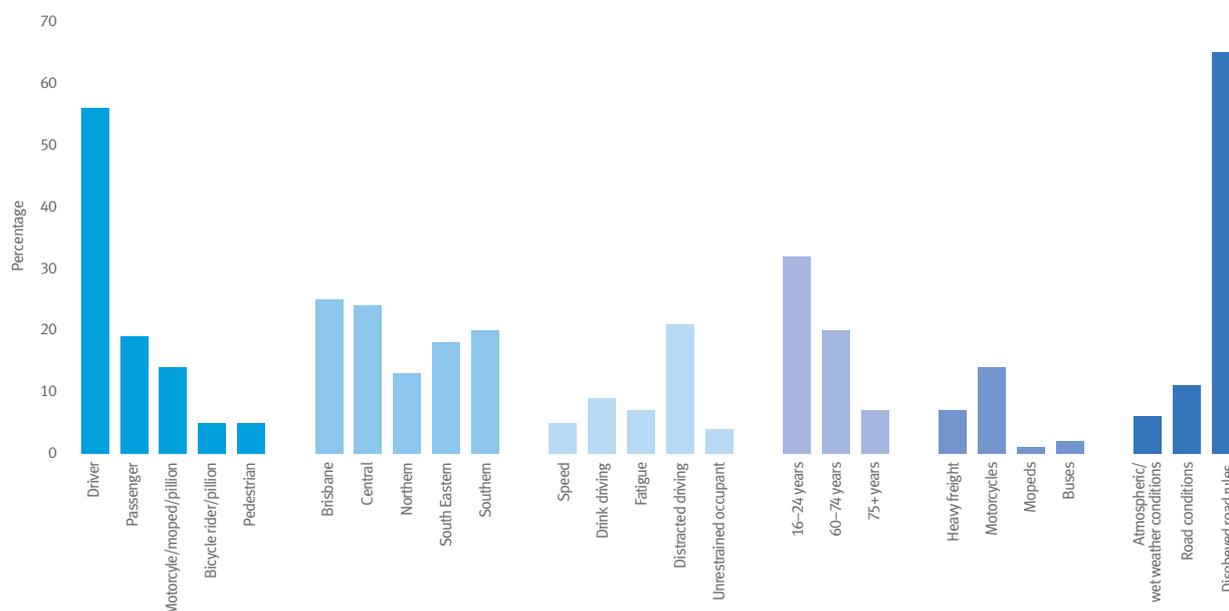
Road trauma continues to be an important cause of death and short- and long-term morbidity in Queensland and Australia as a whole. The successful decline in road deaths up to the end of 2019 has been offset by corresponding increases in crashes leading to hospitalised casualties. These data do not include 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>



1 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



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.

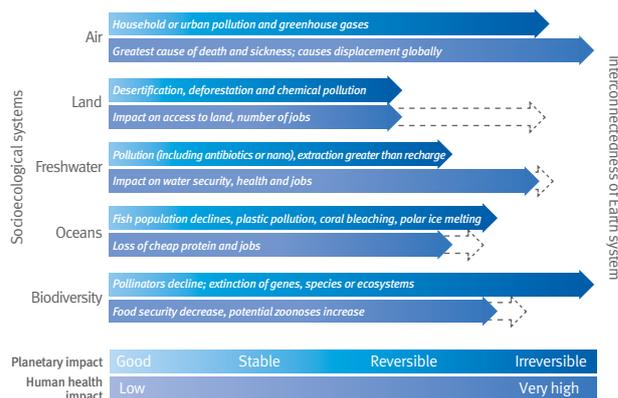
However, advances in technology mean that options such as teledentistry and digital solutions to promoting, monitoring and sustaining oral health present significant opportunities to address key gaps in knowledge, prevention and dental care. Pregnancy and early infancy is an ideal time-period in which 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





### 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>:

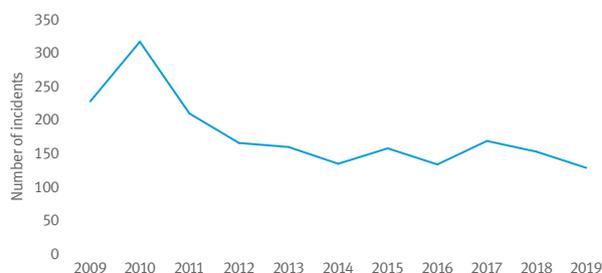
- rainfall was above average in the northern tropics and northwest, and below average in the south-eastern quarter of the State
- large areas of inland South East Queensland had the driest year on record
- temperatures were more than a degree warmer than average for the mean, maximum and minimum temperatures, 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>



## 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 NDLDLDR 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%).

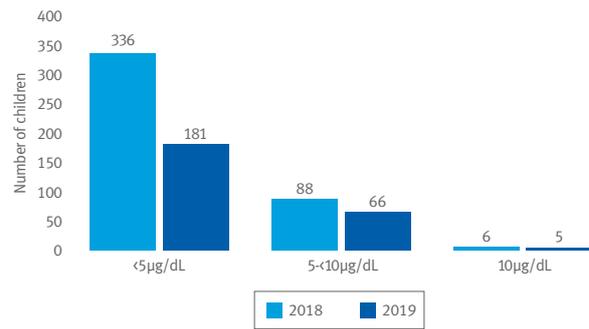
### Childhood lead exposure

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  $\geq 5$  ug/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.



Rachel Apelt

# Our future

*The way forward*



# Our future

## Introduction

This report has provided a snapshot of the recent health status of Queenslanders and overall it is a good story. We have come a long way and made many positive strides forward to improve our health and wellbeing. We were in a strong position to address COVID-19 and by continuing to work together, and inclusively, our future will be a bright one.

Our future will be supported by Queensland confirming the right of everyone to the highest attainable standard of physical and mental health as an integral part of human rights.<sup>404</sup> Core to that right being realised is a strong health system based on principles of equity. The passage of the *Human Rights Act 2019* makes Queensland the third Australian jurisdiction to implement human rights legislation, after the Australian Capital Territory in 2004 and Victoria in 2006. For the first time in Australia, the Queensland *Human Rights Act 2019* has included the right to health services (Section 37). Key principles of the Act include protecting and promoting human rights and building a dialogue and culture that respects those rights.<sup>405</sup>



## Our people

We have ongoing change to the age distribution of Queenslanders, like most developed countries where advances in health and improvements in our environments mean we are living longer. Our fertility rate continues to decline, as it is in most developed countries of the world, slowing population growth. This is largely due to social and economic factors influencing the decision by young adults, particularly women, to have children.<sup>406</sup> Immigration (from both interstate and overseas) is currently contributing the most to our population growth. If immigration patterns change markedly in the post COVID-19 era, particularly declines in working-age adults, this will place further pressure on the age distribution of our population, our workforce and the ability to care for our aged.

We are a diverse population and keeping us healthy means accounting for that diversity in our strategies to reduce the burden of disease. Initiatives that support rural and remote communities with respect to their health and overall wellbeing are important given the clear disparities that exist in health status and outcomes compared to their urban contemporaries. Some of the many ways in which this is being addressed is the

newly established Office of Rural and Remote Health which focuses on the health workforce in these regions. The health of Aboriginal and Torres Strait Islander people is improving and we recognise that Aboriginal and Torres Strait Islander people are best placed to advise what the needs and solutions are. This is why our focus will be targeted towards more community-based initiatives and partnering with Aboriginal and Torres Strait Islander people to ensure their voice is heard and implemented when it comes to the direction of government policies and programs.

## Our health

By almost all international standards, the overall health and wellbeing of Queenslanders is at a high level, largely due to world-class health systems and long-term prevention efforts to reduce the burden of disease such as reducing smoking and improving maternal and child health. However, disparities persist and people living in Queensland's rural and remote regions and those in the most socioeconomically disadvantaged groups are experiencing excess burdens of disease and injury and barriers to achieving and maintaining healthy lifestyles.

There are some challenges we are facing that are influencing the prevention, onset and management of disease, disability and injury, not least the mental health and wellbeing of our people. More people are experiencing anxiety and depression, and more are accessing health care for those issues. There is now considerable evidence that the effect of stress on neurological and immunological development and responses (particularly chronic inflammation) is an important component cause in the pathway to chronic disease.<sup>17</sup> At the severe end of the spectrum, suicide, drug and alcohol use, domestic violence and child abuse are concerning at any level. There are groups in our communities who are most at risk of poor mental health and wellbeing. These include our youth, the un- and under-employed, rural and remote communities, LGBTIQ+ people, Aboriginal and Torres Strait Islander people, our homeless, our carers and people arriving in Queensland through humanitarian programs. The effect of COVID-19 on our current mental health status is not yet fully known, however, emerging data suggest the impact may be profound and will continue to shape our mental health and wellbeing for years to come.



A major challenge is how to maintain our quality of life as non-fatal disease burden continues to rise. While we are living longer, we are living with more years of poor health and reduced wellbeing. Chronic diseases continue to be the leading contributors to disease burden, particularly when multimorbidities are present. Dementia, frailty, musculoskeletal disorders and haematological disorders will continue to increase as our population ages. It is estimated that 38% of the disease burden is due to modifiable risk factors.<sup>82</sup> Unless major inroads into improving our diets and physical activity are made, lifestyle diseases such as diabetes and their sequelae will continue to rise sharply. This has numerous implications for society, the economy and health services. Further, increasing evidence supports the critical role of pre-natal, perinatal and postnatal influences on lifelong health trajectories and the development of chronic disease.<sup>118</sup> While focus on the first 1000 days is doing much to positively influence these trajectories, and is now extending to the first 2000 days, greater emphasis is needed on pre-conception health, including that of fathers.

The 2019 influenza season, COVID-19 and the problems we face with growing antimicrobial resistance demonstrate the continuing importance of infections, many of which are largely preventable and disproportionately affect lower socioeconomic groups and those with underlying chronic conditions. With changing natural environments due to population pressures and climate change, we are likely to see more new infectious diseases emerge or existing ones extend into populations not previously affected, such as tropical mosquito-borne viruses.

We have made substantial progress in reducing the incidence of HIV and, in high-income countries, people infected are no longer dying of AIDS. Other sexually transmitted infections, however, are continuing to rise (for example, chlamydia and syphilis) potentially indicating new approaches to safe sex are needed. We need to maintain confidence in our world-leading immunisation programs and strengthen programs dedicated to improving coverage in disadvantaged and/or hard-to-reach children and adults in our communities. This will become increasingly important as new and better vaccines become available.

Remarkable achievements have been made in survival for our leading cancers (breast and prostate cancers) and in the prevention of some cancers (cervical cancer). We now have a cure for Hepatitis C, a leading cause of liver cancer and other chronic diseases.<sup>407</sup> Elimination of Hepatitis C globally is possible if access to treatment is not limited by cost.<sup>408</sup> However, there are still many cancers for which prevention, extended survival or a cure remains elusive. The rise of genomics and precision medicine offers new potential and Queensland researchers and health service providers are at the forefront of many of these advances supported by Queensland Genomics.<sup>409</sup>

Falls, road trauma and assault continue to dominate injuries in Queensland and are leading causes of long-term disability. The causal pathways are complex, but the safety and design of our physical environments are critical to falls and road trauma. Addressing the key factors associated with assault will involve examining our culture around gender and racial attitudes and beliefs, alcohol misuse, substance use and mental health.



As our population ages, the contribution of falls to overall burden of disease will continue to rise. Reducing that burden will involve addressing the safety of the physical environments in which our elderly live as well as other factors such as minimising the risk of medication errors which can lead to side effects as such as disorientation and dizziness.<sup>410</sup> Interventions that reduce the risk of osteoporosis and improve bone density will lower the risk of adverse fall outcomes such as fractures.<sup>411</sup>

We have substantially reduced the number of people dying on our roads but there are more crashes. Measures to improve pedestrian and cyclist safety, responsible use of motorised scooters and reducing driver fatigue and distractions will remain key strategies to reducing the health burden caused by road trauma.<sup>412</sup>

## Our health services

Approaches that will continue to feature prominently in Queensland in the coming years will include:

- active and meaningful consumer engagement in health service policy, planning and delivery
- harnessing new technologies to provide more people with high quality services at less cost and to better investigate health conditions to protect Queenslanders
- building the capability of our health workforce with respect to mental health and wellbeing, aged care and the needs of our culturally, linguistically and geographically diverse population
- continuing to enhance and provide equitable access to early intervention and high-quality care for rural and remote Queenslanders and Aboriginal and Torres Strait Islander communities.

There are many initiatives that have been implemented in Queensland over recent years to improve the quality and efficiency of health services, and many of these are detailed in Queensland Health's annual report and the annual reports of the various HHSs. There is a growing focus on patient reported outcomes, quality of life and managing patients outside of the hospital. The successes of Telehealth, 13 HEALTH (13 43 25 84), specialist outreach programs and "Hospital in the Home" illustrate how effective care can be safely delivered outside of a clinical setting. Our ambulance, aeromedical and retrieval services are continuing to expand their expertise in pre-and out of hospital care to reduce morbidity and mortality.

## Our lifestyles

Queenslanders live in one of the best places in the world and our lifestyles reflect our diverse range of physical and social environments. We have extensive opportunities for maintaining and enhancing our wellbeing, not least being our great outdoors, the quality of our food and produce and our built environments that facilitate social interaction, physical activity and simply relaxing.

Through HWQld and other initiatives ranging from cross-government to local level approaches, Queensland is striving towards ensuring all Queenslanders can make healthy lifestyle choices.<sup>413,414</sup> The focus is on good food choices, optimising physical activity and having safe and healthy environments in which we live, work and play. These initiatives are, by design, intended to be inclusive of all Queenslanders.

We have had remarkable successes in reducing the prevalence of tobacco smoking in Queensland and declines in disease burden attributable to smoking are now being realised. However, tobacco control efforts need to be strengthened, especially in groups with a high prevalence of smoking. The lesson from tobacco control is that supportive and proactive environments are essential to achieving reductions in overweight and obesity, increasing our physical activity, reducing harmful sun exposure and enabling time-out.

Our protective and risk factors for health and our health status are not simply “lifestyle choices”. They are influenced by genetic factors as well as a broad range of social, economic, environmental and political enablers and barriers across the lifespan. These will continue to be addressed in partnership with organisations, communities, families and individuals.

Technological advances are growing in demand, intelligence and capacity. There are, however, challenges with some technology, particularly online communication, we need to monitor carefully. While incredibly useful for disseminating information quickly, the downside is the rapid spread of misinformation and other issues such as the rise of cyber-bullying and a preoccupation with image and celebrity.

Focusing on healthy built environments so that they are connected, welcoming, and responsible for future generations will become increasingly important. COVID-19 has by necessity led to new ways of thinking about our spaces and how we maintain health and wellbeing for all Queenslanders in the “new normal”.



## The final word

*“Every child and many adults dream of a tree house. Somewhere, among the primeval genes that persist in us, are those that recall the arboreal life of our forebears. They persist in the indefinable feelings of identity, of adventure, even of sanctuary, which so many experience in a tree house.”* Professor John Pearn, Queensland paediatrician, 2013<sup>415</sup>

The first two decades of the 21<sup>st</sup> century have been ones of rapid change—socially, economically, politically and environmentally. The start of the third decade has possibly led many of us to seek out the simplicity of our tree houses as we navigate the “new normal”. Queensland has great communities for tree houses and great people to build them and to live, work and play in them. There are great services and communities to support them. We have some trees that need extra help and that is more than achievable.



# Terminology and definitions

**Aboriginal and Torres Strait Islander people:** Referred to in full, with the exception of labels in Figures and Tables given space constraints in which Indigenous is used.

**Accessibility/Remoteness Index of Australia (ARIA):** Remoteness was determined using the six categories of *Remoteness areas* classification: major cities, inner regional, outer regional, remote, very remote, and migratory.<sup>416</sup> ARIA scores are based on how far the population must travel to access services.

**Adults:** Usually defined as those aged 18 years and older.

**Age-standardisation:** To facilitate comparisons between various populations with different age structures, rates may be adjusted for the age structures by relating them to a reference population (in this report the 2001 Australian population).<sup>417</sup> Age-standardised prevalence rates are used to compare Queensland with other jurisdictions and nationally, where they are available. Crude prevalence is more often also used to compare hospitalisation rates within Queensland.

**Amphetamines:** refers to both amphetamine and the sub-category methamphetamine (most commonly known as 'ice' or 'crystal').<sup>418</sup> Illicit drug use includes the pharmaceutical misuse of amphetamine for non-medical purposes. Most of the amphetamine used in Australia is methamphetamine.

**Australian Bureau of Statistics (ABS):** Australia's official statistical organisation and a statutory authority.<sup>419</sup>

**Australian Dietary Guidelines:** The *Australian Dietary Guidelines* recommend the consumption of five food groups: 1) fruit 2) vegetables and legumes/beans 3) milk, yoghurt, cheese and/or alternatives 4) lean meats and poultry, fish, eggs, tofu, nuts and seeds, and legumes and beans and 5) grains (includes cereal foods, mostly wholegrain and/or high cereal fibre varieties).<sup>420</sup> Consumption is recommended in quantities that are appropriate to life stage, sex, and energy needs.

**Australian Institute of Health and Welfare (AIHW):** Major agency for health and welfare statistics and information.<sup>421</sup>

**Body mass index (BMI):** Refers to a simple index of weight-for-height, calculated as  $BMI = [\text{weight (kg)}/\text{height (m)}^2]$ , that is commonly used to classify underweight, healthy weight, overweight and obese (refer to separate entries for each BMI category).<sup>298</sup> BMI for children takes into account the age and sex of the child and has different cut-offs for BMI categories than those used for adults.

**Children:** Usually defined as those aged 1–17 years.<sup>1</sup> Those aged less than 1 year are referred to as infants.

**Chronic conditions of ageing and disability:** Includes the ICD chapters for musculoskeletal conditions, nervous system diseases, mental disorders (including dementia and substance use disorders), endocrine, nutritional and metabolic disorders including diabetes, and diseases of eyes and ears.

**Chronic obstructive pulmonary disease (COPD):** Term to describe chronic lung diseases that limit lung airflow, includes emphysema and chronic bronchitis.

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

**Confidence interval (CI):** In general, a range of values expected to contain the true value 95% of the time (95% CI).<sup>417</sup>

**Crude rates:** The number of cases in a given time period in a geographic area divided by the total number of persons in the population.<sup>417</sup> Crude rates more accurately reflect the health burden in the community.

**Dietary factors combined:** Estimated burden of disease due to joint effects of all diet-related risk factors included in the analysis.<sup>82</sup>

**Disability:** Temporary or long-term reduction of a person's capacity or function, including illness.<sup>417</sup>

**Disability adjusted life year (DALY):** Measure of overall burden of disease and injury, where the DALY for a disease or condition is the sum of the YLL and YLD.<sup>82</sup>

**Discretionary or unhealthy foods:** The *Australian Dietary Guidelines* describe discretionary foods as those that are not essential or a necessary part of a healthy dietary pattern.<sup>420</sup> These foods are high in kilojoules, saturated fat, added sugars and/or salt or alcohol. The ABS has identified a group of foods consistent with the guidelines based on the national food recall survey in 2011–12.

**e-cigarettes:** Refers to electronic cigarettes, otherwise known as electronic nicotine delivery systems or personal vaporisers containing nicotine, and are used in a manner that simulates smoking.<sup>418</sup>

**Financial years:** Reported using the convention, 2019–20.<sup>422</sup> Periods covering two full years are reported using the convention, 2019–2020.<sup>422</sup>

**Gross domestic product (GDP):** Equivalent to total national expenditure plus exports of goods and services minus imports of goods and services.<sup>422</sup>

**Health adjusted life year (HALE):** Refers to the average number of years at birth that a person can expect to live in full health if the current patterns of mortality and disability continue throughout their life.<sup>417</sup>

**Healthy weight:** Refers to the category classified as a body mass index in the range of 18.50–24.99.<sup>125</sup>

**Homeless:** A person is considered to be homeless if they do not have suitable accommodation and their current living arrangement is in a dwelling that is inadequate or has no tenure (or initial tenure is short and not extendable) or does not allow them to have control of, and access to, space for social relations.<sup>115</sup>

**Hospital and Health Services (HHSs):** Queensland has 16 HHSs, of these 15 HHSs are geographically based. Children's Health Queensland HHS is related to services provided to children and is not geographically based.

**Hospitalisations:** The term used for the total number of separations in all hospitals (public and private) that provide acute care services. A separation is an admitted episode of care which can be a total hospital stay or a portion of a hospital stay ending in a change of status.

**Hypertension:** Prolonged elevation of the blood pressure also referred to as high blood pressure.

**Illicit drug use:** Includes the use of illegal drugs, non-medical use of pharmaceutical drugs and misuse of substances.<sup>418</sup>

**Incidence:** Number of new health-related events (for example, illness or disease) in a defined population in a defined period of time.<sup>417</sup>

**Infant mortality rate:** Number of deaths of children under one year of age in one calendar year per 1000 live births in the same calendar year.<sup>115</sup>

**International Classification of Diseases (ICD):** Standard classification of specific conditions and groups of conditions determined by an internationally representative group of experts and used for health records.

**Joint effects (burden of disease):** The impact of multiple risk factors on disease burden that takes into account the complex interaction and overlap of risk factors on disease outcome.<sup>82</sup>

**LGBTIQ+:** Refers to people and families who identify as lesbian, gay, bisexual, transgender, intersex and queer.<sup>36</sup>

**Life expectancy:** Average number of additional years a person of a given age and sex might expect to live if the age-specific death rates of the given period continued throughout their lifetime.<sup>417</sup>

**Lifestyle-related chronic conditions:** Defined in this report as a group of seven chronic conditions that are major causes of disease burden and have the highest attributable risk factor burden (excluding alcohol related effects). They include coronary heart disease, stroke, lung cancer, colorectal cancer, breast cancer, COPD and diabetes.

**Linked disease:** A disease or injury for which there is evidence that its likelihood is increased by the risk factor in question.<sup>90</sup>

**Low birth weight:** In this report low birth weight includes all births (still born and live births of at least 20 weeks gestation or greater than 400g) with a birthweight less than 2500g, excluding only those for whom no weight was recorded.<sup>423</sup>

**Margin of error:** The margin of error is a statistic expressing the amount of random sampling error in the results of a survey. The larger the margin of error, the less likely the estimate reflects the “true” value in the whole population.

**Maternal smoking:** Refers to women who smoke tobacco during pregnancy.<sup>423</sup>

**National Health and Medical Research Council (NHMRC):** Australia’s leading body promoting development and maintenance of public and individual health standards.<sup>282</sup>

**Neonatal death:** Refers to the death of a live-born baby up to 28 days of age.<sup>423</sup> Perinatal deaths include neonatal deaths and stillbirths (that is, fetal deaths).

**Non-discretionary or healthy foods:** The *Dietary Guidelines* describe non-discretionary foods as those that are an essential part of a healthy dietary pattern.<sup>420</sup>

**Non-melanoma skin cancer (NMSC):** Includes basal cell carcinoma and squamous cell carcinoma.

**Notifications:** Reports of specified health conditions to government by medical practitioners, pathology laboratories and hospitals.<sup>424</sup> In Queensland, this is legislated by the *Public Health Act 2005*.

**Obese:** Refers to the weight category classified as a body mass index (BMI) in the range of 30.00 or more. The obese category is classified as: class I where BMI is 30.00–34.99, class II where BMI is 35.00–39.99, and class III where BMI is 40.00 or more. Severely obese is the combined prevalence of class II and class III obesity.<sup>125</sup>

**Organisation for Economic Co-operation and Development (OECD):** Group of 34 member countries using information to help governments foster prosperity and fight poverty through economic growth and stability. Australia became a member in 1971.<sup>425</sup>

**Overweight:** Refers to the category classified as a body mass index in the range of 25.00–29.99.<sup>125</sup>

**Patient days:** Refers to occupied bed days for patients in hospitals and day surgery units.<sup>109</sup>

**Perinatal deaths:** Includes all stillbirths (fetal deaths) of at least 400g birth weight or at least 20 weeks gestation, and neonatal deaths of live-born babies up to 28 days of age.<sup>423</sup> The recording of stillbirths varies by jurisdiction. In Queensland, in addition to a doctor or coroner and one or both parents, other informants may provide the second part of the notification to fully register a perinatal death. In Queensland, stillbirths are registered as a birth and a death, whereas in most other jurisdictions they are only entered as a stillbirth as part of the birth registration process. These differences result in different reporting outcomes, where the National Perinatal Data Collection is the preferred source for Queensland Health.

**Potentially preventable hospitalisations (PPHs):** Admissions to hospital that potentially could have been prevented through the provision of appropriate non-hospital health services.<sup>426</sup> These are defined nationally, while Queensland Health reports a modified suite of conditions.<sup>1</sup> The national indicator only includes diabetes where it was coded as the primary or principal diagnosis. The Queensland Health definition also includes admissions for diabetes as an ‘other’ diagnosis where the primary diagnosis was defined (including selected cardiovascular, renal and eye conditions).

**Potentially avoidable deaths:** a death that, theoretically, could have been avoided given an understanding of causation, the adoption of available disease prevention initiatives and the use of available health care.<sup>78</sup>

**Premature death:** Generally refers to a death that occurs before the age of 75 years.<sup>115</sup>

**Prevalence:** Measure of disease occurrence or frequency, often used to refer to the proportion of individuals in a population who have a disease or condition at a particular point of time.<sup>417</sup>

**Primary Health Networks (PHNs):** Queensland has seven PHNs that work directly with all levels of the health care system to facilitate efficient and effective outcomes for patients.

**Proxy-report:** Method of collecting information about health status, usually during a survey where a parent or guardian reports a status measure on behalf of a child or dependent, such as their height, weight or physical activity.<sup>1</sup>

**Psychological distress:** Assessed using the Kessler Psychological Distress Scale (K10) which is a scale of non-specific psychological distress based on 10 questions about the frequency of negative emotional states in the four weeks prior to interview.<sup>125</sup>

**Rates:** A measure of the frequency of the occurrence of an event or phenomenon in a defined population in a specified period of time.<sup>417</sup>

**Relative standard error (RSE):** Standard error measures how much a survey estimate is likely to deviate from the actual population. It is expressed as a number. By contrast, relative standard error (RSE) is the standard error expressed as a fraction of the estimate and is usually displayed as a percentage.<sup>427</sup> Estimates with a RSE of 25% or greater are subject to high sampling error and should be used with caution.

**Self-report:** Method of collecting information about health status, usually during a survey where a person self-reports a status measure such as their height, weight or physical activity.<sup>1</sup>

**Significant:** Term used in this report to reflect a level of importance as well as statistical difference. Statistical significance is based on non-overlap of 95% CIs and where these criteria are not met, non-significant results are described with terms such as ‘similar’, ‘stable’ or ‘no difference’.<sup>1</sup>

**Stillbirth (fetal death):** A stillbirth or fetal death is the death of a fetus prior to the complete expulsion or extraction from its mother as a product of conception of at least 20 completed weeks of gestation or with a birth weight of at least 400g.<sup>423</sup> The death is indicated by the fact that after such separation the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.

**Sufficient physical activity for health benefit:** Defined as 150 minutes of moderate activity over five or more sessions in a week, for adults and is usually limited to those aged 18–75 years.<sup>322</sup>

**Sugar sweetened drinks:** ABS definition for drinks that have added sugar (cordials, soft drinks, flavoured mineral waters, energy and electrolyte drinks, fortified waters, and fruit and vegetable drinks).<sup>125</sup>

**Suicide and self-inflicted injuries:** the intentional taking of one’s own life or deliberately causing one’s own death, with intent verified by coronial assessment. Also referred to as intentional self-harm.<sup>115</sup>

**Underweight:** Refers to the category classified as a body mass index in the range of less than 18.50.

**Years of life lost due to disability (YLD):** Measure of burden of disease and injury, capturing health loss due to any short-term or long-term condition.<sup>82</sup>

**Years of life lost due to premature death (YLL):** Measure of burden of disease and injury, capturing health loss due to premature death.<sup>82</sup>

# Index

<b>Aboriginal</b>	<b>3, 9, 14, 22, 25, 30, 32, 39, 44, 48, 53, 54, 69, 74, 79, 81, 87, 91, 99, 107, 110</b>
<b>Ageing</b>	
Aged care	11, 59, 115
Population	6, 8, 11, 14, 19, 21, 35
<b>Alcohol</b>	
Burden	17, 18, 19, 86-88, 141
Fetal alcohol spectrum disorder	35
Pregnancy	33, 88
Prevalence	86, 87, 106, 140
Services	70
Trends	viii, 87
<b>Births</b>	<b>32</b>
Low birthweight	34
Premature	34
Congenital anomalies	34
<b>Bronchiectasis</b>	<b>41, 147</b>
<b>Burden of disease</b>	
Attributable risks	18, 132, 136, 138, 139, 141, 143, 145, 146
Disability adjusted life year	15-18
Global	19
Health related quality of life	20
Leading causes	17
Quality of life	19
Quality adjusted life years	15, 20
Trends	19
Years of life lost	15-18
Years of life lost to disability	15-18
<b>Blood</b>	
Cholesterol	37, 84, 85, 139
Disorders	23, 25, 27
Glucose	37, 84, 85, 139
Pressure	37, 38, 84, 85, 139
<b>Cancer</b>	
Brain	3, 45
Cervical	43
Incidence	43, 44
Melanoma	43, 94, 145
Mortality	43, 44
Pancreatic	46
Screening	101-103
Survival	44, 45
<b>Carers</b>	<b>11, 16, 58</b>
<b>Child abuse</b>	<b>11, 18, 97, 98, 114, 146</b>
<b>Chronic conditions</b>	
Leading conditions	37
Prevalence	36-38
Selected conditions	36-38
Trends	36, 39
<b>Communicable disease</b>	
Dengue	49
HIV	48
Influenza	46
Invasive meningococcal disease	47
Measles	47
Rheumatic heart disease	48
Salmonellosis	48
Syphilis (infectious)	48
Tuberculosis	48
<b>COVID-19</b>	<b>2, 49</b>
<b>Deaths</b>	
All cause	28
Infant	30, 34
Leading causes	29-31
Potentially avoidable	30
Premature	30
<b>Dementia</b>	<b>11, 17, 29, 30, 41, 52, 77, 84, 91, 115</b>
<b>Dietary factors</b>	
Burden	80, 82, 138
Prevalence	80-82, 137
Trends	viii, 82
Parent readiness to change	82, 83
<b>Diversity</b>	<b>6, 9, 14, 108, 114</b>
<b>Disability</b>	<b>7, 8, 10-12, 15-20, 35, 50, 54, 58, 70, 97</b>
<b>Domestic violence</b>	<b>11, 60, 96, 97, 114</b>
Intimate partner violence	18, 96, 97, 146
<b>Endometriosis</b>	<b>40</b>
<b>Environment</b>	
Air quality	111, 146
Climate	2, 110
Dust lung diseases	111, 112
Green and open spaces	109
Healthy places, healthy people	2, 112
Lead exposure	112
Urban form	109
Water	108, 110
<b>Frailty</b>	<b>42</b>
<b>Health expenditure and services</b>	
13 Health	67
Allied health	66
Cost of risk factors	73, 74, 77, 80, 84, 86, 89, 91, 94, 96, 98, 103
Drug and alcohol	70
Expenditure	64, 65
Emergency department	65
General practice	66,
Mental health	61
Outpatients	66
Retrievals	68
Telehealth	68

<b>Homeless</b>	<b>8, 11, 60, 109, 114</b>		
<b>Hospitalisation</b>			
Children	26, 27		
Intensive care	24		
Leading causes	23		
Patient days	22		
Potentially preventable	24		
<b>Illicit drugs</b>	<b>89, 90, 141</b>		
<b>Immunisation</b>			
Childhood	99		
Adult	100		
Pregnancy	33, 100		
<b>Injury</b>			
Accidental poisoning	53		
Assault	50,		
Bites and stings	53		
Drowning	52		
Falls	50, 51		
Fractures	51		
Intracranial	51		
Traumatic spinal cord injury	52		
Traumatic brain injury	52		
Workplace	111		
<b>Lesbian, Gay, Bisexual, Transgender, Intersex, Queer +</b>	<b>10, 33, 59</b>		
<b>Life expectancy</b>	<b>14</b>		
Health adjusted life expectancy	15		
<b>Mental health</b>			
Burden	16, 17		
Hospitalisations	21, 26		
Perinatal	33		
Psychological distress	61		
Self-reported health	56, 57		
<b>Pregnancy – pre and postnatal</b>			
Antenatal care	33		
Breastfeeding	34		
Paternal factors	33		
Smoking in pregnancy	33		
Teenage pregnancy	32		
<b>Oral health</b>			
Caries hospitalisations	56		
Decay	55		
Dental checks	107, 108		
Periodontitis	54, 55		
Toothbrushing	107		
Tooth loss	54, 55		
<b>Physical activity</b>			
Burden	91, 93		
Prevalence	91, 92		
Trends	viii, 92		
<b>Prisoners</b>	<b>11, 59</b>		
<b>Refugees</b>	<b>10, 58</b>		
<b>Road safety</b>			
Casualties	50, 106		
Fatalities	105, 106		
<b>Sexual assault</b>	<b>96-98</b>		
<b>Sleep</b>			
Disorders	40		
Inadequate sleep	104		
Recommendations	104		
<b>Smoking</b>			
Burden	73, 76, 132		
Prevalence	74, 130		
Trends	viii, 74, 75		
e-cigarettes	75, 76, 131		
Quitline	67		
<b>Suicide and self-harm</b>	<b>33, 61</b>		
<b>Sun safety and sunburn</b>			
Burden	94, 145		
Prevalence	94, 95, 144, 145		
Trends	viii, 95		
<b>Torres Strait Islander</b>	<b>3, 9, 14, 22, 25, 30, 32, 39, 44, 48, 53, 54, 69, 74, 79, 81, 87, 91, 99, 107, 110</b>		
<b>Weight</b>			
Burden	77, 79, 80		
Prevalence	77-79, 133-136		
Trends	viii, 79		

# References

1. Queensland Health. *Methods for reporting population health status*. Queensland Government: Brisbane; 2018.
2. Queensland Health (Statistical Services Branch). *Comparing perinatal mortality rates between jurisdictions*. Queensland Government: Brisbane; 2017.
3. Helliwell JF, Layard R, Sachs JD, et al. *World Happiness Report 2020*. New York; 2019.
4. World Health Organization. Pneumonia of unknown cases reported to WHO China Office. Available: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen>. Accessed 1 May 2020.
5. Bureau of Meteorology. *North Queensland monsoon trough technical flood report*. BOM: Melbourne; 2019.
6. Deloitte Access Economics. *The social and economic cost of the North and Far North Queensland Monsoon Trough (2019)*. Queensland Reconstruction Authority: Sydney; 2019.
7. Arriagada NB, Palmer AJ, Bowman DM, et al. Unprecedented smoke-related health burden associated with the 2019–20 bushfires in eastern Australia. *The Medical Journal of Australia* 2020;213:282-283.
8. The Department of Infrastructure, Transport, Regional Development, and Communications. Drought communities programme. Available: <https://www.regional.gov.au/regional/programs/drought-communities.aspx>. Accessed 30 April 2020.
9. Queensland Government. Drought declarations. Available: <https://www.longpaddock.qld.gov.au/drought/drought-declarations/>. Accessed 30 April 2020.
10. Hanigan IC, Schirmer J, Niyonsenga T. Drought and distress in southeastern Australia. *Ecohealth* 2018;15:642-655.
11. Edwards B, Gray M, Hunter B. *Social and economic impacts of drought on farm families and rural communities*. Prepared for: Productivity Commission's Inquiry into Government Drought Support. Australian Institute of Family Studies: Melbourne; 2008.
12. National Rural Health Alliance. The little book of rural health numbers. Available: <https://www.ruralhealth.org.au/book/demography>. Accessed 1 May 2020.
13. Australian Institute of Health and Welfare. *Australia's health 2018*. Cat. no. AUS 221. AIHW: Canberra; 2018.
14. Queensland Health. *Queensland advancing health research 2026*. Queensland Government: Brisbane; 2017.
15. Queensland University of Technology. Ancient Australian plant may help in production of COVID-19 vaccine. Available: <https://www.qut.edu.au/research/article?id=161150>. Accessed 30 April 2020.
16. Children's Hospital Foundation. Brain cancer kills more children than any other disease. Available: <https://www.childrens.org.au/braincancer/>. Accessed 24 August 2020.
17. Furman D, Campisi J, Verdin E, et al. Chronic inflammation in the etiology of disease across the life span. *Nature Medicine* 2019;25:1822-1832.
18. de Lusignan S, Joy M, Oke J, et al. Disparities in the excess risk of mortality in the first wave of COVID-19: cross sectional study of the English sentinel network. *Journal of Infection* 2020;4817: doi:10.1016/j.jinf.2020.08.037.
19. Fried MW, Crawford JM, Mospan AR, et al. Patient characteristics and outcomes of 11,721 patients with COVID19 hospitalized across the United States. *Clinical Infectious Diseases* 2020;1268: doi: 10.1093/cid/ciaa1268.
20. Queensland Health. Total estimated resident population, 2002 to 2018. Brisbane: Queensland Government; 2020.
21. Queensland Treasury and Trade. *Queensland Government population projections, 2018 edition (medium series)*. Queensland Government: Brisbane; 2019.
22. Australian Bureau of Statistics. *Regional population growth, Australia, 2017-18*. Cat. no. 3218.0. ABS: Canberra; 2019.
23. Australian Bureau of Statistics. *Disability, ageing and carers, Australia: summary of findings, 2018*. Cat. no. 4430.0. ABS: Canberra; 2019.
24. Babacan H, Dale A, McHugh J. Population policy for regional and rural Queensland. Available: <https://www.ruraleconomies.org.au/policy-development/>. Accessed 12 June 2020.
25. AEC Group Pty Ltd. *Assessments of the financial vulnerability of rural and remote Queensland councils* AEC: Brisbane; 2018.
26. World Health Organization. Early child development – child health and development. Available: <https://www.who.int/topics/early-child-development/>. Accessed 1 May 2020.
27. Australian Institute of Health and Welfare. *Australia's Welfare 2017*. Cat. no. AUS 214. AIHW: Canberra; 2017.
28. The Productivity Commission. *Report on Government Services 2020*. Australian Government: Canberra; 2020.
29. Australian Bureau of Statistics. *Preschool education, Australia 2019*. Cat. no. 4240.0. ABS: Canberra; 2020.
30. Australian Curriculum, Assessment, and Reporting Authority. *National report on schooling in Australia 2018*. ACARA: Canberra; 2019.
31. Queensland Family & Child Commission. This place I call home – the views of children and young people on growing up in Queensland. Brisbane: Queensland Government; 2018.
32. Queensland Family & Child Commission. Growing up in Queensland 2020 interim report. Brisbane: Queensland Government; 2020.
33. Wilkins R, Laß I, Butterworth P, et al. *The household, income and labour dynamics in Australia survey: selected findings from waves 1 to 17*. Melbourne Institute: Melbourne; 2019.
34. Australian Bureau of Statistics. *Education and work, Australia*. Cat. no. 6227.0. ABS: Canberra; 2019.
35. Australian Bureau of Statistics. *Corrective services, Australia*. Cat. no. 4512.0. ABS: Canberra; 2019.
36. Australian Bureau of Statistics. *General social survey: summary results*. Cat no. 4159.0. ABS: Canberra; 2014.
37. Australian Bureau of Statistics. *Gender indicators, Australia*. Cat. no. 4125.0. ABS: Canberra; 2019.
38. Australian Bureau of Statistics. *Household income and wealth, Australia*. Cat. no. 6523.0. ABS: Canberra; 2019.
39. Australian Bureau of Statistics. *Estimates and projections, Aboriginal and Torres Strait Islander Australians, 2006 to 2031*. Cat. no. 3238.0. ABS: Canberra; 2019.
40. Sivak L, Westhead S, Richards E, et al. "Language breathes life": Bangarla Community perspectives on the wellbeing impacts of reclaiming a dormant Australian Aboriginal language. *International Journal of Environmental Research and Public Health* 2019;16: 10.3390/ijerph16203918.
41. Queensland Treasury. *Aboriginal and Torres Strait Islander peoples in Queensland, census 2016*. Queensland Government: Brisbane; 2017.
42. Career Development Association of Australia. Valuing Diversity. Available: <https://myfuture.edu.au/footer/assist-others/valuing-diversity#/>. Accessed 21 April 2020.
43. Australian Bureau of Statistics. *Census of Population and Housing: Australia Revealed, 2016*. Cat. no. 2024.0. AIHW: Canberra; 2017.
44. Queensland Government. *Diversity figures*. Queensland Government: Brisbane; 2018.
45. Bouma GD, Halaloff A. Australia's changing religious profile—rising nones and pentecostals, declining british protestants in superdiversity: views from the 2016 census *Research Management Monash University* 2017;30:129-143.
46. Australian Bureau of Statistics. 2016 census quickstats. Available: <https://www.abs.gov.au/websitedbs/D3310114.nsf/Home/2016%20QuickStats>. Accessed 20 June 2020.

47. Forbes-Mewett H. Mental health and international students: issues, challenges and effective practice. Available: <https://www.ieaa.org.au/documents/item/1616>. Accessed 14 July 2020.
48. Australian Government. International student data 2019. Available: <https://internationaleducation.gov.au/research/International-Student-Data/> Accessed 28 April 2020.
49. Australian Government. Where do international students come from and what do they study? Available: <https://internationaleducation.gov.au/research/DataVisualisations/>. Accessed 8 June 2020.
50. Australian Government. *International students studying in regional areas*. Australian Government: Canberra; 2020.
51. Australian Government. *Settlement reports*. Australian Government: Canberra; 2020.
52. Wilson T, Shalley F. Estimates of Australia's non-heterosexual population. *Australian Population Studies* 2018;2:26-38.
53. Perales F. The health and wellbeing of Australian lesbian, gay and bisexual people: a systematic assessment using a longitudinal national sample. *Australian and New Zealand Journal of Public Health* 2018;43:281-287.
54. Queensland Government. All Abilities Queensland: Opportunities For All. Brisbane: Queensland Government; 2017.
55. Queensland Treasury. *Queensland budget 2019-20: service delivery statements*. Queensland Government: Brisbane; 2020.
56. Australian Institute of Health and Welfare. Aged care data snapshot 2018. Available: <https://www.gen-agedcaredata.gov.au/>. Accessed 8 June 2020.
57. Australian Institute of Health and Welfare. People using aged care 2018-2019. Available: <https://gen-agedcaredata.gov.au/>. Accessed 8 June 2020.
58. Australian Institute of Health and Welfare. *Pathways of younger people entering permanent residential aged care*. Cat. no. AGE 89. AIHW: Canberra; 2019.
59. Carers Queensland. *Carers Queensland annual report 2018/2019*. Carers QLD: Brisbane; 2019.
60. Walkbank S. *Quality of life audit 2019 report*. Carers Queensland Ltd: Brisbane; 2019.
61. Australian Institute of Health and Welfare. *The health of Australia's prisoners 2018*. Cat. no. PHE 246. AIHW: Canberra; 2019.
62. Australian Institute of Health and Welfare. *Youth detention population in Australia*. Bulletin no. 148 Cat. no. JUV 131. AIHW: Canberra; 2020.
63. Council on the Ageing Queensland. Homelessness is on the rise. Available: <https://www.cotaqld.org.au/news/item/homelessness-is-on-the-rise/>. Accessed 7 April 2020.
64. Clifford B, Wilson A, Harris P. Homelessness, health and the policy process: a literature review. *Health Policy* 2019;123:1125-1132.
65. Law and Justice Foundation of New South Wales. Homeless in Queensland: Key Facts. Available: <http://www.lawfoundation.net.au/>. Accessed 7 April 2020.
66. Australian Bureau of Statistics. *Census of population and housing: estimated homelessness, 2016*. Cat. no. 2049.0. ABS: Canberra; 2018.
67. Queensland Treasury. *Labour force, March 2020*. Queensland Government: Brisbane; 2020.
68. Australian Government. *Closing the gap report 2020*. Australian Government: Canberra; 2020.
69. Australian Curriculum, Assessment, and Reporting Authority. Year 12 certification rates. Available: <https://www.acara.edu.au/reporting/> Accessed 21 April 2020.
70. Queensland Government. Vocational education and training (VET) participation activity data and statistics. Available: <https://desbt.qld.gov.au/training/>. Accessed 11 May 2020.
71. Australian Bureau of Statistics. *National Aboriginal and Torres Strait Islander Health Survey, 2018-19*. Cat. no. 4715.0. ABS: Canberra; 2019.
72. Australian Government. 2009 Indigenous students. Available: <https://docs.education.gov.au/>. Accessed 11 May 2020.
73. Macrotrends. Australia life expectancy 1950-2020. Available: <https://www.macrotrends.net/countries/AUS/>. Accessed 5 May 2020.
74. Lopez AD, Adair T. Slower increase in life expectancy in Australia than in other high income countries: the contributions of age and cause of death. *Medical Journal Australia* 2019;210:403-409.
75. Roser M, Ortiz-Ospina E, Richie H. Life expectancy. Available: <https://ourworldindata.org/life-expectancy>. Accessed 26 August 2020.
76. Australian Bureau of Statistics. *Life tables, states, territories, and Australia, 2016-2018*. Cat. no. 3302.0.55.001. ABS: Canberra; 2019.
77. Australian Bureau of Statistics. *Life tables for Aboriginal and Torres Strait Islander Australians, 2015-2017*. Cat. no. 3302.0.55.003. ABS: Canberra; 2018.
78. Australian Institute of Health and Welfare. *Deaths in Australia*. Cat. no. PHE 229. AIHW: Canberra; 2020.
79. Australian Institute of Health and Welfare. *Health-adjusted life expectancy in Australia: expected years lived in full health 2011*. Cat. no. BOD 17. AIHW: Canberra; 2017.
80. World Health Organization. Healthy life expectancy. Available: <https://apps.who.int/gho/data/>. Accessed 5 May 2020.
81. Kyu HH, Abate D, Abate KH, et al. Global, regional, and national disability-adjusted life-years (DALYs) for 359 diseases and injuries and healthy life expectancy (HALE) for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *The Lancet* 2018;392:1859-1922.
82. Australian Institute of Health and Welfare. *Australian burden of disease study: impact and causes of illness and death in Australia 2015*. Cat. no. BOD 22. AIHW: Canberra; 2019.
83. Salomon JA. Quality adjusted life years. *International Encyclopedia of Public Health*. 2nd ed. Cambridge: Academic Press; 2017:224-228.
84. World Health Organization. The global burden of disease concept. Available: <https://www.who.int/activities/quantifying-environmental-health-impacts>. Accessed 29 April 2020.
85. Australian Institute of Health and Welfare. *Australian Burden of Disease Study: impact and causes of illness and death in Australia 2011*. Canberra: AIHW; 2016.
86. Institute for Health Metrics and Evaluation Client Services. *Making the world a healthier place for mothers: trends and opportunities for action in maternal health*. IHME: Seattle; 2019.
87. Australian Institute of Health and Welfare. *Australia's mothers and babies data visualisations*. Cat. no. PER 101. AIHW: Canberra; 2020.
88. Clark RA, Driscoll A. Access and quality of heart failure management programs in Australia. *Australian Critical Care* 2009;22:111-116.
89. Ireland MJ, March S, Crawford-Williams F, et al. A systematic review of geographical differences in management and outcomes for colorectal cancer in Australia. *BMC Cancer* 2017;17:95: doi:10.1186/s12885-12017-13067-12881.
90. Australian Institute of Health and Welfare. *Australian burden of disease study 2015: interactive data on risk factor burden*. Cat. no. BOD 25. AIHW: Canberra; 2020.
91. Institution for Health Metrics and Evaluation. *Findings from the global burden of disease study 2017*. IHME: Seattle, WA; 2018.
92. United Nations Development Programme. Human Development Reports. <http://hdr.undp.org/en/content/human-development-index-hdi>. Accessed 30 May 2020.
93. Organisation for Economic Co-operation and Development. Australia. Available: <http://www.oecdbetterlifeindex.org/countries/australia/>. Accessed 5 May 2020.
94. Queensland Health. *Health-related quality of life in Queensland – Relationship with risk factors and hospitalisations*. Australian Government: Brisbane; 2020.
95. Centres for Disease Control and Prevention. Health-Related Quality of Life (HRQOL). <https://www.cdc.gov/hrqol/index.htm>. Accessed 21 June 2020.

96. Norman R, Church J, Van Den Berg B, et al. Australian health-related quality of life population norms derived from the SF-6D. *The Australian and New Zealand Journal of Public Health* 2013;37:17-23.
97. Bilic S, Blomberg I, Burry K, et al. Oral-health-related quality of life of dental patients: a hospital based study in far north Queensland, Australia. *Journal of Investigative and Clinical Dentistry* 2017;8:doi: 10.1111/jicd.12216.
98. Chambers SK, Ng SK, Baade P, et al. Trajectories of quality of life, life satisfaction, and psychological adjustment after prostate cancer. *Psychooncology* 2017;26:1576-1585.
99. Clemens S, Begum N, Harper C, et al. A comparison of EQ-5D-3L population norms in Queensland, Australia, estimated using utility value sets from Australia, the UK and USA. *Quality Life Research* 2014;23:2375-2381.
100. Edney LC, Haji AAH, Cheng TC, et al. Estimating the reference incremental cost-effectiveness ratio for the Australian health system. *Pharmacoeconomics* 2018;36:239-252.
101. Owen L, Fischer A. The cost-effectiveness of public health interventions examined by the National Institute for Health and Care Excellence from 2005 to 2018. *Public Health* 2019;169:151-162.
102. Owen AJ, Maulida SB, Zomer E, et al. Productivity burden of smoking in Australia: a life table modelling study. *Tobacco Control* 2019;28:297-304.
103. Huang Y, Kypridemos C, Liu J, et al. Cost-effectiveness of the US Food and Drug Administration added sugar labeling policy for improving diet and health. *Circulation* 2019;139:2613-2624.
104. Australian Institute of Health and Welfare. Australia's health 2020. Available: <https://www.aihw.gov.au/reports-data/australias-health>. Accessed 13 August 2020.
105. Australian Institute of Health and Welfare. *Hospital resources 2017-18: Australian hospital statistics*. AIHW: Canberra; 2019.
106. Queensland Health. Queensland hospital admitted patient data collection. Available: <https://www.health.qld.gov.au/hsu/collections/qhapdc>. Accessed 26 August 2020.
107. Australian Institute of Health and Welfare. Hospitals. <https://www.aihw.gov.au/myhospitals#>. Accessed 20 May 2020.
108. National Centre for Classification in Health. *ICD-10-AM: The International Statistical Classification of Diseases and Related Health Problems, tenth revision, Australian Modification*. Sydney: NCCCH; 2010.
109. Australian Institute of Health and Welfare. *Admitted patient care 2017-18*. Cat. no. HSE 225. AIHW: Canberra; 2019.
110. Australian Institute of Health and Welfare. *Potentially preventable hospitalisations in Australia by age groups and small geographic areas, 2017-18*. Cat. no. HPF 36. AIHW: Canberra; 2019.
111. Australian Institute of Health and Welfare. Disparities in potentially preventable hospitalisations across Australia: Exploring the data. <https://www.aihw.gov.au/reports/primary-health-care/disparities-in-potentially-preventable-hospitalisations-exploring-the-data>. Accessed 30 June 2020.
112. Australian Institute of Health and Welfare. Mental health services in Australia. Available: <https://www.aihw.gov.au/reports/mental-health-services/>. Accessed 24 July 2020.
113. Queensland Health. *Chief Psychiatrist Annual Report 2018-19*. Queensland Government: Brisbane; 2019.
114. United Nations. World Mortality 2019. Available: <https://www.un.org/en/development/desa/population/publications/pdf/mortality/>. Accessed 22 July 2020.
115. Australian Bureau of Statistics. *Deaths, Australia, 2018*. Cat. no. 3302.0. ABS: Canberra; 2019.
116. Australian Bureau of Statistics. *Causes of death, Australia, 2018*. Cat. no. 3303.0. ABS: Canberra; 2019.
117. Moore TG, Arefadi N, Deery A, et al. *The first thousand days: an evidence paper – summary*. Centre for Community Child Health, Murdoch Children's Research Institute: Parkville, Victoria; 2017.
118. Fleming TP, Watkins AJ, Velazquez MA, et al. Origins of lifetime health around the time of conception: causes and consequences. *The Lancet* 2018;391:1842-1852.
119. Queensland Health. *Queensland perinatal statistics 2018*. Queensland Government: Brisbane; 2018.
120. Australian Bureau of Statistics. *Births, Australia, 2018*. Cat. no. 3301.0. ABS: Canberra; 2019.
121. Perinatal Anxiety and Depression Australia. *Submission to the Productivity Commission Mental Health Inquiry: the social and economic benefits of improving perinatal mental health*. PANDA: Victoria; 2019.
122. Queensland Government. *Queensland mothers and babies 2016 and 2017*. Queensland Health: Brisbane; 2020.
123. Buist AE, Austin MV, Hayes BA, et al. Postnatal mental health of women giving birth in Australia 2002-2004: findings from the beyondblue National Postnatal Depression Program. *The Australian and New Zealand Journal of Psychiatry* 2008;42:66-73.
124. Perinatal Anxiety and Depression Australia. Prevalence of mental illness in the perinatal period. Available: <https://www.panda.org.au/prevalence-of-mental-illness-in-the-perinatal-period>. Accessed 20 April 2020.
125. Australian Bureau of Statistics. *National health survey: first results, 2017-18*. Cat. no. 4364.0.55.001. ABS: Canberra; 2018.
126. Skoff TH, Faulkner AE, Liang JL, et al. Pertussis infections among pregnant women in the United States, 2012-2017. *Clinical Infectious Diseases* 2020;ciaa1112.
127. Regan AK, Feldman BS, Azziz-Baumgartner E, et al. An international cohort study of birth outcomes associated with hospitalized acute respiratory infection during pregnancy. *Journal of Infection* 2020;81:48-56.
128. Jarvis JR, Dorey RB, Warricker FDM, et al. The effectiveness of influenza vaccination in pregnancy in relation to child health outcomes: Systematic review and meta-analysis. *Vaccine* 2020;38:1601-1613.
129. Kandeil W, van den Ende C, Bunge EM, et al. A systematic review of the burden of pertussis disease in infants and the effectiveness of maternal immunization against pertussis. *Expert Review of Vaccines* 2020;19:1-18.
130. Oldereid N B, Wennerholm U, Pinborg A, et al. The effect of paternal factors on perinatal and paediatric outcomes: a systematic review and meta-analysis. *Human Reproduction Update* 2018;24:320-389.
131. Shorey S, Hong-Gu H, Morelius E. Skin-to-skin contact by fathers and the impact on infant and paternal outcomes: an integrative review. *Midwifery* 2016;40:207-217.
132. Council of Australian Governments Health Council. *The Australian National Breastfeeding Strategy: 2019 and Beyond*. Department of Health: Canberra; 2019.
133. Queensland Health. Congenital anomaly linked file. Available: [www.health.qld.gov.au/hsu/dashboards#circ](http://www.health.qld.gov.au/hsu/dashboards#circ). Accessed 26 August 2020.
134. Morris JK, Springett AL, Greenlees R, et al. Trends in congenital anomalies in Europe from 1980 to 2012. *PLoS One* 2018;13:e0194986.
135. Harris BS, Bishop KC, Kemeny HR, et al. Risk factors for birth defects. *Obstetrical & Gynecological Survey* 2017;72:123-135.
136. Baldacci S, Gorini F, Santoro M, et al. Environmental and individual exposure and the risk of congenital anomalies: a review of recent epidemiological evidence. *Epidemiologica e Prevenzione* 2018;42:1.
137. Beswick R, David M, Higashi H, et al. Integration of congenital cytomegalovirus screening within a newborn hearing screening programme. *Journal of Paediatrics and Child Health* 2019;55:1281-1388.
138. Children's Health Queensland Hospital and Health Service. *Annual Report 2017-2018*. Queensland Government: Brisbane; 2018.
139. Department of Health. *National framework for neonatal hearing screening*. Australian Government: Canberra; 2013.
140. Burns L, Breen C, Bower C, et al. Counting fetal alcohol spectrum disorder in Australia: the evidence and the challenges. *Drug Alcohol Review* 2013;32:461-467.

141. House of Representatives Standing Committee on Social Policy and Legal Affairs. *FASD: the hidden harm, inquiry into the prevention, diagnosis and management of fetal alcohol spectrum disorders*. Parliament of the Commonwealth of Australia: Canberra; 2012.
142. Department of Health. *National Fetal Alcohol Spectrum Disorder Strategic Action Plan*. Canberra: Australian Government; 2018.
143. Adams RJ, Appleton SL, Taylor AW, et al. Sleep health of Australian adults in 2016: results of the 2016 Sleep Health Foundation national survey. *Sleep Health* 2017;3:35-42.
144. Chaput J, Gray CE, Poitras VJ, et al. Systematic review of the relationships between sleep duration and health indicators in the early years (0–4 years). *BMC Public Health* 2017;17:855.
145. Waters KA, Suresh S, Nixon GM. Sleep disorders in children. *The Medical Journal of Australia* 2013;199:31-35.
146. Bartel KA, Gradisar M, Williamson P. Protective and risk factors for adolescent sleep: a meta-analytic review. *Sleep Medicine Review* 2015;21:72-85.
147. House of Representatives Standing Committee on Health, Aged Care, and Sport. *Bedtime reading: inquiry into sleep health awareness in Australia*. Canberra: Australian Government; 2019.
148. Australian Institute of Health and Welfare. *Endometriosis in Australia: prevalence and hospitalisations*. Cat. no. PHE 247. AIHW: Canberra; 2019.
149. Prescott J, Farland LV, Tobias DK, et al. A prospective cohort study of endometriosis and subsequent risk of infertility. *Human Reproduction* 2016;31:1475-1482.
150. Department of Health. *National Action Plan for Endometriosis*. Australian Government: Canberra; 2018.
151. Shafir AL, Farland LV, Shah DK, et al. Risk for and consequences of endometriosis: a critical epidemiologic review. *Best Practice & Research: Clinical Obstetrics & Gynaecology* 2008;51:1-15.
152. Rowlands IJ, Abbott JA, Montgomery GW, et al. Prevalence and incidence of endometriosis in Australian women: a data linkage cohort study. *British Journal of Obstetrics and Gynaecology* 2020;Aug 5. doi:10.1111/1471-0528.16447.
153. Safiri S, Kolahi AA, Hoy D, et al. Global, regional and national burden of rheumatoid arthritis 1990–2017: a systematic analysis of the Global Burden of Disease study 2017. *Annals of the Rheumatic Diseases* 2019;78:1463-1471.
154. Gakidou E, Afshin A, Abajobir AA, et al. Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet* 2017;392:1923-1994.
155. Bergot A, Giri R, Thomas R. The microbiome and rheumatoid arthritis. *Best Practice & Research: Clinical Rheumatology* 2020;33:101497.
156. Swenson C, Schraufnagel D, Sadikot R. What is Bronchiectasis? *American Journal of Critical Care Medicine* 2017;195:P15-P16.
157. McDonnell MJ, Aliberti S, Goeminne PC, et al. Comorbidities and the risk of mortality in patients with bronchiectasis: an international multicentre cohort study. *Lancet Respiratory Medicine* 2016;4:969-979.
158. Australian Institute of Health and Welfare. Bronchiectasis. <https://www.aihw.gov.au/reports/chronic-respiratory-conditions/bronchiectasis/>. Accessed 30 Aug 2020.
159. McCallum GB, Binks M. The epidemiology of chronic suppurative lung disease and bronchiectasis in children and adolescents. *Frontiers in Pediatrics* 2017;5.
160. Goyal V, McPhail SM, Hurley F, et al. Cost of hospitalization for bronchiectasis exacerbation in children. *Respirology* 2020;10.1111/resp.13828.
161. Chalmers JD, Chang AB, Chotirmall SH, et al. Bronchiectasis. *Nature Reviews Disease Primers* 2018;4:45.
162. Hall KK, Chang AB, Anderson J, et al. The incidence and short-term outcomes of acute respiratory illness with cough in children from a socioeconomically disadvantaged urban community in Australia: a community-based prospective cohort study. *Frontiers in Pediatrics* 2017;5:228.
163. Au-Yeung YT, Chang AB, Grimwood K, et al. Risk factors for chronic cough in young children: a cohort study. *Frontiers in Pediatrics* 2020;8:444.
164. O'Grady KF, Drescher BJ, Goyal V, et al. Chronic cough postacute respiratory illness in children: a cohort study. *Archives of Disease in Childhood* 2017;102:1044-1048.
165. Australian Lung Foundation. Australian Bronchiectasis Register. <https://lungfoundation.com.au/research/our-research/bronchiectasis/>. Accessed 10 June 2020.
166. Australian Institute of Health and Welfare. Dementia. Available: <https://www.aihw.gov.au/reports-data/health-conditions-disability-deaths/dementia/overview>. Accessed 18 May 2020.
167. Dementia Australia. Dementia statistics. Available: <https://www.dementia.org.au/statistics>. Accessed 18 May 2020.
168. University of Canberra. *Dementia prevalence data 2018-2018*. Dementia Australia: Canberra; 2018.
169. Alzheimer's Society. Risk factors for dementia. Available: [https://www.alzheimers.org.uk/sites/default/files/pdf/factsheet\\_risk\\_factors\\_for\\_dementia.pdf](https://www.alzheimers.org.uk/sites/default/files/pdf/factsheet_risk_factors_for_dementia.pdf). Accessed 18 May 2020.
170. Hale JM, Schneider DC, Mehta NK, et al. Cognitive impairment in the US: lifetime risk, age at onset, and years impaired. *SSM Population Health* 2020;11:100577.
171. Selten J, Termorshuizen F, Sonsbeek MV, et al. Migration and dementia: a meta-analysis of epidemiological studies in Europe. *Psychological Medicine* 2020;Apr 8: doi: 10.1017/S0033291720000586:1-8.
172. Australian Institute of Health and Welfare. *Hospital care for people with dementia 2016–17*. Cat. no. AGE 94. AIHW: Canberra; 2019.
173. Dementia Australia. Risk factors for dementia – information about lowering your risk of dementia. Available: <https://www.dementia.org.au/risk-reduction>. Accessed 18 May 2020.
174. Livingstone G, Sommerlad A, V O. Dementia prevention, intervention and care. *The Lancet* 2017;390:2673-2734.
175. Xue Q. The frailty syndrome: definition and natural history. *Clinics in Geriatric Medicine* 2011;27:1-5.
176. Hoogendijk EO, Afilalo J, Ensrud KE, et al. Frailty: implications for clinical practice and public health. *The Lancet* 2019;394:1365-1375.
177. Darvall JN, Bellomo R, Paul E, et al. Frailty in very old critically ill patients in Australia and New Zealand: a population-based cohort study. *The Medical Journal of Australia* 2019;211:318-323.
178. Taylor D, Barrie H, Lange J, et al. Geospatial modelling of the prevalence and changing distribution of frailty in Australia–2011 to 2027. *Experimental Gerontology* 2019;123:57-65.
179. Thompson MQ, Theou O, Karnon J, et al. Frailty prevalence in Australia: Findings from four pooled Australian cohort studies. *Australasian Journal of Ageing* 2018;37:155-158.
180. Ambagtsheer RC, Beilby J, Seiboth C, et al. Prevalence and associations of frailty in residents of Australian aged care facilities: findings from a retrospective cohort study. *Ageing Clinical and Experimental Research* 2020;32:1849–1856.
181. Queensland Health. Frail older persons project. Available: <https://clinicalexcellence.qld.gov.au/improvement-exchange/frail-older-persons-project>. Accessed 22 June 2020.
182. Australian Institute of Health and Welfare. *Cancer data in Australia*. Cat. no. CAN 122. AIHW: Canberra; 2020.
183. World Health Organization. Cancer prevention. Available: <https://www.who.int/cancer/prevention/>. Accessed 25 July 2020.
184. Queensland Cancer Control Analysis Team (QCCAT). *Cancer incidence, Queensland*. Brisbane: Queensland Health; 2020.
185. Lai J, Beaumont JL, Kupst MJ, Peipert JD, et al. Symptom burden trajectories experienced by patients with brain tumors. *Cancer* 2020;126:3341-3351.
186. Cancer Australia. Brain cancer in Australia statistics. Available: <https://brain-cancer.canceraustralia.gov.au/statistics>. Accessed 27 July 2020.

187. Cancer Australia. Australian Brain Cancer Mission. Available: <https://canceraustralia.gov.au/research-data/research/australian-brain-cancer-mission>. Accessed 27 July 2020.
188. Cancer Council. Pancreatic cancer. Available: <https://www.cancer.org.au/cancer-information/types-of-cancer/pancreatic-cancer>. Accessed 27 July 2020.
189. Cho J, Scragg R, Petrov MS. Post-pancreatitis diabetes confers higher risk for pancreatic cancer than type 2 diabetes: results from a nationwide cancer registry. *Diabetes Care* 2020;doi: 10.2337/dc20-0207.
190. Dooley J, Lagou V, Goveia J, et al. Heterogeneous effects of calorie content and nutritional components underlie dietary influence on pancreatic cancer susceptibility. *Cell Reports* 2020;32:107880.
191. Mizrahi JD, Surana R, Valle JW, et al. Pancreatic cancer. *The Lancet* 2020;395:2008-2020.
192. Wong W, Raufi AG, Safyan RA, et al. BRCA mutations in pancreas cancer: spectrum, current management, challenges and future prospects. *Cancer Management and Research* 2020;12:2731-2742.
193. World Health Organization. Antibiotic resistance. <https://www.who.int/news-room/fact-sheets/detail/antibiotic-resistance>. Accessed 12 Jun 2020.
194. Queensland Health. Notifiable conditions reports. <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/diseases-infection/surveillance/>. Accessed 1 August 2020.
195. Queensland Health. *Notifications of syphilis in Queensland*. Queensland Government: Brisbane; 2019.
196. World Health Organization. Global tuberculosis report 2019. Geneva: WHO; 2019.
197. Carapetis JR, Beaton A, Cunningham MW, et al. Acute rheumatic fever and rheumatic heart disease. *Nature Reviews Disease Primers* 2016;2:15084: 15010.11038/nrdp.12015.15084.
198. Queensland Government. Queensland COVID-19 statistics. Available: <https://www.qld.gov.au/health/conditions/health-alerts/coronavirus-covid-19/>. Accessed 10 July 2020.
199. Australian Commission on Safety and Quality in Health Care. *AURA 2019: third Australian report on antimicrobial use and resistance in human health*. ACSQHC: Sydney; 2019.
200. Queensland Health. Queensland statewide antimicrobial stewardship program. <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/diseases-infection/antimicrobial-stewardship>. Accessed 10 Jul 2020.
201. World Health Organization. Injuries. Available: <https://www.who.int/topics/injuries/en/>. Accessed 16 June 2020.
202. Australian Institute of Health and Welfare. *Trends in hospitalised injury, Australia 2007–08 to 2016–17*. Cat. no. INJCAT 204. AIHW: Canberra; 2019.
203. Carr JJ, Kendall MB, Amsters DI, et al. Community participation for individuals with spinal cord injury living in Queensland, Australia. *Spinal Cord* 2017;55:192-197.
204. Australian Institute of Health and Welfare. *Spinal cord injury, Australia, 2016-17*. Canberra: AIHW; 2020.
205. Spinal Cord Injuries Australia. Summary of SCI statistics. Available: <https://scia.org.au/sci-statistics/>. Accessed 25 May 2020.
206. New PW, Baxter D, Farry A, et al. Estimating the incidence and prevalence of traumatic spinal cord injury in Australia. *Archives of Physical Medicine and Rehabilitation* 2015;96:76-83.
207. World Health Organization. Injuries and violence: the facts 2014. Available: <https://apps.who.int/iris/>. Accessed 22 May 2020.
208. Dewan MC, Rattani A, Gupta S, et al. Estimating the global incidence of traumatic brain injury. *Journal of Neurosurgery* 2018;130:1080-1097.
209. Jagnoor J, Cameron ID. Traumatic brain injury – support for injured people and their carers. *Australian Family Physician* 2014;43:758.
210. Esterman A, Thompson F, Fitts M, et al. Incidence of emergency department presentations for traumatic brain injury in Indigenous and non-Indigenous residents aged 15–64 over the 9-year period 2007–2015 in North Queensland, Australia. *Injury Epidemiology* 2018;5:40.
211. Royal Life Saving Australia. *National drowning report: research and policy insights for drowning prevention and water safety*. Royal Life Saving Australia: Brisbane; 2019.
212. Franklin R, Peden A. Improving pool fencing legislation in Queensland, Australia: attitudes and impact on child drowning fatalities. *International Journal of Environmental Research and Public Health* 2017;14:1450.
213. Huynh A, Cairns R, Brown JA, et al. Patterns of poisoning exposure at different ages: the 2015 annual report of the Australian Poisons Information Centres. *The Medical Journal of Australia* 2018;209:74-79.
214. Animal Medicines Australia. *Pet ownership in Australia*. AMA: ACT; 2016.
215. Australian Bureau of Statistics. *Australian social trends*. Cat. no. 4102.0. ABS: Canberra; 1995.
216. Ellisa R, Ellis C. Dog and cat bites. *American Family Physician* 2014;90:239-243.
217. Rajshekar M, Blizzard L, Julian R, et al. The incidence of public sector hospitalisations due to dog bites in Australia 2001–2013. *Australian and New Zealand Journal of Public Health* 2017;41:377-380.
218. Welton RE, Williams DJ, Liew D. Injury trends from envenoming in Australia, 2000–2013. *International Medical Journal* 2016;47:170-176.
219. Fry B. Snakebite: When the human touch becomes a bad touch. *Toxins* 2018;10:170.
220. Peres MA, Macpherson LM, Weyant RJ, et al. Oral diseases: a global public health challenge. *The Lancet*. 2019;394:249-260.
221. Kassebaum N J, Smith AG, Bernabe E, et al. Global, regional, and national prevalence, incidence, and disability-adjusted life years for oral conditions for 195 countries, 1990–2015: a systematic analysis for the global burden of diseases, injuries, and risk factors. *Journal of Dental Research* 2015;96:380-387.
222. National Advisory Council on Dental Health. *Report of the National Advisory Council on Dental Health 2012*. Department of Health and Ageing: Canberra; 2012.
223. Dental Health Services Victoria. *Links between oral health and general health: the case for action*. DHSV: Melbourne; 2011.
224. Brennan DS, Chrisopoulos S, Do LG, et al. *Australia's oral health: national study of adult oral health 2017-18*. Australian Research Centre for Population Oral Health: Adelaide; 2019.
225. Gilchrist F, Marshman Z, Deery C, et al. The impact of dental caries on children and young people: what they have to say? *International Journal of Paediatric Dentistry* 2015;25:327-328.
226. BaniHani A, Deery C, Tumba J, et al. The impact of dental caries and its treatment by conventional or biological approaches on the oral health-related quality of life of children and carers. *International Journal of Paediatric Dentistry* 2018;28:266-276.
227. Butten K, Johnson NW, Hall JK, et al. Impact of oral health on Australian urban Aboriginal and Torres Strait Islander families: a qualitative study. *International Journal for Equity in Health* 2019;18.
228. Stormon N, Ford PJ, Lalloo R. Community-level predictors of Australian children's dental caries and injury. *Aust Dent J* 2019;64:263-272.
229. Stormon N, Ford PJ, Lalloo R. Oral health in the longitudinal study of Australian children: an age, period, and cohort analysis. *Int J Paediatr Dent* 2019;29:404-412.
230. Do LG, Spencer J. *Oral health of Australian children: the national child oral health study 2012–14*. The University of Adelaide: Adelaide; 2016.
231. World Health Organization. Mental health: strengthening our response. Available: <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response>. Accessed 16 June 2020.
232. Queensland Government. Embrace nature: connect with the natural world. Available: <https://mentalwellbeing.initiatives.qld.gov.au/embrace-nature>. Accessed 17 June 2020.

233. Queensland Health. Queensland preventative health survey. Queensland survey analytic system (QSAS) detailed results. Available: <https://www.health.qld.gov.au/research-reports/population-health/preventive-health-surveys/detailed-data>. Accessed 14 July 2020.
234. Telethon Kids Institute. The mental health of Australian children and adolescents. Available: <https://youngmindsmatter.telethonkids.org.au>. Accessed 13 July 2020.
235. Lawrence D, Johnson S, Hafekost J, et al. *Report on the second Australian child and adolescent survey of mental health and wellbeing*. Department of Health: Canberra; 2015.
236. Relationships Australia. March 2018: Bullying in schools. Available: <https://www.relationships.org.au/what-we-do/research/online-survey/march-2018-bullying-in-schools?>. Accessed 13 July 2020.
237. The Royal Children's Hospital Melbourne. *RCH national child health poll*. National Centre Against Bullying: Melbourne; 2018.
238. Queensland Health. *Refugee health and wellbeing: a policy and action plan for Queensland 2017–2020*. Queensland Government: Brisbane; 2017.
239. Sigvardsson E, Vaez M, Rydholm Hedman A, et al. Prevalence of torture and other war-related traumatic events in forced migrants: a systematic review. *Journal on Rehabilitation of Torture Victims and Prevention of Torture* 2016;26:41-73.
240. Turrini G, Purgato M, Ballette F, et al. Common mental disorders in asylum seekers and refugees: umbrella review of prevalence and intervention studies. *International Journal of Mental Health Systems* 2017;11:51. doi: 10.1186/s13033-13017-10156-13030.
241. American Psychiatric Association. *Mental health facts on refugees, asylum-seekers, & survivors of forced displacement*. APA: Philadelphia; 2020.
242. Byrow Y, Pajak R, Specker P, et al. Perceptions of mental health and perceived barriers to mental health help-seeking amongst refugees: a systematic review. *Clinical Psychology Review* 2020;75:101812.
243. Coroners Court of Victoria. Coroner warns of barriers to mental health support for international students. Available: <https://www.coronerscourt.vic.gov.au/coroner-warns-barriers-mental-health-support-international-students>. Accessed 14 July 2020.
244. National Centre of Excellence in Youth Mental Health. *Under the radar. The mental health of Australian university students*. Orygen: Melbourne; 2017.
245. BUPA. New research sheds light on international students' mental health. Available: <https://media.bupa.com.au/new-research-sheds-light-on-international-students-mental-health/>. Accessed 13 July 2020.
246. National LGBTI Health Alliance. The 2020 update. Available: <https://www.lgbtihealth.org.au/statistics/>. Accessed 13 July 2020.
247. Australian Institute of Health and Welfare. People's care needs in aged care. Available: <https://www.gen-agedcaredata.gov.au/>. Accessed 14 July 2020.
248. Australian Institute of Health and Welfare. *Depression in residential aged care 2008-2012*. Cat. no. AGE 73. AIHW: Canberra; 2013.
249. Australian Housing and Urban Research Institute. Understanding the links between mental health, housing and homelessness. Available: <https://www.ahuri.edu.au/research/ahuri-briefs/understanding-links-between-mental-health-housing-homelessness>. Accessed 14 July 2020.
250. Scutella R, Johnson G, Moschion J, et al. *Journeys Home Research Report no. 1*. The University of Melbourne: Melbourne; 2012.
251. Mission Australia. *Youth mental health and homelessness report*. Mission Australia: Canberra; 2015.
252. Cerel J, Brown MM, Maple M, et al. How many people are exposed to suicide? Not six. *Suicide and Life-Threatening Behaviour* 2019;49:529-534.
253. Leske S, Crompton D, Kolves K. *Suicide in Queensland: 2019 annual report*. Australian Institute for Suicide Research and Prevention: Brisbane; 2019.
254. Queensland Health. 2019-20 Budget. Available: <https://www.health.qld.gov.au/system-governance/health-system/managing-budget>. Accessed 28 April 2020.
255. Australian Institute of Health and Welfare. *Disease expenditure in Australia*. Cat. no. HWE 76. AIHW: Canberra; 2019.
256. Queensland Treasury. *Queensland budget 2019-20: budget strategy and outlook*. Queensland Government: Brisbane; 2019.
257. Steering Committee for the Review of Government Service Provision. *2017 Indigenous Expenditure Report*. Productivity Commission: Canberra; 2017.
258. Australian Institute of Health and Welfare. Emergency department care. Available: <https://www.aihw.gov.au/reports-data/myhospitals/sectors/emergency-department-care>. Accessed 30 May 2020.
259. Medicare Australia. Medicare benefits schedule. Available: <http://medicarestatistics.humanservices.gov.au/statistics/mbs-group.jsp>. Accessed 30 May 2020.
260. Australian Institute of Health and Welfare. *Medicare-subsidised GP, allied health and specialist health care across local areas: 2013–14 to 2017–18*. Cat. no. PHE 254. AIHW: Canberra; 2019.
261. Retrieval Services Queensland. 2019/20 Retrieval Services Queensland Activity Data. Brisbane: Queensland Government; 2020.
262. Royal Flying Doctor Service. Federation annual report year 2018-19. Available: <https://www.flyingdoctor.org.au/about-the-rfds/annual-reports/annual-report-2019/>. Accessed 22 June 2020.
263. Moffatt JJ, Eley DS. The reported benefits of telehealth for rural Australians. *Australian Health Review* 2010;34:276-281.
264. Eze ND, Mateus C, Cravo Oliveira Hashiguchi T. Telemedicine in the OECD: An umbrella review of clinical and cost-effectiveness, patient experience and implementation. *PLoS One* 2020;15:e0237585.
265. Queensland Health. Non-Admitted Patient Data Collection: Monthly activity collection Brisbane: Queensland Government; 2020.
266. Health Q. Consumer Integrated Mental Health Application In: Mental Health AaODB, ed. Brisbane: Queensland Government; 2020.
267. Queensland Health. Emergency Department Information System and Brolga. Brisbane: Queensland Government 2020.
268. Queensland Health. Telehealth Store and Forward Reporting Tool. Brisbane: Queensland Government; 2020.
269. University of Queensland-Centre for Online Health. *Evaluation of the Queensland Health Telehealth Strategy: unpublished report commissioned by Queensland Health*. University of Queensland: Brisbane; 2020.
270. Australian Institute of Health and Welfare. Online Services Report (OSR). <https://www.aihw.gov.au/about-our-data/our-data-collections/online-services-report-osr>. Accessed 20 Aug 2020.
271. Australian Institute of Health and Welfare. *Aboriginal and Torres Strait Islander health organisations: online services report—key results 2016–17*. Cat. no. IHW 196. AIHW: Canberra; 2018.
272. Queensland Health. Connecting care to recovery 2016-2021. Available: [https://www.health.qld.gov.au/\\_data/assets/pdf\\_file/0020/465131/connecting-care.pdf](https://www.health.qld.gov.au/_data/assets/pdf_file/0020/465131/connecting-care.pdf). Accessed 16 January 2020.
273. Australian Institute of Health and Welfare. *Alcohol and other drug treatment services in Australia 2018-19: key findings*. Cat. no. HSE 242. AIHW: Canberra; 2019.
274. Australian Institute of Health and Welfare. *National opioid pharmacotherapy statistics annual data (NOPSAD) collection*. AIHW: Canberra; 2020.
275. Shiell A, Jackson H. How much does Australia spend on prevention and how would we know whether it is enough? *Health Promotion Journal Australia* 2018;29 Suppl 1:7-9.
276. Crosland P, Ananthapavan J, Davison J, et al. The economic cost of preventable disease in Australia: a systematic review of estimates and methods. *Australian and New Zealand Journal of Public Health* 2019;43:484-495.
277. Masters R, Anwar E, Collins B, et al. Return on investment of public health interventions: a systematic review. *Journal of Epidemiology and Community Health* 2017;71:827-834.

278. Australian Institute of Health and Welfare. *National drug strategy household survey 2019*. Cat. no. PHE 270. AIHW: Canberra; 2020.
279. Cancer Council Queensland. *Selected Queensland results from the 2017 ASSAD survey*. Brisbane; 2018.
280. Guerin N, White V. *ASSAD 2017 statistics & trends: Australian secondary students' use of tobacco, alcohol, over-the-counter drugs, and illicit substances*. Cancer Council Victoria: Melbourne; 2018.
281. Queensland Health. Headline preventative health indicators and trends. Available: <https://www.health.qld.gov.au/research-reports/population-health/preventive-health-surveys/data-trends>. Accessed 13 August 2020.
282. National Health and Medical Research Council. About us. Available: <https://www.nhmrc.gov.au/about-us>. Accessed 16 January 2020.
283. Peto R, Lopez AD, Pan H, et al. Mortality from smoking in developed countries 1950-2020. <https://gas.ctsu.ox.ac.uk/tobacco/C5020.pdf>. Accessed 30 Sep 2020.
284. Jha P, Peto R. Global effects of smoking, of quitting, and of taxing tobacco. *New England Journal of Medicine* 2014;370:60-68.
285. Banks E, Joshy G, Weber MF, et al. Tobacco smoking and all-cause mortality in a large Australian cohort study: findings from a mature epidemic with current low smoking prevalence. *BMC Medicine* 2015;13:1-10.
286. Whetton S, Tait RJ, Scollo M, et al. *Identifying the social costs of tobacco use to Australia in 2015/16*. National Drug Research Institute: Perth; 2019.
287. Byrne S, Brindal E, Williams G, et al. *E-cigarettes, smoking and health*. CSIRO: Canberra; 2018.
288. Action on Smoking and Health. Use of e-cigarettes among young people in Great Britain. Available: <https://ash.org.uk/information-and-resources/fact-sheets/statistical/use-of-e-cigarettes-among-young-people-in-great-britain-2019/>. Accessed 31 July 2020.
289. Walker N, Parag V, Wong SF, et al. Use of e-cigarettes and smoked tobacco in youth aged 14–15 years in New Zealand: findings from repeated cross-sectional studies (2014–19). *The Lancet Public Health* 2020;5:204-212.
290. Cullen KA, Gentzke AS, Sawdey MD, et al. e-Cigarette use among youth in the United States, 2019. *JAMA* 2019;322:2095-2103.
291. Government of Canada. Summary of results for the Canadian student tobacco, alcohol and drugs survey 2018-19. Available: <https://www.canada.ca/en/health-canada/services/canadian-student-tobacco-alcohol-drugs-survey/2018-2019-summary.html>. Accessed 31 July 2020.
292. World Trade Organization. Australia – certain measures concerning trademarks, geographical indicators and other plain packaging requirements applicable to tobacco products and packaging. Available: [https://www.wto.org/english/tratop\\_e/dispu\\_e/cases\\_e/ds441\\_e.htm](https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds441_e.htm). Accessed 31 July 2020.
293. Frazer K, Callinan JE, McHugh J, et al. Legislative smoking bans for reducing harms from secondhand smoke exposure, smoking prevalence and tobacco consumption. *Cochrane Database Syst Rev* 2016;2:CD005992.
294. Skinner A, Walker P, Akinson J, et al. Policy options for endgame planning in tobacco control: a simulation modelling study. *Tobacco Control* 2019;doi: 10.1136/tobaccocontrol-2019-055126.
295. Schwartz MW, Seeley RJ, Zeltser LM, et al. Obesity Pathogenesis: An Endocrine Society Scientific Statement. *Endocrine Reviews* 2017;38:267-296.
296. Queensland Health. *Changes in weight status of children and adults in Queensland and Australia: 2017-18 prevalence and jurisdictional differences*. Queensland Government: Brisbane; 2019.
297. Queensland Health. National obesity strategy. Available: <https://consultations.health.gov.au/population-health-and-sport-division/national-obesity-strategy/>. Accessed 17 August 2020.
298. National Health and Medical Research Council. Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia. Melbourne: NHMRC; 2013.
299. Queensland Health. Are Queenslanders meeting the Australian Dietary Guidelines? Daily diets and total energy intake. Brisbane: Queensland Government; 2018.
300. Cadilhac DA, Magnus A, Cumming T, et al. *The health and economic benefits of reducing disease risk factors*. VicHealth: Melbourne; 2009.
301. Deloitte Access Economics. *The impact of increasing vegetable consumption on health expenditure. Prepared for Horticulture Innovation Australia Limited*. Horticulture Innovation Australia Limited: Sydney; 2016.
302. Curry SJ, Kristal AR, Bowen DJ. An application of the stage model of behavior change to dietary fat reduction. *Health Education Research* 1992;7:97-105.
303. Yusuf M, Prochaska JO, Paiva AL, et al. Baseline predictors of singular action among participants with multiple health behavior risks. *American Journal of Health Promotion* 2016;30:365-373.
304. Queensland Health. Preventative Health Reports. <https://www.health.qld.gov.au/research-reports/population-health/reports>. Accessed 16 September 2020.
305. Australian Bureau of Statistics. *Forward work program, 2019-20*. Cat. no. 1006.0. ABS: Canberra; 2019.
306. Heart Foundation. *The economic burden of hypercholesterolaemia*. Heart Foundation: Brisbane; 2018.
307. National Health and Medical Research Council. Australian guidelines to reduce health risks from drinking alcohol. Available: <https://www.nhmrc.gov.au/health-advice/alcohol>. Accessed 31 July 2020.
308. Australian Bureau of Statistics. *Apparent consumption of alcohol, Australia, 2017-18*. Cat. no. 4307.055.001. ABS: Canberra; 2019.
309. Angus C, Henney M, Meier P, et al. *Mortality and morbidity risks from alcohol consumption in Australia: analyses using an Australian adaptation of the Sheffield Alcohol Policy Model (v2.7) to inform the development of new alcohol guidelines: final report*. University of Sheffield: Sheffield; 2019.
310. Collins DJ, Lapsley HM. The costs of tobacco, alcohol and illicit drug abuse to Australian society in 2004-05. Canberra: Australian Government; 2008.
311. Department of Health. *National Drug Strategy 2017-2019*. Commonwealth of Australia: Canberra; 2017.
312. Palamar JJ, Salomone A, Rutherford C, et al. Extensive underreported exposure to ketamine among electronic dance music party attendees. *Journal of General Internal Medicine* 2020;doi: 10.1007/s11606-11020-05672-x.
313. Giommoni L. Why we should all be more careful in drawing conclusions about how COVID-19 is changing drug markets. *The International Journal on Drug Policy* 2020;doi: 10.1016/j.drugpo.2020.102834
314. Dietze PM, Peacock A. Illicit drug use and harms in Australia in the context of COVID 19 and associated restrictions: anticipated consequences and initial responses. *Drug and Alcohol Review* 2020;39:297.
315. World Health Organization. *Global action plan on physical activity 2018–2030: more active people for a healthier world*. WHO: Geneva, Switzerland; 2018.
316. Griffin A, Roselli T, Clemens SL. Trends in total physical activity time, walking, and vigorous physical activity time in Queensland adults from 2004–2018. *Journal of Physical Activity and Health* 2020;17:592-602.
317. Warburton DER, Bredin SSD. Health benefits of physical activity: a systematic review of current systematic reviews. *Current Opinion in Cardiology* 2017;32:541-556.
318. Australian Institute of Health and Welfare. *Physical activity across the life stages*. Cat. no. PHE 225. AIHW: Canberra; 2018.
319. Department of Transport and Main Roads. Queensland walking strategy. Available: <https://www.tmr.qld.gov.au/Travel-and-transport/Pedestrians-and-walking/Queensland-Walking-Strategy>. Accessed 19 July 2020

320. Australian Institute of Health and Welfare. *National bowel cancer screening program: monitoring report 2019*. Cat. no. CAN 125. AIHW: Canberra; 2019.
321. Australian Bureau of Statistics. Household Impacts of COVID-19 Survey, 29 Apr – 4 May 2020. Cat. no. 4940.0 Canberra: ABS; 2020.
322. Department of Health. Australia's physical activity and sedentary behaviour guidelines and the Australian 24-hour movement guidelines. Available: <https://www1.health.gov.au/internet/main/publishing.nsf/Content/health-pubhlth-strateg-phys-act-guidelines#npa1864>. Accessed 25 June 2020.
323. Department of Health. Australian 24-hour movement guidelines for children and young people (5-17 years): an integration of physical activity, sedentary behaviour and sleep – research report. Available: <https://www1.health.gov.au/internet/main/publishing.nsf/Content/ti-5-17years>. Accessed 5 June 2020.
324. Okely AD, Ghersi D, Hesketh KD, et al. A collaborative approach to adopting/adapting guidelines-the Australian 24-hour movement guidelines for the early years (birth to 5 years): an integration of physical activity, sedentary behavior, and sleep. *BMC Public Health* 2017;17:869.
325. Perera E, Gnanaswaran N, Staines C, et al. Incidence and prevalence of non-melanoma skin cancer in Australia: a systematic review. *Australasian Journal of Dermatology* 2015;56:258-267.
326. Whiteman DC, Whiteman CA, Green AC. Childhood sun exposure as a risk factor for melanoma: a systematic review of epidemiologic studies. *Cancer Causes Control* 2001;12:69-82.
327. Backes C, Religi A, Moccozet L, et al. Sun exposure to the eyes: predicted UV protection effectiveness of various sunglasses. *Journal of Exposure Science & Environmental Epidemiology* 2019;29:753-764.
328. Dennis LK, Vanbeek MJ, Freeman LE, et al. Sunburns and risk of cutaneous melanoma: does age matter? A comprehensive meta-analysis. *Annals of Epidemiology* 2008;18:614-627.
329. Wu S, Han J, Laden F, Qureshi A. Long-term ultraviolet flux, other potential risk factors, and skin cancer risk: a cohort study. *Cancer Epidemiology, Biomarkers & Prevention* 2014;23:1080-1089.
330. Cust AE, Jenkins MA, Goumas C, et al. Early-life sun exposure and risk of melanoma before age 40 years. *Cancer Causes Control* 2011;22:885-897.
331. Corbyn Z. Prevention: lessons from a sunburnt country. *Nature* 2014;515:114.
332. Tabbakh T, Volkov A, Wakefield M, et al. Implementation of the sunsmart program and population sun protection behaviour in Melbourne, Australia: results from cross-sectional summer surveys from 1987 to 2017. *PLoS Medicine* 2019;16:e1002932.
333. Erdmann F, Lortet-Tieulent J, Schuz J, et al. International trends in the incidence of malignant melanoma 1953–2008—are recent generations at higher or lower risk? *International Journal of Cancer* 2012;132:385-400.
334. Koch S, Pettigrew S, Strickland M, et al. Sunscreen increasingly overshadows alternative sun-protection strategies. *Journal of Cancer Education* 2016;32:528-531.
335. Linos E, Keiser E, Fu T, et al. Hat, shade, long sleeves, or sunscreen? Rethinking US sun protection messages based on their relative effectiveness. *Cancer Causes & Control* 2011;22:1067-1071.
336. Holman DM, Ding H, Guy GP, et al. Prevalence of sun protection use and sunburn and association of demographic and behavioral characteristics with sunburn among US adults. *JAMA Dermatology* 2018;154:561-568.
337. Dobbins S, Wakefield M, Hill D, et al. Prevalence and determinants of Australian adolescents' and adults' weekend sun protection and sunburn, summer 2003-2004. *Journal of the American Academy of Dermatology* 2008;59:602-614.
338. World Health Organization. *Understanding and addressing violence against women*. WHO: Geneva, Switzerland; 2012.
339. World Health Organization. Violence against women. Available: <https://www.who.int/news-room/fact-sheets/detail/violence-against-women>. Accessed 16 July 2020.
340. Hegarty K, Hindmarsh ED, Gilles MT. Domestic violence in Australia: definition, prevalence and nature of presentation in clinical practice. *The Medical Journal of Australia* 2020;7:363-367.
341. KPMG International Cooperative. *The cost of violence against women and their children in Australia*. KPMG: Amstelveen; 2019.
342. Queensland Courts. Queensland courts' domestic and family violence (DFV) statistics. Available: <https://www.courts.qld.gov.au/court-users/researchers-and-public/stats>. Accessed 14 July 2020.
343. Australian Institute of Health and Welfare. *Family, domestic and sexual violence in Australia: continuing the national story 2019*. Cat. no. FDV 3. AIHW: Canberra; 2019.
344. Queensland Police Service. *Annual statistical review 2016-17*. Queensland Government: Brisbane; 2017.
345. Queensland Government Statistician's Office. *Queensland social survey: domestic and family violence survey report*. Queensland Treasury: Brisbane; 2019.
346. World Health Organization. Violence against children. Available: <https://www.who.int/news-room/fact-sheets/detail/violence-against-children>. Accessed 16 July 2020.
347. Hillis S, Mercy J, Amobi A, et al. Global prevalence of past-year violence against children: a systematic review and minimum estimates. *Pediatrics* 2016;137.
348. McCarthy MM, Taylor P, Norman RE, et al. The lifetime economic and social costs of child maltreatment in Australia. *Children and Youth Services Review* 2016;71:217-226.
349. Deloitte Access Economics. The economic cost of violence against children and young people. Available: <https://www2.deloitte.com/au/en/pages/economics/articles/economic-cost-violence-against-children-young-people.html>. Accessed 22 July 2020.
350. Australian Bureau of Statistics. *Personal safety, Australia, 2016*. Cat. no. 4906.0. ABS: Canberra; 2019.
351. Australian Institute of Health and Welfare. *Australia's children*. Cat. no. CWS 69. AIHW: Canberra; 2020.
352. Department of Child Safety, Youth, and Women. Family support services summary statistics, Queensland. Available: <https://www.csyw.qld.gov.au/child-family/our-performance/summary-statistics>. Accessed 16 July 2020.
353. Queensland Family & Child Commission. *Annual report: deaths of children and young people Queensland*. Queensland Government: Brisbane; 2019.
354. Queensland Government. Domestic and Family Violence Prevention Strategy. Brisbane: Queensland Government; 2016.
355. Australian Government. Australian Immunisation Register. Canberra: Australian Government; 2020.
356. Frank O, De Oliveira Bernardo C, Gonzalez-Chica DA, Macartney K, Menzies R, Stocks N. Pneumococcal vaccination uptake among patients aged 65 years or over in Australian general practice. *Human Vaccines & Immunotherapeutics* 2020;16:965-971.
357. Dyda A, Karki S, Kong M, Gidding HF, Kaldor JM, McIntyre P, et al. Influenza vaccination coverage in a population-based cohort of Australian-born Aboriginal and non-Indigenous older adults. *Communicable Diseases Intelligence* 2019;43:doi: 10.33321/cdi.32019.33343.33330.
358. Lin J, Wood JG, Bernardo C, et al. Herpes zoster vaccine coverage in Australia before and after introduction of a national vaccination program. *Vaccine* 2020;38:3646-3652.
359. World Health Organization. Urgent health challenges for the next decade. Available: <https://www.who.int/news-room/photo-story/photo-story-detail/urgent-health-challenges-for-the-next-decade>. Accessed 12 March 2020.
360. Seely JM, Alhassan T. Screening for breast cancer in 2018— what should we be doing today? *Current Oncology* 2018;25:115-124.
361. Hewitson P, Glasziou PP, Irwig L, et al. Screening for colorectal cancer using the faecal occult blood test, hemoccult. CD001216. *Cochrane Database of Systematic Reviews* 2007;103:doi: 10.1111/j.1572-0241.2008.01875.x.
362. Cohen PA, Jhingran A, Oaknin A, Denny L. Cervical cancer. *The Lancet* 2019;393:169-182.

363. Australian Institute of Health and Welfare. BreastScreen Australia monitoring report 2019. Canberra: AIHW; 2019.
364. Australian Institute of Health and Welfare. *National cancer screening programs participation data*. Cat. no. CAN 114. AIHW: Canberra; 2020.
365. Australian Institute of Health and Welfare. *National cervical screening program monitoring report. 2019*. Cat. no. CAN 132. AIHW: Canberra; 2019.
366. Australian Government. National Cancer Screening Register. <https://www.ncsr.gov.au/>. Accessed 20 Jan 2020.
367. Australian Institute of Health and Welfare. *Analysis of cervical cancer and abnormality outcomes in an era of cervical screening and HPV vaccination in Australia*. Cat. no. CAN 129. AIHW: Canberra; 2019.
368. Parliament of Australia. Sleep disorders. Available: [https://www.aph.gov.au/Parliamentary\\_Business/Committees/House/Health\\_Aged\\_Care\\_and\\_Sport/SleepHealthAwareness/Report/](https://www.aph.gov.au/Parliamentary_Business/Committees/House/Health_Aged_Care_and_Sport/SleepHealthAwareness/Report/). Accessed 22 April 2020.
369. Hillman D, Mitchell S, Streatfeild J, et al. The economic cost of inadequate sleep. *Sleep* 2018;41:83.
370. Hirshkowitz M, Whiton K, Albert SM, et al. National Sleep Foundation's sleep time duration recommendations: methodology and results summary. *Sleep Health* 2015;1:40-43.
371. Matricciani L, Olds T, Petkov J. In search of lost sleep: secular trends in the sleep time of school-aged children and adolescents. *Sleep Medicine Reviews* 2012;16:203-211.
372. Williamson AA, Mindell JA, Hiscock H, et al. Child sleep behaviors and sleep problems from infancy to school-age. *Sleep Medicine* 2019;63:5-8.
373. Baker S, Morawska A, Mitchell AE. Do Australian children carry out recommended preventive child health behaviours? Insights from an online parent survey. *Journal of Paediatrics and Child Health* 2020;56:900-907.
374. Howie EK, Joosten J, Harris CJ, et al. Associations between meeting sleep, physical activity or screen time behaviour guidelines and academic performance in Australian school children. *BMC Public Health* 2020;20:520.
375. Hillman DR, Lack LC. Public health implications of sleep loss: the community burden. *Medical Journal Australia* 2013;199:57-10.
376. Sleep Health Foundation. Sleep to boost your immunity. Available: <https://www.sleephealthfoundation.org.au/news/media-releases/sleep-to-boost-your-immunity.html>. Accessed 30 June 2020.
377. James SL, Lucchesi LR, Bisignano C, et al. Morbidity and mortality from road injuries: results from the global burden of disease study 2017. *Injury Prevention* 2020;26 (Suppl 1):i46-i56.
378. Department of Transport and Main Roads. *Queensland Road Crash Weekly Report*. Cat. no. 1147b. Queensland Government: Brisbane; 2020.
379. Department of Transport and Main Roads. *2019 summary road crash report: Queensland road fatalities* Queensland Health: Brisbane; 2020.
380. Department of Infrastructure, Transport, Regional Development, and Communications. Road deaths: 12 month Australia. Canberra: Australian Government.
381. Haworth NL, Schramm A. Illegal and risky riding of electric scooters in Brisbane. *The Medical Journal of Australia* 2019;211:412-413.
382. Riggs E, Kilpatrick N, Slack-Smith L, et al. Interventions with pregnant women, new mothers and other primary caregivers for preventing early childhood caries. *Cochrane Database of Systematic Reviews* 2019;11:CD012155.
383. Australian Dental Association. *Australia's adult oral health tracker*. ADA: Canberra; 2018.
384. Queensland Health. *The beginning of change: Queensland child and oral health survey 2010-2012*. Queensland Government: Brisbane; 2014.
385. Brennan DS, Ju X, Amarsena N, et al. *Oral health of Australian children: the national child oral health study 2012-14*. Adelaide: University of Adelaide Press; 2015.
386. Schluter PJ, Askew DA, Spurling GK, et al. Aboriginal and Torres Strait Islander oral health and its impact among adults: a cross-sectional study. *Australian Dental Journal* 2016;62:84-94.
387. Do L, Spencer AJ. Contemporary multilevel analysis of the effectiveness of water fluoridation in Australia. *Australian and New Zealand Journal of Public Health* 2015;39:44-50.
388. National Health and Medical Research Council. *NHMRC public statement 2017: water fluoridation and human health in Australia*. Australian Government: Canberra; 2017.
389. Council of Australian Governments Health Council. *Australia's National Oral Health Plan 2015-2024*. Australian Government: Adelaide; 2015.
390. Gupta J, Hurley F, Grobicki A, et al. Communicating the health of the planet and its links to human health. *The Lancet* 2019;3:e204-206.
391. Organisation for Economic Co-operation and Development. *Human health and the environment*. OECD: France; 2001.
392. Gunn LD, Rozek J, Hooper P, et al. *Creating liveable cities in Australia: a scorecard and priority recommendations for Brisbane*. Centre for Urban Research: Melbourne; 2018.
393. Australian Bureau of Statistics. Information Paper – Methodology for Estimating Homelessness from the Census of Population and Housing, 2012. Cat. no. 2049.055.001 Canberra: ABS; 2012.
394. Queensland Government. QDesign: Queensland urban design principles. Brisbane: Queensland Government; 2018.
395. Department of State Development, Manufacturing, Infrastructure and Planning. Measures that matter. Available: <https://planning.dsdmip.qld.gov.au/planning/better-planning/state-planning/regional-plans/>. Accessed 12 August 2020.
396. Department of Transport and Main Roads. Queensland household travel survey interactive report (South East Queensland, 2011, 2017 and 2018). Available: <https://public.tableau.com/profile/qldtravelsurvey#!/vizhome/QueenslandHouseholdTravelSurveyInteractiveReport/>. Accessed 12 August 2020.
397. Gunn LD, Davern M, Higgs C, et al. *Measuring liveability for the 21 largest cities in Australia: liveability report for Brisbane*. RMIT University, Centre for Urban Research: Melbourne; 2020.
398. Bureau of Meteorology. Queensland in 2019: record warm days and very dry in the southeast; flooding in the north and west. Available: <http://www.bom.gov.au/climate/current/annual/qld/>. Accessed 12 August 2020.
399. Department of Natural Resources. Drinking Water Quality Management Plan. Brisbane: Queensland Government; 2019.
400. Milligan B, Blake C, Hall NL, et al. Safe and healthy drinking water in Indigenous Local Government Areas program: service delivery model prerequisites for success. *QWater Conference*. Brisbane; 2019.
401. Department of Environment and Science. *Queensland air monitoring 2018: national environment protection (ambient air quality) measure*. Queensland Government: Brisbane; 2019.
402. Queensland Health. *Key work health and safety statistics Queensland 2019*. Queensland Government: Brisbane; 2020.
403. Queensland Health. *Notifiable dust lung disease register inaugural annual report 2019-2020*. Queensland Government: Brisbane; 2020.
404. Backman G, Hunt P, Khosla R, et al. Health systems and the right to health: an assessment of 194 countries. *Lancet* 2008;372:2047-2085.
405. Brolan CE. Queensland's new human rights act and the right to access health services. *The Medical Journal of Australia* 2020;213:158-160.
406. Holton S, Rowe H, Fisher J. Women's health and their childbearing expectations and outcomes: a population-based survey from Victoria, Australia. *Womens Health Issues* 2011;21:366-373.
407. Asselah T, Marcellin P, Schinazi RF. Treatment of hepatitis C virus infection with direct-acting antiviral agents: 100% cure? *Liver International* 2018;38:7-13.

408. Paltiel O, Hailu W, Abay Z, et al. “Sell an Ox” – the price of cure for hepatitis C in two countries. *International Journal of Health Policy and Management* 2020;9:229-232.
409. Queensland Genomics. What is genomics? Available: <https://queenslandgenomics.org/about-genomics/>. Accessed 31 July 2020.
410. Gillespie LD, Robertson MC, Gillespie WJ, et al. Interventions for preventing falls in older people living in the community. *Cochrane Database of Systematic Reviews* 2012;9: CD005465.
411. Barron RL, Oster G, Grauer A, et al. Determinants of imminent fracture risk in postmenopausal women with osteoporosis. *Osteoporosis International* 2020;doi: 10.1007/s00198-020-05294-3.
412. Wundersitz L. Driver distraction and inattention in fatal and injury crashes: findings from in-depth road crash data. *Traffic Injury Prevention* 2019;20:696-701.
413. Health and Wellbeing Queensland. A bold idea to make healthy people. Available: <https://hw.qld.gov.au/>. Accessed 3 August 2020.
414. Queensland Government. The Queensland plan: Queensland’s 30-year vision. Available: <https://www.queenslandplan.qld.gov.au/about/health-and-wellbeing.aspx>. Accessed 3 August 2020.
415. Pearn J. A tree house. *Journal of Paediatrics and Child Health* 2013;49:e361-364.
416. Hugo Centre for Migration and Population Research. Accessibility/remoteness index of Australia (ARIA). Available: <https://www.adelaide.edu.au/hugo-centre/services/aria>. Accessed 16 January 2020.
417. Porta M, Greenland S, Hernan M, et al. *A dictionary of epidemiology. Sixth Edition*. Oxford: Oxford University Press; 2014.
418. Australian Institute of Health and Welfare. *National drug strategy household survey 2016: detailed findings*. Cat. no. PHE 214. AIHW: Canberra; 2017.
419. Australian Bureau of Statistics. About the Australian Bureau of Statistics. Available: <https://www.abs.gov.au/about?OpenDocument&ref=topBar>. Accessed 16 January 2020.
420. National Health and Medical Research Council. *Australian Dietary Guidelines*. Australian Government: Canberra; 2013.
421. Australian Institute of Health and Welfare. About AIHW. Available: <https://www.aihw.gov.au/reports/corporate-publications/capability-statement/contents/about-aihw>. Accessed 16 January 2020.
422. Australian Bureau of Statistics. *Australian system of national accounts: concepts, sources and methods, Australia, 2015. Sixth Edition*. Cat. no. 5216.0. ABS: Canberra; 2016.
423. Queensland Health. *Queensland perinatal data collection (QPDC) manual 2019-2020 collection year*. Queensland Government: Brisbane; 2019.
424. Queensland Health. *Notifiable conditions reports*. Queensland Government: Brisbane; 2020.
425. Organisation for Economic Co-operation and Development. Who we are. Available <http://www.oecd.org/about/>. Accessed 16 January 2020.
426. Australian Institute of Health and Welfare. National healthcare agreement: PI 18-selected preventable hospitalisations, 2018 QS. Available: <https://meteor.aihw.gov.au/content/index.phtml/itemId/681623>. Accessed 16 January 2020.
427. Australian Bureau of Statistics. TableBuilder, User Guide 1406.0.55.005. Canberra: ABS; 2019.

# Appendices

Table A1 Adult smoking prevalence, Queensland, 2020<sup>233</sup>

		Prevalence (%)					Ratio <sup>1</sup>
		Daily smoking	Current-not daily	Ex-smoker	Never smoked	Smoking cessation	
18+ years	Persons	10.3 (9.4-11.2)	5.5 (4.6-6.4)	26.9 (25.7-28.2)	57.3 (55.8-58.9)	63.1 (60.8-65.3)	
	Male	11.8 (10.4-13.2)	7.4 (5.9-9.3)	30.3 (28.4-32.3)	50.5 (48.1-52.9)	61.2 (57.9-64.4)	
	Female	8.9 (7.9-10.1)	3.5 (2.8-4.5)	23.7 (22.2-25.3)	63.9 (61.9-65.8)	65.6 (62.5-68.5)	
Persons	18-24 years	10.7 (7.2-15.6)	13.5 (8.9-20.0)	*5.4 (2.9-9.7)	70.5 (62.9-77.0)	*18.1 (10.0-30.6)	
	25-34 years	10.7 (8.6-13.3)	9.4 (7.0-12.4)	15.8 (13.1-18.9)	64.1 (60.2-67.9)	44.1 (37.5-50.9)	
	35-44 years	12.3 (10.4-14.4)	5.5 (4.2-7.2)	25.4 (22.6-28.3)	56.9 (53.6-60.1)	58.9 (54.1-63.5)	
	45-54 years	12.7 (10.8-14.9)	2.7 (1.8-3.8)	29.7 (26.8-32.8)	54.9 (51.6-58.2)	65.9 (61.5-70.1)	
	55-64 years	11.6 (10.0-13.4)	2.8 (2.0-3.9)	37.5 (34.8-40.3)	48.1 (45.2-51.0)	72.3 (68.8-75.5)	
	65-74 years	6.3 (5.2-7.7)	1.3 (0.8-2.0)	41.9 (39.3-44.4)	50.5 (47.9-53.1)	84.6 (81.8-87.0)	
	75+ years	3.0 (2.0-4.6)	*1.3 (0.7-2.4)	40.2 (37.1-43.4)	55.5 (52.3-58.6)	90.3 (86.5-93.1)	
Males	18-24 years	*10.4 (6.0-17.6)	*19.2 (11.4-30.5)	*7.7 (3.5-16.3)	62.6 (51.0-72.9)	*20.7 (9.6-39.2)	
	25-34 years	13.5 (10.0-17.9)	13.8 (9.7-19.1)	18.0 (14.0-22.8)	54.8 (48.9-60.5)	39.8 (31.4-48.7)	
	35-44 years	15.5 (12.4-19.2)	6.4 (4.4-9.2)	28.4 (24.3-32.9)	49.7 (44.8-54.6)	56.5 (49.8-62.9)	
	45-54 years	13.7 (10.8-17.1)	3.6 (2.2-5.8)	28.6 (24.3-33.3)	54.2 (49.1-59.1)	62.4 (55.5-68.7)	
	55-64 years	12.0 (9.7-14.8)	3.1 (2.0-4.7)	40.7 (36.6-44.9)	44.2 (40.0-48.6)	73.0 (68.0-77.4)	
	65-74 years	7.5 (5.8-9.8)	*1.7 (0.9-3.1)	50.6 (46.7-54.5)	40.1 (36.4-44.1)	84.5 (80.6-87.8)	
	75+ years	*3.1 (1.8-5.3)	**	53.1 (48.2-57.9)	42.7 (37.9-47.6)	92.6 (88.5-95.3)	
Females	18-24 years	*10.9 (6.2-18.6)	*7.6 (4.1-13.7)	*2.9 (1.4-5.8)	78.6 (69.7-85.4)	*13.4 (6.5-25.6)	
	25-34 years	8.1 (5.9-11.0)	5.2 (3.2-8.3)	13.7 (10.4-18.0)	73.0 (68.0-77.4)	50.9 (40.9-60.8)	
	35-44 years	9.1 (7.1-11.5)	4.6 (3.0-6.9)	22.4 (18.9-26.2)	64.0 (59.7-68.1)	62.2 (55.4-68.5)	
	45-54 years	11.8 (9.4-14.7)	*1.8 (1.1-2.9)	30.8 (26.9-34.9)	55.7 (51.2-60.0)	69.4 (63.6-74.7)	
	55-64 years	11.2 (9.2-13.6)	*2.5 (1.5-4.3)	34.5 (30.9-38.3)	51.7 (47.8-55.6)	71.5 (66.5-76.0)	
	65-74 years	5.2 (3.9-6.8)	*0.9 (0.5-1.6)	33.4 (30.3-36.7)	60.6 (57.2-63.8)	84.6 (80.7-87.9)	
	75+ years	*2.9 (1.5-5.6)	*1.4 (0.6-3.5)	29.6 (25.9-33.5)	66.1 (61.9-70.0)	87.1 (79.5-92.1)	
Socioeconomic status	Disadvantaged	16.1 (14.3-18.1)	4.8 (3.5-6.7)	30.0 (27.8-32.2)	49.0 (46.5-51.6)	58.8 (55.1-62.4)	
	Quintile 2	13.0 (11.4-14.9)	3.8 (2.7-5.3)	30.9 (28.6-33.4)	52.3 (49.5-55.0)	64.8 (61.0-68.4)	
	Quintile 3	9.6 (7.9-11.6)	6.6 (4.8-9.1)	28.5 (25.5-31.7)	55.3 (51.5-59.0)	63.7 (58.7-68.4)	
	Quintile 4	6.9 (5.4-8.8)	4.9 (3.4-7.1)	25.4 (22.7-28.2)	62.8 (59.4-66.0)	68.3 (62.7-73.3)	
	Advantaged	7.0 (5.0-9.8)	7.0 (4.6-10.4)	21.0 (18.2-24.0)	65.1 (60.9-69.0)	60.0 (52.4-67.2)	
Remoteness	Major cities	8.6 (7.4-9.9)	5.9 (4.7-7.4)	24.7 (22.9-26.5)	60.8 (58.6-63.0)	63.0 (59.4-66.4)	
	Inner regional	11.7 (10.3-13.2)	4.5 (2.9-6.7)	31.7 (29.7-33.8)	52.1 (49.7-54.5)	66.3 (62.4-69.9)	
	Outer regional	14.3 (12.4-16.4)	5.1 (4.0-6.5)	29.1 (26.8-31.6)	51.5 (48.7-54.3)	60.0 (56.1-63.8)	
	Remote/very remote	16.7 (13.6-20.3)	4.3 (3.1-5.9)	30.1 (26.9-33.6)	48.9 (45.1-52.7)	59.0 (53.3-64.5)	

\* Estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* Estimate has a relative standard error greater than 50% and is not reported

<sup>1</sup> Ratio of ex-smokers divided by smokers (who had smoked 100 cigarettes)

 See [QSAS](#) for more information

**Table A2 Adult e-cigarette use, Queensland, 2018–19<sup>233</sup>**

		Prevalence (%) <sup>1</sup>		
		Ever tried an e-cigarette	Current use	Daily e-cigarette use
18+ years	Persons	12.7 (11.9-13.5)	2.3 (1.9-2.7)	0.7 (0.6-0.9)
	Male	14.8 (13.6-16.2)	3.2 (2.5-3.9)	1.1 (0.8-1.4)
	Female	10.6 (9.6-11.7)	1.4 (1.1-1.9)	0.4 (0.3-0.6)
Persons	18–29 years	24.4 (21.4-27.7)	4.2 (2.9-6.1)	**
	30–44 years	15.3 (13.8-16.8)	3.0 (2.3-3.8)	1.3 (0.9-1.8)
	45–64 years	9.3 (8.5-10.2)	1.6 (1.3-2.1)	0.9 (0.6-1.2)
	65+ years	2.6 (2.1-3.1)	0.4 (0.3-0.6)	*0.2 (0.1-0.4)
Smoking status	Daily smoker	49.6 (46.4-52.8)	10.7 (8.4-13.5)	2.4 (1.7-3.3)
	Not a daily smoker	8.0 (7.3-8.8)	1.2 (1.0-1.6)	0.5 (0.4-0.7)
Socioeconomic status	Disadvantaged	13.9 (12.5-15.5)	2.3 (1.7-3.0)	1.2 (0.8-1.8)
	Quintile 2	12.9 (11.5-14.4)	2.3 (1.7-3.2)	0.6 (0.4-0.9)
	Quintile 3	12.2 (10.6-14.1)	2.0 (1.3-3.0)	*0.5 (0.3-0.8)
	Quintile 4	12.3 (10.5-14.4)	2.3 (1.6-3.3)	*0.7 (0.4-1.2)
	Advantaged	12.2 (10.0-14.7)	2.5 (1.6-3.9)	*0.6 (0.3-1.2)
Remoteness	Major cities	13.1 (11.9-14.4)	2.5 (2.0-3.2)	0.7 (0.5-1.0)
	Inner regional	11.6 (10.4-12.9)	1.8 (1.3-2.6)	0.6 (0.4-0.9)
	Outer regional	12.6 (11.2-14.0)	2.0 (1.5-2.8)	1.0 (0.6-1.5)
	Remote/very remote	12.3 (10.5-14.3)	1.6 (1.1-2.3)	*0.5 (0.2-0.9)

\* Estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* Estimate has a relative standard error greater than 50% and is not reported

<sup>1</sup> Percentages in each column are based on all adult Queenslanders and rows should not be summed

Table A3 Tobacco use attributable health burden<sup>90</sup>

Condition <sup>1</sup>	Disease group	Australia 2015			
		Attributable DALY	% DALY	% YLL	% YLD
Acute lymphoblastic leukaemia	Cancer and other neoplasms	155	3.4	3.3	5.0
Acute myeloid leukaemia	Cancer and other neoplasms	1786	9.9	9.9	10.7
Age-related macular degeneration	Hearing and vision disorders	326	4.4		4.4
Aortic aneurysm	Cardiovascular diseases	1680	12.3	12.3	10.8
Asthma	Respiratory diseases	10,988	9.1	9.7	9.1
Atrial fibrillation and flutter	Cardiovascular diseases	3746	8.4	4.7	10.5
Back pain and problems	Musculoskeletal conditions	8482	4.3	2.5	4.3
Bladder cancer	Cancer and other neoplasms	5444	32.9	32.8	34.3
Bowel cancer	Cancer and other neoplasms	7128	7.4	7.3	8.3
Breast cancer	Cancer and other neoplasms	4212	6.0	5.9	6.5
Cataract	Hearing and vision disorders	140	3.8		3.8
Cervical cancer	Cancer and other neoplasms	625	9.2	9.3	8.3
Chronic lymphocytic leukaemia	Cancer and other neoplasms	629	13.4	13.4	12.6
Chronic myeloid leukaemia	Cancer and other neoplasms	168	10.8	10.9	9.4
COPD	Respiratory diseases	<b>133,270</b>	<b>72.4</b>	<b>73.7</b>	<b>71.2</b>
Coronary heart disease	Cardiovascular diseases	<b>45,830</b>	13.9	14.1	13.3
Dementia	Neurological conditions	4142	2.3	2.3	2.4
Gallbladder and bile duct disease	Gastrointestinal disorders	111	1.8	1.7	2.5
Gastroduodenal disorders	Gastrointestinal disorders	554	9.4	9.3	11.4
Hypertensive heart disease	Cardiovascular diseases	1341	11.2	11.3	7.9
Influenza	Infectious diseases	27	0.5	0.5	0.5
Kidney cancer	Cancer and other neoplasms	3010	16.9	16.9	16.4
Laryngeal cancer	Cancer and other neoplasms	3124	<b>75.5</b>	<b>75.4</b>	<b>75.5</b>
Lip and oral cavity cancer	Cancer and other neoplasms	5795	<b>53.2</b>	<b>53.1</b>	<b>53.8</b>
Liver cancer	Cancer and other neoplasms	6945	19.4	19.4	21.0
Lower respiratory infections	Infectious diseases	6549	16.8	16.8	17.0
Lung cancer	Cancer and other neoplasms	<b>122,384</b>	<b>77.7</b>	<b>77.7</b>	<b>79.7</b>
Multiple sclerosis	Neurological conditions	1017	7.9	7.7	8.0
Nasopharyngeal cancer	Cancer and other neoplasms	983	44.9	44.8	48.2
Oesophageal cancer	Cancer and other neoplasms	<b>12,787</b>	<b>52.2</b>	<b>52.2</b>	<b>55.4</b>
Other cardiovascular diseases	Cardiovascular diseases	6881	15.6	15.6	15.6
Other leukaemias	Cancer and other neoplasms	518	11.0	10.9	12.7
Other respiratory disease	Respiratory diseases	2544	19.3	19.2	19.5
Otitis media	Infectious diseases	3	0.6	0.1	0.7
Pancreatic cancer	Cancer and other neoplasms	10,677	22.0	22.0	23.9
Peripheral vascular disease	Cardiovascular diseases	785	8.9	8.8	9.7
Prostate cancer	Cancer and other neoplasms	2615	5.2	5.3	4.9
Rheumatoid arthritis	Musculoskeletal conditions	4464	4.7	3.0	4.8
Stomach cancer	Cancer and other neoplasms	2912	13.3	13.2	15.2
Stroke	Cardiovascular diseases	<b>13,888</b>	10.8	10.6	12.3
Type 2 diabetes	Endocrine disorders	4567	4.4	4.1	4.6
	<b>Total</b>	<b>443,235</b>	<b>9.3</b>	<b>13.7</b>	<b>5.0</b>

1 Top five conditions for each measure are in **bold font**

Table A4 Child measured weight<sup>†25</sup>

	Children (5–17 years)			
	Crude prevalence (%)		Age-standardised prevalence (%)	
	Queensland	Australia	Queensland	Australia
<b>2017–18</b>				
<b>Healthy weight</b>	<b>65.5 (61.0-70.0)</b>	<b>67.0 (65.0-69.0)</b>	<b>65.5 (61.0-70.0)</b>	<b>67.0 (65.0-69.0)</b>
Underweight	9.9 (7.0-12.8)	8.0 (6.8-9.2)	9.8 (6.9-12.7)	8.1 (6.9-9.3)
Overweight	15.9 (12.5-19.3)	17.0 (15.4-18.6)	15.9 (12.5-19.3)	17.0 (15.4-18.6)
Obese	8.3 (5.5-11.1)	8.1 (6.7-9.5)	8.2 (5.4-11.0)	8.1 (6.7-9.5)
Overweight/obese	24.6 (20.7-28.5)	24.9 (23.3-26.5)	24.1	25.1
<b>2014–15</b>				
<b>Healthy weight</b>	<b>65.7 (60.7-70.7)</b>	<b>66.7 (64.4-69.0)</b>	<b>65.7 (60.6-70.8)</b>	<b>66.7 (64.4-69.0)</b>
Underweight	8.0 (4.8-11.2)	5.7 (4.5-6.9)	7.9 (4.7-11.1)	5.7 (4.5-6.9)
Overweight	19.2 (15.2-23.2)	20.2 (18.2-22.2)	19.3 (15.2-23.4)	20.3 (18.3-22.3)
Obese	7.2 (4.4-10.0)	7.4 (6.1-8.7)	7.2 (4.3-10.1)	7.4 (6.1-8.7)
Overweight/obese	26.2 (21.9-30.5)	27.4 (25.2-29.6)	26.5	27.7
<b>2011–12</b>				
<b>Healthy weight</b>	<b>*72.5 (69.8-75.2)</b>	<b>69.1 (67.3-70.9)</b>	<b>67.2 (63.7-70.7)</b>	<b>69.8 (68.1-71.5)</b>
Underweight	*	5.3 (4.7-5.9)	6.9 (5.0-8.8)	5.1 (4.5-5.7)
Overweight	18.2 (15.5-20.9)	18.3 (16.9-19.7)	17.4 (14.8-20.0)	18.2 (16.9-19.5)
Obese	9.3 (7.0-11.6)	7.4 (6.4-8.4)	8.5 (6.5-10.5)	6.9 (6.0-7.8)
Overweight/obese	27.5 (23.6-31.4)	25.7 (24.1-27.3)	25.9	25.1
<b>2007–08</b>				
<b>Healthy weight</b>	<b>*73.3(67.3–79.3)</b>	<b>*75.3(72.5–78.1)</b>	<b>62.9 (56.5-69.3)</b>	<b>67.7 (64.8-70.6)</b>
Underweight	*	*	10.2 (6.7-13.7)	7.5 (6.1-8.9)
Overweight	17.9(12.7–23.1)	17.2(15.1–19.3)	18.0 (12.7-23.3)	17.2 (15.1-19.3)
Obese	8.8 (4.8–12.8)	7.5 (5.8–9.2)	8.9 (4.9-12.9)	7.5 (5.8-9.2)
Overweight/obese	26.7	24.7	26.9	24.7

Note: Confidence intervals were not available for all estimates

\* Healthy weight combined with underweight

Table A4 Adult measured weight<sup>†25</sup>

	Adults (18 years and older)			
	Crude prevalence (%)		Age-standardised prevalence (%)	
	Queensland	Australia	Queensland	Australia
<b>2017–18</b>				
<b>Healthy weight</b>	<b>32.3 (30.1-34.5)</b>	<b>31.7 (30.9-32.5)</b>	<b>33.0 (30.8-35.2)</b>	<b>32.2 (31.4-33.0)</b>
Underweight	1.8 (1.2-2.4)	1.3 (1.1-1.5)	1.8 (1.2-2.4)	1.3 (1.1-1.5)
Overweight	33.5 (31.5-35.5)	35.6 (34.6-36.6)	33.4 (31.4-35.4)	35.6 (34.6-36.6)
Obese	32.4 (30.4-34.4)	31.3 (30.4-32.2)	31.7 (29.7-33.7)	30.8 (29.9-31.7)
Overweight/obese	65.9 (63.8-68.0)	67.0 (66.2-67.8)	65.2 (63.1-67.3)	66.4 (65.6-67.2)
<b>2014–15</b>				
<b>Healthy weight</b>	<b>35.3 (33.1-37.5)</b>	<b>35.0 (34.0-36.0)</b>	<b>35.6 (33.4-37.8)</b>	<b>35.5 (34.4-36.6)</b>
Underweight	1.2 (0.7-1.7)	1.6 (1.3-1.9)	1.2 (0.7-1.7)	1.7 (1.4-2.0)
Overweight	33.4 (31.4-35.4)	35.5 (34.6-36.4)	33.4 (31.3-35.5)	35.3 (34.3-36.3)
Obese	30.2 (27.8-32.6)	27.9 (26.9-28.9)	29.9 (27.5-32.3)	27.5 (26.5-28.5)
Overweight/obese	63.6 (61.5-65.7)	63.4 (62.4-64.4)	63.3 (61.2-65.4)	62.8 (61.8-63.8)
<b>2011–12</b>				
<b>Healthy weight</b>	<b>33.4 (31.4-35.4)</b>	<b>35.5 (34.6-36.4)</b>	<b>33.6 (31.6-35.6)</b>	<b>35.7 (34.8-36.6)</b>
Underweight	1.8 (1.3-2.3)	1.7 (1.4-2.0)	1.8 (1.3-2.3)	1.6 (1.4-1.8)
Overweight	34.5 (32.6-36.4)	35.3 (34.6-36.0)	34.7 (33.0-36.4)	35.5 (34.8-36.2)
Obese	30.4 (28.9-31.9)	27.5 (26.7-28.3)	30.0 (28.4-31.6)	27.2 (26.4-28.0)
Overweight/obese	64.9 (63.0-66.8)	62.8 (61.9-63.7)	64.7 (62.8-66.6)	62.7 (61.8-63.6)
<b>2007–08</b>				
<b>Healthy weight</b>	<b>35.9 (33.4-38.4)</b>	<b>36.8 (36.2-37.4)</b>	<b>35.7 (33.2-38.2)</b>	<b>36.9 (35.7-38.1)</b>
Underweight	3.2 (1.8-4.6)	2.0 (1.8-2.2)	3.1 (1.7-4.5)	2.0 (1.6-2.4)
Overweight	35.9 (33.4-38.4)	36.7 (35.5-37.9)	36.1 (33.6-38.6)	36.7 (35.5-37.9)
Obese	24.9 (22.4-27.4)	24.6 (23.5-25.7)	25.0 (22.6-27.4)	24.4 (23.3-25.5)
Overweight/obese	60.8 (58.1-63.5)	61.2 (60.0-62.4)	61.2 (58.6-63.8)	61.1 (60.1-62.1)

Table A5 Proxy-reported child weight status, Queensland, 2020<sup>233</sup>

		Prevalence (%)			
		Healthy weight/ underweight	Overweight	Obese	Overweight/ Obese
5–17 years	Persons	73.0 (70.7-75.2)	18.4 (16.6-20.4)	8.6 (7.2-10.2)	27.0 (24.8-29.3)
	Males	72.3 (69.1-75.2)	19.0 (16.5-21.7)	8.7 (6.9-11.0)	27.7 (24.8-30.9)
	Females	73.8 (70.4-76.9)	17.8 (15.2-20.7)	8.4 (6.6-10.8)	26.2 (23.1-29.6)
Persons	5–7 years	71.8 (66.4-76.6)	17.1 (13.4-21.5)	11.1 (7.8-15.7)	28.2 (23.4-33.6)
	8–11 years	72.0 (68.0-75.6)	19.2 (16.0-22.7)	8.9 (6.8-11.6)	28.0 (24.4-32.0)
	12–15 years	75.3 (71.3-79.0)	17.6 (14.5-21.1)	7.1 (5.1-9.8)	24.7 (21.0-28.7)
	16–17 years	72.4 (66.5-77.6)	20.5 (16.0-25.9)	7.1 (4.4-11.4)	27.6 (22.4-33.5)
Males	5–7 years	68.6 (60.7-75.6)	17.2 (12.1-23.8)	14.2 (8.9-21.8)	31.4 (24.4-39.3)
	8–11 years	73.3 (67.9-78.1)	17.7 (13.9-22.3)	9.0 (6.2-12.9)	26.7 (21.9-32.1)
	12–15 years	76.0 (70.7-80.5)	18.3 (14.3-23.2)	5.7 (3.8-8.6)	24.0 (19.5-29.3)
	16–17 years	68.3 (60.3-75.3)	25.9 (19.3-33.8)	*5.8 (3.3-10.0)	31.7 (24.7-39.7)
Females	5–7 years	75.3 (68.1-81.3)	16.9 (12.0-23.4)	*7.8 (4.6-12.9)	24.7 (18.7-31.9)
	8–11 years	70.5 (64.5-75.9)	20.7 (16.0-26.4)	8.8 (5.9-12.9)	29.5 (24.1-35.5)
	12–15 years	74.7 (68.3-80.1)	16.8 (12.4-22.3)	8.6 (5.3-13.6)	25.3 (19.9-31.7)
	16–17 years	76.8 (67.6-84.0)	14.7 (9.3-22.4)	*8.5 (4.1-16.9)	23.2 (16.0-32.4)
Socioeconomic status	Most disadvantaged	63.9 (58.4-68.9)	22.2 (18.1-27.0)	13.9 (10.3-18.5)	36.1 (31.1-41.6)
	Quintile 2	69.1 (64.3-73.4)	19.2 (15.6-23.4)	11.7 (8.9-15.3)	30.9 (26.6-35.7)
	Quintile 3	70.9 (65.5-75.8)	21.1 (17.0-25.9)	7.9 (5.0-12.4)	29.1 (24.2-34.5)
	Quintile 4	77.5 (72.3-81.9)	16.0 (12.2-20.7)	6.5 (4.2-10.0)	22.5 (18.1-27.7)
	Most advantaged	83.2 (78.4-87.2)	13.7 (10.2-18.1)	**	16.8 (12.8-21.6)
Remoteness	Major cities	74.6 (71.4-77.6)	17.5 (15.1-20.3)	7.8 (6.0-10.2)	25.4 (22.4-28.6)
	Inner regional	71.6 (67.3-75.5)	19.5 (16.2-23.4)	8.9 (6.6-11.7)	28.4 (24.5-32.7)
	Outer regional	70.6 (65.8-74.9)	19.3 (15.7-23.4)	10.2 (7.4-13.8)	29.4 (25.1-34.2)
	Remote/very remote	62.1 (52.9-70.6)	23.3 (16.3-32.0)	14.6 (9.0-22.7)	37.9 (29.4-47.1)

\* Estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* Estimate has a relative standard error greater than 50% and is not reported

Note: Proxy-reported weight status does not provide reliable distinctions between healthy weight and underweight

 See [QSAS](#) for more information

**Table A5 Adult self-reported weight status, Queensland, 2020<sup>233</sup>**

		Prevalence (%)				
		Underweight	Healthy weight	Overweight	Obese	Overweight/obese
18+ years	Persons	2.7 (2.1-3.6)	37.1 (35.6-38.7)	35.3 (33.8-36.9)	24.8 (23.6-26.1)	60.2 (58.5-61.8)
	Male	1.3 (0.9-1.9)	32.3 (30.1-34.7)	41.9 (39.6-44.3)	24.5 (22.7-26.4)	66.4 (64.0-68.7)
	Female	4.1 (2.9-5.7)	41.8 (39.6-44.0)	28.9 (26.9-31.0)	25.2 (23.5-27.0)	54.1 (51.9-56.3)
Persons	18–24 years	*8.6 (4.6-15.4)	45.6 (37.4-54.0)	29.7 (22.0-38.7)	16.2 (11.4-22.6)	45.9 (37.6-54.5)
	25–34 years	2.7 (1.7-4.2)	42.7 (38.8-46.7)	34.0 (30.4-37.8)	20.6 (17.7-23.8)	54.6 (50.6-58.6)
	35–44 years	2.6 (1.7-3.9)	39.7 (36.4-43.1)	35.0 (31.8-38.3)	22.7 (20.2-25.5)	57.7 (54.3-61.0)
	45–54 years	*0.8 (0.3-1.9)	33.5 (30.3-36.9)	37.0 (33.7-40.4)	28.6 (25.8-31.7)	65.7 (62.3-68.9)
	55–64 years	*0.9 (0.5-1.5)	30.5 (27.8-33.3)	36.4 (33.6-39.3)	32.3 (29.7-35.0)	68.6 (65.8-71.4)
	65–74 years	1.6 (1.1-2.4)	31.6 (29.1-34.1)	37.8 (35.2-40.4)	29.0 (26.8-31.4)	66.8 (64.2-69.3)
	75+ years	3.3 (2.4-4.4)	34.6 (31.6-37.8)	38.3 (35.1-41.6)	23.8 (21.3-26.6)	62.1 (58.9-65.2)
Males	18–24 years	*5.1 (2.5-10.2)	47.9 (36.4-59.6)	30.3 (19.8-43.4)	16.6 (10.0-26.3)	47.0 (35.4-58.9)
	25–34 years	**	37.0 (31.4-42.9)	41.0 (35.5-46.8)	21.1 (16.8-26.1)	62.1 (56.2-67.7)
	35–44 years	**	33.0 (28.5-37.9)	44.0 (39.2-48.9)	22.1 (18.6-26.0)	66.1 (61.2-70.7)
	45–54 years	**	26.1 (21.8-30.9)	45.4 (40.4-50.5)	28.2 (24.0-32.8)	73.6 (68.8-77.9)
	55–64 years	*0.4 (0.1-0.9)	23.2 (19.8-27.0)	44.1 (39.8-48.5)	32.3 (28.5-36.4)	76.4 (72.6-79.9)
	65–74 years	*1.1 (0.5-2.3)	28.3 (24.7-32.1)	42.8 (39.0-46.8)	27.8 (24.6-31.2)	70.6 (66.7-74.2)
	75+ years	*1.3 (0.8-2.4)	32.4 (27.8-37.3)	44.6 (39.7-49.5)	21.7 (18.2-25.7)	66.3 (61.4-70.9)
Females	18–24 years	*12.2 (5.3-25.6)	43.1 (31.9-55.0)	29.0 (18.9-41.8)	15.7 (9.5-25.0)	44.7 (33.2-56.9)
	25–34 years	*4.4 (2.7-7.2)	48.2 (42.8-53.6)	27.3 (22.8-32.2)	20.1 (16.4-24.5)	47.4 (42.1-52.8)
	35–44 years	4.3 (2.7-6.8)	46.5 (41.8-51.2)	25.9 (22.0-30.1)	23.3 (19.7-27.3)	49.2 (44.5-53.9)
	45–54 years	**	40.7 (36.3-45.3)	28.9 (24.9-33.2)	29.1 (25.3-33.3)	58.0 (53.4-62.4)
	55–64 years	*1.4 (0.8-2.6)	37.5 (33.6-41.6)	28.9 (25.4-32.7)	32.2 (28.8-35.8)	61.1 (57.0-65.0)
	65–74 years	2.1 (1.3-3.3)	34.8 (31.5-38.3)	32.8 (29.6-36.1)	30.3 (27.1-33.6)	63.1 (59.6-66.4)
	75+ years	4.9 (3.5-6.9)	36.5 (32.5-40.7)	33.0 (28.9-37.4)	25.6 (22.0-29.5)	58.6 (54.3-62.8)
Socioeconomic status	Disadvantaged	2.5 (1.6-3.9)	30.1 (27.8-32.6)	31.4 (29.1-33.8)	36.0 (33.6-38.6)	67.4 (64.8-69.9)
	Quintile 2	2.8 (1.9-4.2)	31.7 (29.1-34.4)	37.4 (34.8-40.2)	28.1 (25.9-30.4)	65.5 (62.7-68.2)
	Quintile 3	2.0 (1.3-3.1)	35.7 (32.1-39.4)	35.6 (31.8-39.7)	26.7 (23.5-30.1)	62.3 (58.5-66.0)
	Quintile 4	*3.2 (1.7-6.2)	40.9 (37.4-44.5)	35.9 (32.6-39.3)	20.0 (17.4-22.7)	55.9 (52.2-59.5)
	Advantaged	*2.9 (1.4-5.9)	45.2 (40.8-49.7)	35.6 (31.4-40.1)	16.3 (13.6-19.4)	51.9 (47.4-56.4)
Remoteness	Major cities	3.2 (2.2-4.6)	39.3 (37.0-41.7)	35.3 (33.0-37.7)	22.2 (20.4-24.0)	57.5 (55.1-59.9)
	Inner regional	1.6 (1.1-2.3)	32.9 (30.5-35.4)	35.6 (33.4-37.8)	29.9 (27.9-32.0)	65.5 (63.0-67.9)
	Outer regional	2.3 (1.5-3.4)	34.6 (31.9-37.4)	36.0 (33.4-38.8)	27.1 (24.7-29.6)	63.1 (60.3-65.8)
	Remote/very remote	*2.2 (1.3-3.7)	33.4 (29.7-37.2)	31.1 (27.9-34.5)	33.3 (29.6-37.3)	64.4 (60.5-68.1)

\* Estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* Estimate has a relative standard error greater than 50% and is not reported

Note: Proxy-reported weight status does not provide reliable distinctions between healthy weight and underweight

 See [QSAS](#) for more information

Table A6 Overweight and obesity attributable health burden<sup>90</sup>

Condition <sup>1</sup>	Disease group	Australia 2015			
		Attributable DALY	% DALY	% YLL	% YLD
Acute lymphoblastic leukaemia	Cancer and other neoplasms	288	6.3	6.3	6.7
Acute myeloid leukaemia	Cancer and other neoplasms	1768	9.8	9.8	9.9
Asthma	Respiratory diseases	<b>28,595</b>	23.7	26.4	23.5
Atrial fibrillation and flutter	Cardiovascular diseases	11,877	26.6	25.2	27.4
Back pain and problems	Musculoskeletal conditions	13,900	7.1	0.0	7.1
Bowel cancer	Cancer and other neoplasms	12,085	12.5	12.5	12.2
Breast cancer	Cancer and other neoplasms	15,384	21.9	21.7	23.0
Cataract	Hearing and vision disorders	347	9.4		9.4
Chronic kidney disease	Kidney and urinary diseases	22,894	<b>39.6</b>	<b>39.3</b>	<b>40.7</b>
Chronic lymphocytic leukaemia	Cancer and other neoplasms	479	10.2	10.1	10.4
Chronic myeloid leukaemia	Cancer and other neoplasms	149	9.5	9.5	10.0
Coronary heart disease	Cardiovascular diseases	<b>80,769</b>	24.6	24.4	25.2
Dementia	Neurological conditions	<b>31,127</b>	17.3	17.2	17.4
Gallbladder and bile duct disease	Gastrointestinal disorders	2294	37.9	37.9	38.4
Gallbladder cancer	Cancer and other neoplasms	1197	24.1	24.2	22.6
Gout	Musculoskeletal conditions	2155	39.4	<b>40.1</b>	39.4
Hypertensive heart disease	Cardiovascular diseases	5389	<b>45.2</b>	<b>45.3</b>	<b>43.0</b>
Kidney cancer	Cancer and other neoplasms	4458	25.0	25.0	24.9
Liver cancer	Cancer and other neoplasms	8246	23.0	23.0	22.9
Myeloma	Cancer and other neoplasms	1622	9.4	9.4	9.0
Non-Hodgkin lymphoma	Cancer and other neoplasms	2180	8.3	8.3	8.2
Oesophageal cancer	Cancer and other neoplasms	9358	38.2	38.2	37.3
Osteoarthritis	Musculoskeletal conditions	<b>50,504</b>	<b>43.8</b>	0.0	<b>44.1</b>
Other leukaemias	Cancer and other neoplasms	463	9.9	9.9	9.8
Ovarian cancer	Cancer and other neoplasms	731	4.0	4.0	3.8
Pancreatic cancer	Cancer and other neoplasms	4118	8.5	8.5	8.3
Stroke	Cardiovascular diseases	26,891	21.0	20.4	24.3
Thyroid cancer	Cancer and other neoplasms	537	16.3	16.9	14.5
Type 2 diabetes	Endocrine disorders	<b>55,382</b>	<b>53.9</b>	<b>49.4</b>	<b>56.5</b>
Uterine cancer	Cancer and other neoplasms	4233	<b>45.3</b>	<b>45.2</b>	<b>45.5</b>
	<b>Total</b>	<b>399,419</b>	<b>8.4</b>	<b>9.1</b>	<b>7.7</b>

1 Top five conditions for each measure are in **bold font**

**Table A7 Adult and child nutrition, Queensland<sup>233</sup>**

		2019 Prevalence (%)	
		Recommended daily serves	
		Fruit	Vegetables
18+ years	Persons	52.5 (50.9-54.1)	8.0 (7.2-8.8)
	Male	47.3 (45.0-49.5)	4.7 (3.8-5.8)
	Female	57.6 (55.3-59.9)	11.1 (10.0-12.4)
Persons	18–24 years	48.3 (40.3-56.4)	*3.6 (1.8-6.9)
	25–34 years	47.7 (43.4-52.1)	9.0 (6.7-12.0)
	35–44 years	50.4 (47.1-53.6)	6.1 (4.8-7.8)
	45–54 years	50.2 (46.9-53.4)	8.1 (6.5-10.0)
	55–64 years	53.9 (51.2-56.6)	8.8 (7.4-10.5)
	65–74 years	62.3 (59.8-64.7)	12.2 (10.6-14.0)
	75+ years	63.1 (59.9-66.2)	8.3 (6.8-10.1)
	Males	18–24 years	40.4 (31.1-50.4)
25–34 years		44.5 (38.5-50.6)	*6.8 (4.0-11.5)
35–44 years		48.2 (43.3-53.0)	*2.6 (1.5-4.4)
45–54 years		44.6 (39.8-49.5)	4.0 (2.6-6.2)
55–64 years		48.6 (44.6-52.6)	3.1 (2.0-4.7)
65–74 years		55.1 (51.3-58.8)	7.6 (5.7-9.9)
75+ years		55.2 (50.2-60.2)	7.0 (4.9-9.8)
Females		18–24 years	56.5 (44.1-68.1)
	25–34 years	50.9 (44.6-57.1)	11.1 (7.8-15.6)
	35–44 years	52.6 (48.2-56.9)	9.6 (7.3-12.4)
	45–54 years	55.4 (51.1-59.7)	11.9 (9.3-15.1)
	55–64 years	59.0 (55.4-62.6)	14.4 (11.9-17.3)
	65–74 years	69.4 (66.2-72.4)	16.8 (14.3-19.5)
	75+ years	69.5 (65.5-73.3)	9.5 (7.4-12.0)
	Socioeconomic status	Disadvantaged	50.0 (47.3-52.7)
Quintile 2		54.5 (52.0-57.0)	8.7 (7.3-10.4)
Quintile 3		53.5 (50.1-56.9)	7.2 (5.6-9.2)
Quintile 4		48.7 (45.1-52.3)	8.4 (6.7-10.5)
Advantaged		55.5 (50.8-60.1)	7.9 (6.1-10.1)
Remoteness	Major cities	52.4 (50.0-54.8)	8.2 (7.1-9.5)
	Inner regional	54.1 (51.7-56.5)	7.7 (6.7-8.8)
	Outer regional	51.1 (48.2-53.9)	7.8 (6.6-9.2)
	Remote/very remote	51.2 (47.6-54.9)	6.2 (4.9-7.9)

		2020 Prevalence (%)		
		Recommended daily serves		
		Fruit	Vegetables	
5–17 years	Persons	68.4 (66.1-70.6)	4.6 (3.6-5.8)	
	Male	63.7 (60.3-66.9)	4.0 (2.7-5.8)	
	Female	73.4 (70.2-76.4)	5.2 (3.8-7.1)	
Persons	5–7 years	85.1 (80.9-88.5)	6.0 (3.9-9.1)	
	8–11 years	72.4 (68.4-76.1)	*3.8 (2.3-6.4)	
	12–15 years	59.5 (55.0-63.8)	5.0 (3.3-7.6)	
	16–17 years	50.9 (44.7-57.1)	*3.1 (1.7-5.5)	
	Males	5–7 years	83.6 (77.3-88.4)	*6.5 (3.5-12.0)
		8–11 years	66.2 (60.2-71.8)	*3.8 (1.7-8.2)
12–15 years		53.6 (47.5-59.7)	*3.0 (1.5-5.9)	
16–17 years		46.5 (38.6-54.7)	**	
Females	5–7 years	86.7 (80.5-91.1)	*5.4 (3.1-9.1)	
	8–11 years	78.9 (73.7-83.4)	*3.9 (2.0-7.5)	
	12–15 years	65.7 (59.3-71.6)	*7.1 (4.1-11.8)	
	16–17 years	55.6 (46.1-64.6)	*4.2 (2.1-8.5)	
Socioeconomic status	Disadvantaged	69.1 (64.3-73.6)	5.3 (3.3-8.4)	
	Quintile 2	71.3 (67.0-75.3)	4.7 (2.9-7.4)	
	Quintile 3	64.2 (58.6-69.3)	*1.8 (0.9-3.5)	
	Quintile 4	65.6 (59.9-70.8)	*6.9 (4.1-11.3)	
	Advantaged	71.7 (65.9-76.8)	*4.1 (2.4-7.1)	
Remoteness	Major cities	68.1 (64.8-71.3)	5.2 (3.8-7.1)	
	Inner regional	69.6 (65.3-73.6)	4.2 (2.8-6.1)	
	Outer regional	66.9 (62.3-71.2)	*2.8 (1.5-5.1)	
	Remote/very remote	71.9 (64.1-78.6)	**	

\* Estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* Estimate has a relative standard error greater than 50% and is not reported

 See [QSAS](#) for more information

Table A8 All dietary risks attributable health burden<sup>90</sup>

Condition <sup>1</sup>	Disease group	Australia 2015			
		Attributable DALY	% DALY	% YLL	% YLD
Acute lymphoblastic leukaemia	Cancer and other neoplasms	10	0.2	0.2	0.2
Acute myeloid leukaemia	Cancer and other neoplasms	44	0.2	0.2	0.2
Aortic aneurysm	Cardiovascular diseases	995	7.3	7.3	7.7
Asthma	Respiratory diseases	1012	0.8	0.8	0.8
Atrial fibrillation and flutter	Cardiovascular diseases	3439	7.7	6.8	8.2
Back pain and problems	Musculoskeletal conditions	383	0.2	0.0	0.2
Bowel cancer	Cancer and other neoplasms	<b>21,097</b>	<b>21.8</b>	<b>21.8</b>	<b>21.5</b>
Breast cancer	Cancer and other neoplasms	222	0.3	0.3	0.3
Cardiomyopathy	Cardiovascular diseases	1839	7.3	7.4	6.6
Cataract	Hearing and vision disorders	8	0.2		0.2
Chronic kidney disease	Kidney and urinary diseases	4921	8.5	8.5	8.5
Chronic lymphocytic leukaemia	Cancer and other neoplasms	11	0.2	0.2	0.2
Chronic myeloid leukaemia	Cancer and other neoplasms	5	0.3	0.3	0.3
Coronary heart disease	Cardiovascular diseases	<b>204,071</b>	<b>62.1</b>	<b>62.3</b>	<b>61.3</b>
Dementia	Neurological conditions	634	0.4	0.4	0.4
Gallbladder and bile duct disease	Gastrointestinal disorders	45	0.7	0.7	0.9
Gallbladder cancer	Cancer and other neoplasms	20	0.4	0.4	0.4
Gout	Musculoskeletal conditions	49	0.9	0.7	0.9
Hypertensive heart disease	Cardiovascular diseases	1142	<b>9.6</b>	<b>9.6</b>	<b>8.9</b>
Inflammatory heart disease	Cardiovascular diseases	74	1.5	1.5	1.4
Kidney cancer	Cancer and other neoplasms	95	0.5	0.5	0.5
Lip and oral cavity cancer	Cancer and other neoplasms	497	4.6	4.6	4.5
Liver cancer	Cancer and other neoplasms	209	0.6	0.6	0.5
Lung cancer	Cancer and other neoplasms	<b>12,459</b>	7.9	7.9	7.7
Myeloma	Cancer and other neoplasms	37	0.2	0.2	0.2
Nasopharyngeal cancer	Cancer and other neoplasms	95	4.4	4.4	4.3
Non-Hodgkin lymphoma	Cancer and other neoplasms	57	0.2	0.2	0.2
Oesophageal cancer	Cancer and other neoplasms	187	0.8	0.8	0.7
Osteoarthritis	Musculoskeletal conditions	691	0.6	0.0	0.6
Other cardiovascular diseases	Cardiovascular diseases	3394	7.7	7.7	7.7
Other leukaemias	Cancer and other neoplasms	11	0.2	0.2	0.2
Other lip, oral cavity and pharynx cancers	Cancer and other neoplasms	342	4.6	4.6	4.5
Ovarian cancer	Cancer and other neoplasms	14	0.1	0.1	0.1
Pancreatic cancer	Cancer and other neoplasms	99	0.2	0.2	0.2
Peripheral vascular disease	Cardiovascular diseases	501	5.7	5.7	5.9
Rheumatic heart disease	Cardiovascular diseases	393	5.5	5.5	5.5
Stomach cancer	Cancer and other neoplasms	1303	6.0	6.0	5.9
Stroke	Cardiovascular diseases	<b>43,846</b>	<b>34.2</b>	<b>33.7</b>	<b>37.4</b>
Thyroid cancer	Cancer and other neoplasms	13	0.4	0.4	0.4
Type 2 diabetes	Endocrine disorders	<b>42,431</b>	<b>41.3</b>	<b>37.2</b>	<b>43.6</b>
Uterine cancer	Cancer and other neoplasms	49	0.5	0.5	0.5
	<b>Total</b>	<b>346,742</b>	<b>7.3</b>	<b>11.1</b>	<b>3.5</b>

<sup>1</sup> Top five conditions for each measure are in **bold font**

**Table A9 High blood pressure attributable health burden<sup>90</sup>**

Condition <sup>1</sup>	Disease group	Australia 2015			
		Attributable DALY	% DALY	% YLL	% YLD
Aortic aneurysm	Cardiovascular diseases	4007	29.3	29.3	31.3
Atrial fibrillation and flutter	Cardiovascular diseases	<b>14,372</b>	<b>32.2</b>	<b>30.2</b>	<b>33.4</b>
Cardiomyopathy	Cardiovascular diseases	6945	27.7	27.6	28.9
Chronic kidney disease	Kidney and urinary diseases	<b>21,932</b>	<b>37.9</b>	<b>38.0</b>	<b>37.7</b>
Coronary heart disease	Cardiovascular diseases	<b>142,789</b>	<b>43.4</b>	<b>43.4</b>	<b>43.7</b>
Dementia	Neurological conditions	6311	3.5	3.6	3.4
Hypertensive heart disease	Cardiovascular diseases	7737	64.9	64.9	63.7
Inflammatory heart disease	Cardiovascular diseases	285	5.6	5.5	6.0
Other cardiovascular diseases	Cardiovascular diseases	<b>13,603</b>	30.9	<b>30.9</b>	30.9
Peripheral vascular disease	Cardiovascular diseases	2018	22.9	22.8	23.4
Rheumatic heart disease	Cardiovascular diseases	1542	21.6	21.7	21.3
Stroke	Cardiovascular diseases	<b>52,353</b>	<b>40.9</b>	<b>40.8</b>	<b>41.1</b>
<b>Total</b>		<b>273,894</b>	<b>5.8</b>	<b>9.1</b>	<b>2.4</b>

1 Top five conditions for each measure are in **bold font**

**Table A10 High blood glucose attributable health burden<sup>90</sup>**

Condition <sup>1</sup>	Disease group	Australia 2015			
		Attributable DALY	% DALY	% YLL	% YLD
Bladder cancer	Cancer and other neoplasms	1049	6.3	6.3	6.5
Bowel cancer	Cancer and other neoplasms	5503	5.7	5.6	6.1
Breast cancer	Cancer and other neoplasms	2915	4.2	4.1	4.5
Cataract	Hearing and vision disorders	216	5.8		5.8
Chronic kidney disease	Kidney and urinary diseases	<b>34,501</b>	<b>59.7</b>	<b>59.7</b>	<b>59.6</b>
Coronary heart disease	Cardiovascular diseases	<b>22,083</b>	6.7	6.7	6.9
Dementia	Neurological conditions	10,045	5.6	5.6	5.5
Glaucoma	Hearing and vision disorders	128	5.4		5.4
Liver cancer	Cancer and other neoplasms	2098	5.9	5.9	6.2
Lung cancer	Cancer and other neoplasms	9534	6.1	6.0	6.3
Other diabetes	Endocrine disorders	4169	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Ovarian cancer	Cancer and other neoplasms	885	4.8	4.8	5.0
Pancreatic cancer	Cancer and other neoplasms	2887	5.9	5.9	6.1
Peripheral vascular disease	Cardiovascular diseases	1542	<b>17.5</b>	<b>17.2</b>	<b>19.1</b>
Stroke	Cardiovascular diseases	7843	6.1	6.1	6.1
Type 1 diabetes	Endocrine disorders	<b>14,729</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Type 2 diabetes	Endocrine disorders	<b>102,714</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Total</b>		<b>222,840</b>	<b>4.7</b>	<b>5.4</b>	<b>4.0</b>

1 Top five conditions for each measure are in **bold font**

**Table A11 High blood cholesterol attributable health burden<sup>90</sup>**

Condition <sup>1</sup>	Disease group	Australia 2015			
		Attributable DALY	% DALY	% YLL	% YLD
Coronary heart disease	Cardiovascular diseases	121,898	37.1	37.5	35.4
Stroke	Cardiovascular diseases	19,152	15.0	14.9	15.6
<b>Total</b>		<b>141,050</b>	<b>3.0</b>	<b>4.9</b>	<b>1.1</b>

Table A12 Adult alcohol consumption, Queensland, 2020<sup>233</sup>

		Prevalence (%)			
		Abstainers	Lifetime risky drinking	Single occasion risky drinking at least monthly	Single occasion risky drinking at least weekly
18+ years	Persons	16.8 (15.8-17.9)	22.5 (21.1-23.9)	30.6 (29.0-32.2)	15.5 (14.3-16.8)
	Males	13.1 (11.8-14.6)	33.9 (31.6-36.3)	42.8 (40.4-45.2)	24.5 (22.4-26.8)
	Females	20.3 (18.9-21.9)	11.5 (10.2-12.8)	18.9 (17.0-20.9)	6.8 (5.9-7.9)
Persons	18–24 years	8.7 (5.8-12.8)	26.4 (19.5-34.8)	48.0 (39.8-56.4)	21.9 (15.6-29.9)
	25–34 years	14.3 (11.8-17.3)	23.9 (20.7-27.5)	39.3 (35.5-43.3)	17.2 (14.4-20.4)
	35–44 years	16.6 (14.2-19.3)	23.8 (21.1-26.7)	31.9 (28.9-35.0)	15.7 (13.5-18.1)
	45–54 years	11.8 (9.9-14.0)	23.8 (21.1-26.8)	31.1 (28.1-34.3)	18.3 (15.8-21.0)
	55–64 years	18.5 (16.3-20.8)	23.0 (20.7-25.4)	25.7 (23.2-28.2)	14.8 (13.0-16.8)
	65–74 years	23.4 (21.2-25.7)	19.1 (17.2-21.2)	17.2 (15.3-19.2)	9.9 (8.5-11.5)
	75+ years	32.7 (29.8-35.7)	11.3 (9.4-13.6)	9.4 (7.7-11.5)	5.3 (4.1-7.0)
Males	18–24 years	*10.4 (6.0-17.5)	39.4 (28.1-51.8)	57.9 (46.6-68.5)	32.7 (22.1-45.5)
	25–34 years	9.7 (6.9-13.5)	36.4 (30.9-42.2)	54.7 (48.9-60.3)	27.6 (22.7-33.1)
	35–44 years	12.2 (9.4-15.7)	34.2 (29.8-38.9)	42.7 (38.1-47.5)	23.8 (20.2-27.9)
	45–54 years	9.8 (7.2-13.2)	35.1 (30.4-40.1)	43.7 (38.8-48.8)	29.1 (24.7-34.0)
	55–64 years	14.8 (11.9-18.4)	33.5 (29.8-37.6)	37.9 (33.9-42.0)	22.6 (19.6-26.1)
	65–74 years	18.8 (15.8-22.1)	30.1 (26.7-33.6)	28.6 (25.3-32.2)	16.7 (14.3-19.5)
	75+ years	23.3 (19.5-27.6)	22.4 (18.5-26.9)	18.4 (14.8-22.6)	10.6 (8.0-14.1)
Females	18–24 years	*6.8 (3.7-12.2)	*13.1 (7.8-21.0)	37.8 (27.1-49.8)	10.7 (6.6-16.9)
	25–34 years	18.7 (14.8-23.3)	12.1 (9.0-16.1)	24.8 (20.5-29.7)	7.3 (5.0-10.5)
	35–44 years	21.0 (17.3-25.2)	13.6 (10.8-16.9)	21.2 (17.8-25.0)	7.6 (5.7-10.2)
	45–54 years	13.7 (11.2-16.6)	13.1 (10.7-16.1)	19.1 (16.2-22.5)	7.9 (6.0-10.3)
	55–64 years	22.0 (19.0-25.3)	12.9 (10.5-15.7)	13.9 (11.3-17.1)	7.3 (5.5-9.5)
	65–74 years	27.9 (24.9-31.1)	8.6 (6.8-10.7)	6.0 (4.7-7.8)	3.3 (2.3-4.7)
	75+ years	40.4 (36.4-44.6)	2.2 (1.3-3.5)	*2.0 (1.2-3.4)	*1.0 (0.5-2.0)
Socioeconomic status	Disadvantaged	22.4 (20.4-24.6)	22.1 (20.1-24.3)	30.0 (27.6-32.4)	16.7 (14.8-18.7)
	Quintile 2	17.7 (15.9-19.7)	23.9 (21.6-26.3)	31.9 (29.4-34.5)	16.9 (15.0-19.0)
	Quintile 3	15.9 (13.9-18.3)	23.5 (19.7-27.7)	30.4 (26.3-34.7)	16.9 (13.3-21.3)
	Quintile 4	14.8 (12.6-17.3)	21.6 (18.8-24.7)	31.2 (27.6-35.0)	15.0 (12.5-17.8)
	Advantaged	14.2 (11.8-17.1)	21.4 (17.9-25.2)	29.4 (25.3-33.8)	12.5 (9.8-15.6)
Remoteness	Major cities	16.2 (14.8-17.8)	21.2 (19.2-23.4)	29.3 (27.0-31.8)	14.4 (12.6-16.4)
	Inner regional	17.7 (16.2-19.3)	22.2 (20.0-24.5)	30.2 (27.9-32.7)	15.4 (13.9-17.2)
	Outer regional	17.9 (15.9-20.1)	26.8 (24.5-29.4)	34.1 (31.4-36.8)	19.3 (17.2-21.6)
	Remote/very remote	17.7 (15.2-20.5)	28.6 (25.5-32.0)	39.9 (36.1-43.8)	20.6 (17.8-23.7)

\* Estimate has a relative standard error of 25% to 50% and should be used with caution

Note 1: Low risk drinking has not been included, and neither has more than monthly occasion risky drinking

Note 2: Single occasion risky drinking at least monthly also includes at least weekly drinking



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

**Table A13 Alcohol use attributable health burden<sup>90</sup>**

Condition <sup>1</sup>	Disease group	Australia 2015			
		Attributable DALY	% DALY	% YLL	% YLD
<b>Alcohol use disorders</b>	Mental and substance use disorders	<b>68,455</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Atrial fibrillation and flutter	Cardiovascular diseases	4132	9.3	9.0	9.4
Bowel cancer	Cancer and other neoplasms	5346	5.5	5.5	5.8
Breast cancer	Cancer and other neoplasms	7024	10.0	10.0	10.0
Chronic liver disease	Gastrointestinal disorders	<b>16,261</b>	28.0	28.0	28.2
Coronary heart disease	Cardiovascular diseases	<b>11,458</b>	3.5	3.5	3.6
Drowning	External causes of Injury	1184	11.0	11.1	8.1
Epilepsy	Neurological conditions	5510	13.3	14.1	13.1
Falls	External causes of Injury	4959	7.5	7.8	7.1
Fire, burns and scalds	External causes of Injury	353	10.4	12.0	9.0
Homicide and violence	External causes of Injury	2580	14.1	13.6	15.8
Hypertensive heart disease	Cardiovascular diseases	1074	9.0	9.0	8.4
Laryngeal cancer	Cancer and other neoplasms	893	21.6	21.6	21.3
Lip and oral cavity cancer	Cancer and other neoplasms	3556	<b>32.6</b>	<b>32.7</b>	<b>31.7</b>
Liver cancer	Cancer and other neoplasms	<b>14,414</b>	<b>40.2</b>	<b>40.2</b>	<b>40.3</b>
Lower respiratory infections	Infectious diseases	2855	7.3	7.6	5.9
Nasopharyngeal cancer	Cancer and other neoplasms	748	<b>34.2</b>	<b>34.2</b>	<b>33.1</b>
Oesophageal cancer	Cancer and other neoplasms	4812	19.7	19.7	18.4
Other land transport injuries	External causes of Injury	2796	24.3	23.5	25.3
<b>Other lip, oral cavity and pharynx cancers</b>	Cancer and other neoplasms	2652	<b>35.3</b>	<b>35.3</b>	<b>35.1</b>
Other unintentional injuries	External causes of Injury	3468	12.2	12.4	11.8
Pancreatitis	Gastrointestinal disorders	466	10.0	10.0	10.0
Poisoning	External causes of Injury	7744	12.4	12.4	10.6
RTI – motorcyclists	External causes of Injury	3198	27.7	27.8	27.0
RTI – motor vehicle occupants	External causes of Injury	9378	22.4	22.3	23.0
RTI – pedal cyclists	External causes of Injury	827	26.9	29.0	24.9
RTI – pedestrians	External causes of Injury	1332	23.2	23.5	21.4
Suicide and self-inflicted injuries	External causes of Injury	<b>19,415</b>	14.3	14.4	11.4
Stroke	Cardiovascular diseases	6816	5.3	5.4	5.0
<b>Total</b>		<b>213,705</b>	<b>4.5</b>	<b>5.6</b>	<b>3.4</b>

<sup>1</sup> Top five conditions for each measure are in **bold font**

RTI: Road traffic injuries

**Table A14 Illicit drug use attributable health burden<sup>90</sup>**

Condition <sup>1</sup>	Disease group	Australia 2015			
		Attributable DALY	% DALY	% YLL	% YLD
Anxiety disorders	Mental and substance use disorders	769	0.5	0.2	0.5
Chronic liver disease	Gastrointestinal disorders	<b>14,158</b>	<b>24.4</b>	<b>24.4</b>	<b>24.2</b>
Depressive disorders	Mental and substance use disorders	684	0.5	0.1	0.5
Drug use disorders (excluding alcohol)	Mental and substance use disorders	<b>39,347</b>	<b>99.8</b>	<b>99.4</b>	<b>99.9</b>
Hepatitis B (acute)	Infectious diseases	240	<b>37.2</b>	<b>37.2</b>	<b>36.7</b>
Hepatitis C (acute)	Infectious diseases	141	<b>74.5</b>	<b>74.5</b>	<b>76.7</b>
HIV/AIDS	Infectious diseases	267	7.9	7.8	8.0
Liver cancer	Cancer and other neoplasms	<b>8510</b>	23.8	23.8	23.8
Poisoning	External causes of Injury	<b>42,613</b>	<b>45.5</b>	<b>45.7</b>	<b>27.3</b>
RTI – motor vehicle occupants	External causes of Injury	1631	3.9	4.0	2.9
RTI – motorcyclists	External causes of Injury	557	4.8	5.0	4.2
Schizophrenia	Mental and substance use disorders	1009	2.9	0.4	2.9
Suicide and self-inflicted injuries	External causes of Injury	<b>18,162</b>	13.4	13.4	11.1
<b>Total</b>		<b>128,087</b>	<b>2.7</b>	<b>3.7</b>	<b>1.7</b>

<sup>1</sup> Top five conditions for each measure are in **bold font**

RTI: Road traffic injuries

Table A15 Adult physical activity, Queensland, 2020<sup>233</sup>

		Prevalence (%)		
		Sufficient physical activity: 150 minutes or more over at least 5 sessions in past week	Insufficient physical activity: insufficient time or sessions	Inactive: not active on any day in past week
18+ years	Persons	58.7 (57.1-60.4)	29.7 (28.2-31.3)	11.5 (10.6-12.5)
	Male	61.8 (59.4-64.1)	26.8 (24.8-28.9)	11.4 (10.1-12.9)
	Female	55.8 (53.4-58.1)	32.6 (30.4-34.9)	11.6 (10.4-13.0)
Persons	18–24 years	64.1 (55.9-71.6)	28.3 (21.3-36.5)	7.6 (4.6-12.2)
	25–34 years	65.7 (61.9-69.3)	25.5 (22.3-29.0)	8.8 (6.8-11.2)
	35–44 years	59.4 (56.1-62.7)	29.9 (26.9-33.1)	10.7 (8.7-13.0)
	45–54 years	61.1 (57.8-64.3)	28.1 (25.2-31.2)	10.8 (9.1-12.9)
	55–64 years	50.2 (47.2-53.1)	34.1 (31.4-37.0)	15.7 (13.6-18.0)
	65–74 years	50.7 (48.1-53.3)	33.0 (30.6-35.5)	16.3 (14.5-18.3)
	75+ years	43.0 (34.6-51.8)	40.1 (31.9-48.9)	16.9 (11.8-23.5)
Males	18–24 years	67.9 (57.2-77.0)	22.1 (14.7-31.6)	*10.0 (5.3-18.3)
	25–34 years	68.1 (62.6-73.1)	23.5 (19.2-28.5)	8.4 (5.7-12.1)
	35–44 years	63.6 (58.8-68.2)	25.8 (21.8-30.2)	10.6 (7.9-14.1)
	45–54 years	65.3 (60.5-69.8)	25.2 (21.1-29.7)	9.5 (7.3-12.3)
	55–64 years	51.1 (46.8-55.4)	34.3 (30.4-38.5)	14.6 (12.0-17.6)
	65–74 years	53.0 (49.1-56.9)	30.2 (26.7-33.9)	16.8 (14.2-19.7)
	75+ years	49.1 (37.3-61.0)	32.3 (22.2-44.4)	18.6 (11.6-28.5)
Females	18–24 years	60.2 (47.9-71.4)	34.7 (23.8-47.5)	*5.0 (2.4-10.3)
	25–34 years	63.4 (58.1-68.4)	27.5 (23.0-32.4)	9.1 (6.5-12.7)
	35–44 years	55.2 (50.6-59.8)	34.0 (29.8-38.6)	10.7 (8.1-14.1)
	45–54 years	57.1 (52.6-61.5)	30.9 (26.9-35.2)	12.1 (9.5-15.2)
	55–64 years	49.3 (45.3-53.2)	34.0 (30.3-37.8)	16.8 (13.8-20.3)
	65–74 years	48.4 (44.9-51.9)	35.8 (32.5-39.2)	15.8 (13.4-18.6)
	75+ years	35.6 (25.0-47.9)	49.5 (37.4-61.8)	*14.8 (8.5-24.5)
Socioeconomic status	Disadvantaged	49.6 (46.8-52.4)	33.0 (30.5-35.6)	17.4 (15.1-19.9)
	Quintile 2	55.9 (53.0-58.8)	30.5 (27.9-33.1)	13.6 (11.9-15.6)
	Quintile 3	58.8 (54.8-62.7)	30.5 (27.0-34.2)	10.7 (8.9-12.9)
	Quintile 4	62.1 (58.5-65.5)	28.5 (25.4-31.8)	9.4 (7.6-11.6)
	Advantaged	65.0 (60.2-69.4)	27.1 (22.9-31.8)	7.9 (5.9-10.6)
Remoteness	Major cities	61.4 (58.9-63.8)	28.4 (26.2-30.8)	10.2 (8.9-11.6)
	Inner regional	52.6 (50.0-55.1)	32.5 (30.2-34.8)	14.9 (13.2-16.8)
	Outer regional	56.9 (53.9-59.9)	31.2 (28.4-34.1)	11.9 (10.1-13.8)
	Remote/very remote	54.8 (50.8-58.8)	30.5 (26.9-34.5)	14.6 (12.1-17.6)

\* Estimate has a relative standard error of 25% to 50% and should be used with caution

 See [QSAS](#) for more information

Table A16 Child physical activity, Queensland, 2020<sup>233</sup>

		Prevalence (%)		
		Sufficient physical activity: active every day of the past week	Active 4 or more days of the past week	Inactive: not active on any day in past week
5–17 years	Persons	45.7 (43.3-48.2)	73.7 (71.4-75.9)	5.6 (4.5-6.9)
	Male	49.7 (46.2-53.1)	76.9 (73.9-79.7)	4.7 (3.5-6.3)
	Female	41.6 (38.2-45.2)	70.3 (66.8-73.6)	6.4 (4.7-8.7)
Persons	5–7 years	66.8 (61.5-71.7)	89.0 (84.8-92.1)	**
	8–11 years	52.1 (47.8-56.3)	82.8 (79.4-85.8)	2.8 (1.7-4.4)
	12–15 years	31.3 (27.4-35.5)	60.2 (55.5-64.7)	6.8 (4.8-9.5)
	16–17 years	27.0 (21.9-33.0)	56.2 (50.0-62.2)	14.2 (10.3-19.2)
Males	5–7 years	71.9 (65.0-78.0)	91.6 (87.0-94.7)	**
	8–11 years	54.4 (48.4-60.3)	84.5 (79.9-88.1)	*2.5 (1.3-4.8)
	12–15 years	37.5 (31.9-43.5)	65.1 (58.7-71.1)	6.6 (4.0-10.7)
	16–17 years	27.6 (21.0-35.4)	60.4 (52.2-68.0)	10.7 (6.7-16.6)
Females	5–7 years	61.4 (53.4-68.8)	86.3 (78.9-91.4)	**
	8–11 years	49.6 (43.6-55.6)	81.1 (75.7-85.6)	*3.1 (1.5-5.9)
	12–15 years	24.8 (19.6-30.8)	55.1 (48.2-61.7)	7.0 (4.3-11.2)
	16–17 years	26.5 (18.8-35.8)	51.8 (42.5-61.0)	17.9 (11.7-26.4)
Socioeconomic status	Disadvantaged	50.0 (44.8-55.2)	77.0 (72.4-81.0)	6.1 (4.0-9.1)
	Quintile 2	47.5 (42.7-52.5)	73.8 (69.1-77.9)	4.4 (2.8-6.8)
	Quintile 3	43.3 (37.9-48.9)	73.3 (68.0-78.1)	6.6 (4.2-10.1)
	Quintile 4	47.5 (41.8-53.3)	72.8 (67.2-77.8)	*6.5 (3.8-11.0)
	Advantaged	40.4 (34.7-46.4)	71.6 (65.6-76.8)	*4.4 (2.6-7.3)
Remoteness	Major cities	43.5 (40.1-47.0)	72.5 (69.2-75.6)	5.7 (4.2-7.8)
	Inner regional	47.8 (43.3-52.4)	74.9 (70.7-78.6)	5.9 (4.1-8.3)
	Outer regional	47.9 (43.0-52.8)	74.7 (70.3-78.7)	4.8 (3.1-7.3)
	Remote/very remote	65.4 (57.2-72.7)	85.0 (78.5-89.9)	*3.4 (1.8-6.4)

\* Estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* Estimate has a relative standard error greater than 50% and is not reported

 See [QSAS](#) for more information

Table A17 Physical inactivity attributable health burden<sup>90</sup>

Condition <sup>1</sup>	Disease group	Australia 2015			
		Attributable DALY	% DALY	% YLL	% YLD
<b>Bowel cancer</b>	Cancer and other neoplasms	<b>16,022</b>	<b>16.5</b>	<b>16.5</b>	<b>17.0</b>
<b>Breast cancer</b>	Cancer and other neoplasms	7795	11.1	11.1	11.2
<b>Coronary heart disease</b>	Cardiovascular diseases	<b>38,590</b>	<b>11.7</b>	<b>11.7</b>	<b>11.7</b>
<b>Dementia</b>	Neurological conditions	<b>24,295</b>	<b>13.5</b>	<b>13.5</b>	<b>13.6</b>
<b>Stroke</b>	Cardiovascular diseases	<b>13,236</b>	10.3	10.2	10.9
<b>Type 2 diabetes</b>	Endocrine disorders	<b>19,710</b>	<b>19.2</b>	<b>19.7</b>	<b>18.9</b>
<b>Uterine cancer</b>	Cancer and other neoplasms	1511	<b>16.2</b>	<b>16.2</b>	<b>16.2</b>
<b>Total</b>		<b>121,158</b>	<b>2.5</b>	<b>3.6</b>	<b>1.5</b>

1 Top five conditions for each measure are in **bold font**

Table A18 Adult sunburn and sun protection behaviours, Queensland, 2020<sup>233</sup>

		Prevalence (%)			
		Sunburnt in the past 12 months	Summer sun-safe (hat, sunscreen, clothing)	Wrap-around sunglasses	Shade-seeking
18+ years	Persons	49.3 (47.7-50.9)	20.5 (19.3-21.7)	24.2 (22.9-25.4)	88.2 (87.1-89.3)
	Males	54.6 (52.3-56.9)	18.7 (17.1-20.4)	33.0 (30.9-35.1)	85.4 (83.2-87.2)
	Females	44.3 (42.1-46.5)	22.2 (20.5-24.0)	15.7 (14.5-17.1)	91.0 (89.9-92.1)
Persons	18–24 years	63.9 (55.7-71.5)	13.7 (8.9-20.3)	12.8 (8.7-18.3)	87.2 (78.9-92.6)
	25–34 years	70.4 (66.7-73.9)	16.0 (13.6-18.8)	21.5 (18.6-24.8)	87.5 (84.5-89.9)
	35–44 years	60.1 (56.6-63.4)	21.1 (18.6-23.9)	33.2 (30.1-36.4)	89.6 (87.4-91.4)
	45–54 years	54.2 (50.8-57.6)	26.0 (23.1-29.1)	28.1 (25.3-31.2)	88.9 (86.6-90.9)
	55–64 years	36.9 (34.2-39.8)	25.2 (22.7-27.9)	26.2 (23.7-28.8)	88.9 (86.9-90.6)
	65–74 years	21.8 (19.7-24.0)	22.5 (20.3-24.8)	20.3 (18.3-22.4)	88.6 (86.9-90.1)
	75+ years	10.5 (8.6-12.7)	16.2 (13.9-18.8)	22.0 (19.4-24.9)	85.5 (83.0-87.6)
Males	18–24 years	69.4 (58.4-78.6)	*12.3 (7.1-20.4)	19.0 (12.0-28.8)	79.9 (65.5-89.3)
	25–34 years	72.8 (67.4-77.6)	16.1 (12.6-20.3)	29.5 (24.7-34.8)	86.5 (81.8-90.1)
	35–44 years	65.9 (60.9-70.6)	18.7 (15.3-22.6)	45.1 (40.3-50.0)	86.3 (82.6-89.3)
	45–54 years	58.2 (53.1-63.2)	24.4 (20.3-29.1)	42.9 (38.0-47.9)	88.1 (84.5-90.9)
	55–64 years	44.1 (39.9-48.5)	22.8 (19.4-26.6)	35.6 (31.7-39.8)	85.9 (82.6-88.7)
	65–74 years	27.2 (23.9-30.8)	19.1 (16.0-22.5)	24.1 (21.1-27.5)	85.4 (82.5-87.9)
	75+ years	15.8 (12.5-19.8)	13.8 (10.7-17.7)	23.6 (19.5-28.2)	82.4 (78.7-85.6)
Females	18–24 years	58.3 (46.2-69.5)	*15.1 (8.0-26.6)	*6.3 (3.6-10.8)	94.8 (90.2-97.3)
	25–34 years	68.1 (62.9-72.9)	16.0 (12.7-19.9)	13.9 (10.7-17.9)	88.4 (84.5-91.5)
	35–44 years	54.3 (49.6-58.9)	23.6 (19.9-27.6)	21.3 (18.0-25.1)	92.8 (90.3-94.7)
	45–54 years	50.4 (45.9-54.9)	27.5 (23.6-31.7)	14.1 (11.7-17.0)	89.8 (86.5-92.3)
	55–64 years	30.0 (26.6-33.7)	27.5 (24.0-31.3)	17.2 (14.5-20.3)	91.8 (89.3-93.7)
	65–74 years	16.6 (14.2-19.2)	25.8 (22.8-29.0)	16.6 (14.3-19.2)	91.8 (89.9-93.4)
	75+ years	6.0 (4.2-8.6)	18.2 (15.1-21.8)	20.7 (17.5-24.4)	88.0 (84.6-90.7)
Socioeconomic status	Disadvantaged	45.9 (43.4-48.6)	18.7 (17.0-20.6)	25.9 (23.8-28.1)	88.1 (86.4-89.6)
	Quintile 2	50.4 (47.6-53.1)	23.1 (21.0-25.4)	27.7 (25.4-30.1)	87.9 (86.0-89.6)
	Quintile 3	52.4 (48.6-56.2)	19.8 (17.3-22.6)	25.7 (22.9-28.9)	86.5 (82.2-89.9)
	Quintile 4	50.8 (47.3-54.4)	20.3 (17.8-23.1)	22.0 (19.4-24.8)	89.0 (86.8-91.0)
	Advantaged	46.9 (42.4-51.4)	20.2 (16.9-23.9)	20.3 (17.2-23.8)	89.4 (86.3-91.8)
Remoteness	Major cities	48.2 (45.9-50.6)	18.5 (16.8-20.3)	21.4 (19.7-23.2)	88.1 (86.3-89.8)
	Inner regional	49.8 (47.5-52.2)	23.2 (21.3-25.2)	27.0 (25.0-29.1)	87.7 (86.1-89.0)
	Outer regional	52.8 (50.0-55.5)	24.4 (22.0-27.0)	29.6 (27.1-32.2)	89.2 (87.6-90.7)
	Remote/very remote	51.7 (47.9-55.5)	24.5 (20.9-28.4)	34.9 (31.4-38.7)	90.0 (88.0-91.8)

\* Estimate has a relative standard error of 25% to 50% and should be used with caution

 See [QSAS](#) for more information

**Table A19 Child sunburn and sun protection behaviours, Queensland, 2020<sup>233</sup>**

		Prevalence (%)						
		Sunburnt in the past 12 months	Sun-safe behaviours <sup>1</sup>					Used SPF30+ sunscreen
			0 physical barriers	1 physical barrier	2 physical barriers	3 physical barriers		
5–17 years	Persons	44.5 (42.1-47.0)	16.2 (14.4-18.2)	30.5 (28.3-32.8)	33.9 (31.6-36.3)	19.4 (17.5-21.4)	64.3 (61.9-66.7)	
	Males	44.0 (40.6-47.4)	16.4 (13.9-19.1)	31.7 (28.6-34.9)	35.4 (32.2-38.8)	16.5 (14.2-19.2)	61.6 (58.2-64.8)	
	Females	45.1 (41.5-48.7)	16.0 (13.4-19.1)	29.2 (26.0-32.7)	32.4 (29.1-35.7)	22.4 (19.6-25.5)	67.2 (63.8-70.5)	
Persons	5–7 years	30.3 (25.7-35.3)	8.3 (5.6-12.0)	26.4 (22.0-31.3)	42.7 (37.5-48.1)	22.6 (18.4-27.5)	74.9 (69.7-79.5)	
	8–11 years	44.3 (40.1-48.6)	10.1 (7.8-12.8)	28.3 (24.6-32.4)	36.7 (32.6-40.9)	24.9 (21.4-28.8)	68.6 (64.6-72.3)	
	12–15 years	52.9 (48.3-57.4)	24.4 (20.5-28.8)	30.1 (26.0-34.5)	30.7 (26.7-34.9)	14.9 (12.0-18.2)	58.8 (54.2-63.2)	
	16–17 years	50.9 (44.7-57.0)	25.6 (20.2-32.0)	42.7 (36.6-48.9)	20.3 (16.1-25.2)	11.4 (8.2-15.7)	49.3 (43.1-55.5)	
Males	5–7 years	30.8 (24.5-38.0)	*8.0 (4.8-13.0)	28.4 (22.3-35.4)	47.1 (39.8-54.6)	16.5 (11.8-22.5)	76.8 (69.4-82.8)	
	8–11 years	45.2 (39.2-51.2)	11.1 (8.0-15.2)	30.7 (25.4-36.5)	35.2 (29.7-41.3)	23.0 (18.2-28.6)	66.2 (60.4-71.5)	
	12–15 years	48.4 (42.3-54.6)	25.3 (20.0-31.4)	28.8 (23.5-34.8)	32.7 (27.2-38.7)	13.2 (9.9-17.5)	55.5 (49.3-61.6)	
	16–17 years	53.5 (45.3-61.5)	23.4 (16.7-31.8)	45.3 (37.2-53.6)	22.2 (16.2-29.5)	9.2 (5.9-14.0)	39.1 (31.3-47.5)	
Females	5–7 years	29.7 (23.4-37.0)	*8.5 (4.8-14.8)	24.4 (18.4-31.5)	38.1 (31.0-45.8)	29.0 (22.4-36.7)	73.0 (65.3-79.5)	
	8–11 years	43.4 (37.5-49.5)	9.0 (6.1-13.0)	25.9 (20.8-31.7)	38.2 (32.5-44.3)	27.0 (22.1-32.5)	71.1 (65.6-76.1)	
	12–15 years	57.6 (50.9-64.0)	23.5 (18.0-30.1)	31.4 (25.4-38.0)	28.5 (23.0-34.7)	16.6 (12.3-22.1)	62.2 (55.5-68.5)	
	16–17 years	48.1 (39.0-57.3)	27.9 (19.8-37.8)	40.0 (31.3-49.5)	18.3 (13.0-25.2)	13.7 (8.6-21.3)	59.6 (50.1-68.4)	
Socioeconomic status	Most disadvantaged	43.7 (38.6-48.9)	18.3 (14.3-23.1)	27.5 (23.2-32.1)	33.2 (28.4-38.3)	21.1 (17.2-25.6)	56.2 (51.0-61.3)	
	Quintile 2	49.5 (44.6-54.4)	11.7 (8.9-15.3)	28.2 (23.8-33.0)	37.4 (32.8-42.2)	22.7 (18.9-27.1)	59.4 (54.5-64.1)	
	Quintile 3	47.6 (42.1-53.1)	20.7 (16.3-26.0)	34.9 (29.8-40.3)	30.7 (25.7-36.2)	13.7 (10.7-17.4)	65.5 (59.9-70.6)	
	Quintile 4	41.5 (35.9-47.3)	15.3 (11.4-20.3)	30.4 (25.3-36.0)	36.6 (31.3-42.2)	17.7 (13.5-22.9)	69.4 (63.7-74.5)	
	Most advantaged	40.7 (34.8-46.9)	14.8 (11.0-19.7)	31.7 (26.2-37.8)	31.9 (26.5-37.8)	21.6 (17.0-27.0)	71.3 (65.5-76.5)	
Remoteness	Major cities	42.0 (38.6-45.6)	18.6 (15.9-21.6)	32.1 (28.9-35.4)	32.9 (29.7-36.3)	16.5 (14.0-19.3)	67.5 (64.1-70.7)	
	Inner regional	49.0 (44.5-53.6)	14.6 (11.7-18.1)	30.5 (26.5-34.8)	34.5 (30.3-39.0)	20.3 (16.9-24.3)	61.6 (57.1-65.9)	
	Outer regional	48.7 (43.8-53.6)	10.7 (8.0-14.2)	25.6 (21.7-30.0)	35.2 (30.6-40.1)	28.5 (24.2-33.2)	58.1 (53.1-62.8)	
	Remote/very remote	41.9 (33.4-50.9)	*5.9 (3.0-11.0)	21.7 (15.4-29.6)	43.5 (35.0-52.4)	29.0 (21.7-37.5)	50.3 (41.6-59.0)	

\* Estimate has a relative standard error of 25% to 50% and should be used with caution

\*\* Estimate has a relative standard error greater than 50% and is not reported

<sup>1</sup> Physical sun barriers are seeking shade, using a broad-brimmed hat, and using sun-safe clothing most or all of the time

 See [QSAS](#) for more information

**Table A20 High sun exposure attributable health burden<sup>90</sup>**

Condition	Disease group	Australia 2015			
		Attributable DALY	% DALY	% YLL	% YLD
Melanoma of the skin	Cancer and other neoplasms	29,272	90.0	90.0	90.0
NMSC	Cancer and other neoplasms	7913	70.0	70.0	70.0
<b>Total</b>		<b>37,185</b>	<b>0.8</b>	<b>1.4</b>	<b>0.2</b>

Table A21 *Intimate partner violence attributable health burden (females aged 15+ only)*<sup>90</sup>

Condition <sup>1</sup>	Disease group	Australia 2015			
		Attributable DALY	% DALY	% YLL	% YLD
<b>Alcohol use disorders</b>	Mental and substance use disorders	<b>637</b>	3.8	4.8	3.7
<b>Anxiety disorders</b>	Mental and substance use disorders	<b>10,438</b>	<b>11.5</b>	<b>8.9</b>	<b>11.5</b>
<b>Depressive disorders</b>	Mental and substance use disorders	<b>14,916</b>	<b>19.1</b>	<b>15.8</b>	<b>19.1</b>
<b>Early pregnancy loss</b>	Reproductive and maternal conditions	57	<b>18.5</b>	<b>21.2</b>	<b>17.9</b>
<b>Homicide and violence</b>	External causes of Injury	<b>2416</b>	<b>41.1</b>	<b>40.0</b>	<b>46.2</b>
<b>Suicide and self-inflicted injuries</b>	External causes of Injury	<b>6614</b>	<b>19.2</b>	<b>19.2</b>	<b>17.8</b>
<b>Total</b>		<b>35,078</b>	<b>1.6</b>	<b>0.9</b>	<b>2.1</b>

1 Top five conditions for each measure are in **bold font**

Table A22 *Child abuse and neglect attributable health burden*<sup>90</sup>

Condition	Disease group	Australia 2015			
		Attributable DALY	% DALY	% YLL	% YLD
<b>Anxiety disorders</b>	Mental and substance use disorders	39,927	26.6	15.8	26.6
<b>Depressive disorders</b>	Mental and substance use disorders	27,797	20.4	8.9	20.5
<b>Suicide and self-inflicted injuries</b>	External causes of Injury	35,027	25.9	25.8	28.6
<b>Total</b>		<b>102,751</b>	<b>2.2</b>	<b>1.5</b>	<b>2.8</b>

Table A23 *Air pollution attributable health burden*<sup>90</sup>

Condition	Disease group	Australia 2015			
		Attributable DALY	% DALY	% YLL	% YLD
<b>COPD</b>	Respiratory diseases	5587	3.0	3.0	3.0
<b>Coronary heart disease</b>	Cardiovascular diseases	24,300	7.4	7.4	7.4
<b>Lower respiratory infections</b>	Infectious diseases	731	1.9	1.9	1.5
<b>Lung cancer</b>	Cancer and other neoplasms	1862	1.2	1.2	1.2
<b>Stroke</b>	Cardiovascular diseases	5208	4.1	4.1	4.0
<b>Total</b>		<b>37,689</b>	<b>0.8</b>	<b>1.2</b>	<b>0.4</b>

Table A24 *Bronchiectasis hospitalisation rates per 100,000 population, Queensland, 2008–09 to 2018–19*<sup>106</sup>

Aboriginal and Torres Strait Islanders

Years	2008–09		2009–10		2010–11		2011–12		2012–13		2013–14		2014–15		2015–16		2016–17		2017–18		2018–19		
	Males	Females																					
0–4	22.3	15.2	43.7	29.9	43.2	29.4	49.9	36.6	42.8	21.9	35.9	125.0	96.3	43.6	29.7	72.7	98.4	79.5	45.4	93.0	67.7		
5–9	24.0	8.2	39.3	8.2	62.6	16.2	15.6	32.2	7.7	55.0	7.5	46.3	22.1	52.9	67.2	28.7	37.2	35.9	103.9	21.7	14.8		
10–14	18.1	18.9	80.4	18.3	26.0	0	58.8	0	74.2	0	56.0	16.6	55.0	8.2	78.2	8.1	78.3	32.4	30.7	31.5	0	30.8	
15–19	0	10.7	0	10.4	0	0	0	0	0	0	0	0	0	9.1	9.3	35.4	0	42.8	0	207.8	0	24.2	0
20–24	28.5	0	0	26.1	0	0	0	0	0	0	0	0	0	0	0	0	0	59.8	0	0	0	9.2	9.6
25–29	33.0	0	32.0	0	15.6	0	45.7	0	14.2	0	49.2	15.8	0	0	0	0	14.9	29.0	43.9	42.7	57.7	13.9	
30–34	0	0	0	0	52.5	0	0	0	68.4	0	33.7	31.3	0	0	0	0	34.6	49.6	0	16.4	16.4	0	
35–39	0	17.7	18.7	34.4	0	33.1	0	15.9	17	0	33.5	0	0	0	165.1	60.9	166.6	0	0	15.9	35	0	
40–44	0	66.7	20.3	21.4	0	19.3	0	0	40.1	0	98.1	54.7	58.1	176.7	266.1	272.0	275.1	131.0	158.6	79.0	0	61.8	
45–49	0	241.3	54.6	50.9	0	97.2	50.0	46.0	71.9	65.2	46.5	62.3	22.2	40.5	63.9	119.5	41.7	194.0	20.5	192.2	80.5	168.6	
50–54	38.7	67.5	0	64.3	35.1	246.3	0	60.0	0	145.6	30.3	83.8	28.8	79.4	194.7	151.5	212.2	119.7	51.0	44.9	99.1	42.9	
55–59	59.7	266.9	0	292.5	0	44.9	45.8	124.7	43.8	38.7	0	145.1	0	34.6	0	99.5	36.8	226.5	34.5	278.5	0	409.1	
60–64	0	177.6	0	249.7	0	173.9	68.8	155.4	64.1	0	104.8	0	0	0	323.2	57.0	150.0	0	92.8	99.7	42.5	394.3	
65–69	0	280.1	0	132.6	158.9	0	300.3	0	0	104.8	0	0	0	0	0	0	197.6	155.6	265.7	72.9	233.4	0	
70–74	0	208.7	0	0	0	0	0	0	0	0	0	0	0	0	313.9	0	0	193.0	275.8	176.9	0	163.4	237.5
75–79	0	2877.7	0	653.5	0	0	0	0	0	0	0	0	0	0	277.0	0	257.7	0	748.1	0	0	0	1398.6
80–84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Other Queenslanders

Years	2008–09		2009–10		2010–11		2011–12		2012–13		2013–14		2014–15		2015–16		2016–17		2017–18		2018–19	
	Males	Females																				
0–4	12.6	10.2	4.9	6.8	8.4	3.7	9.8	2.9	10.2	8.6	16.1	9.2	10.7	9.1	22.1	7.7	30.9	22.6	30.1	9.2	28.1	13.4
5–9	12.3	8.9	33.3	7.9	41.6	16.4	2.1	6.9	6.3	6.7	11.6	7.9	8.6	14.8	15.6	19.3	39.2	50.1	12.1	20.0	8.2	9.2
10–14	2.9	13.0	6.5	16.0	8	32.0	3.6	19.7	5.7	3.2	6.4	8.3	4.9	14.2	4.9	6.6	15.2	27.7	8.7	13.4	9.0	8.9
15–19	1.4	2.9	0.7	2.1	0	5.0	2.7	5.8	3.4	4.3	3.4	4.2	2.0	6.4	16.5	12.2	15.8	6.4	6.1	14.3	8.1	7.8
20–24	0	2.8	2.6	4.7	3.2	5.3	1.9	5.3	1.9	6.5	0	6.4	2.4	4.4	0	10.1	1.8	6.9	7.3	9.4	11.7	9.9
25–29	0	2.1	1.9	2.0	5.0	1.9	3.1	0	3.0	0	7.3	1.8	0.6	5.5	2.4	6.7	3.6	22.8	2.9	16.5	8.1	14.4
30–34	0	2.1	3.6	0.7	2.1	3.5	1.3	6.9	0	8.0	3.8	2.5	2.5	1.8	9.3	4.9	6.1	1.2	8.5	5.9	7.2	4.0
35–39	11.2	13.7	7.7	3.2	2.5	8.9	1.9	10.4	3.3	5.9	5.3	4.6	8.1	6.0	4.7	8.6	6.0	17.0	9.8	12.7	6.3	18.3
40–44	2.1	13.1	2.0	9.5	8.1	3.3	5.2	5.8	5.0	9.3	1.8	15.7	3.0	16.3	6.8	22.5	5.7	17.9	10.9	17.6	7.2	8.2
45–49	4.1	8.71	4.0	8.5	8.0	12.4	1.3	10.5	2.7	12.5	8.1	15.2	4.7	15.0	11.3	10.2	9.0	14.8	6.9	19.2	11.1	18.2
50–54	4.5	20.8	1.4	21.7	7.1	17.7	7.0	25.4	6.8	26.0	10.7	13.7	7.3	18.7	6.6	41.8	7.4	29.8	10.1	27.2	8.8	20.7
55–59	18.5	67.5	17.5	68.9	13.4	43.4	9.3	44.9	7.6	36.3	6.8	38.3	10.3	28.1	6.5	38.0	15.5	41.1	15.9	31.9	15.6	33.9
60–64	28.6	103.4	23.3	104.8	36.1	95.6	25.5	118.0	25.5	112.8	29.4	123.0	39.8	109.2	27.4	108.1	23.9	90.5	25.2	70.4	19.3	60.4
65–69	39.5	155.1	46.8	129.1	55.4	165.8	38.9	116.4	37.3	133.3	48.3	139.4	52.7	151.4	58.1	169.6	59.1	171.7	60.1	187.4	54.6	212.7
70–74	73.6	178.0	99.0	172.0	77.1	232.0	95.2	228.8	82.7	217.6	83.6	201.6	112.3	246.0	63.3	222.2	87.2	298.7	73.2	242.8	70.6	255.6
75–79	54.9	170.8	124.5	192.4	71.3	240.1	63.1	225.1	81.1	254.2	100.8	288.8	152.9	281.1	124.1	349.8	131.8	363.4	141.9	363.9	156.6	393.2
80–84	138.4	220.9	84.7	162.1	85.3	222.5	92.1	230.2	93.5	265.4	109.2	316.5	124.5	355.2	139.4	338.9	183.0	446.9	202.9	456.6	209.1	394.7
85+	118.3	191.2	121.9	167.7	188.9	186.5	130.5	190.7	104.4	180.1	121.4	239.7	129.3	261.7	153.2	289.4	244.8	354.6	187.1	361.1	166.4	340.7



