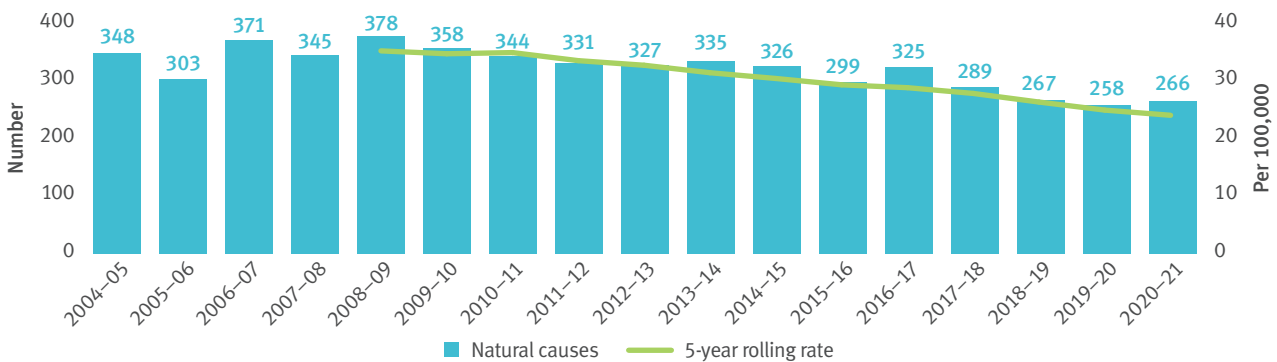


2 Deaths from natural causes

Overview

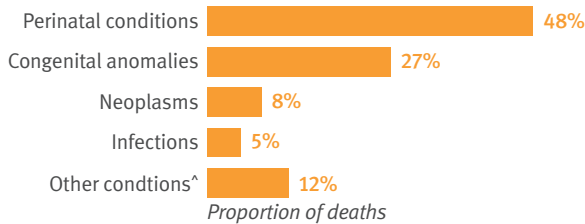
- 266 children and young people died from natural causes in 2020–21.
- Decreasing trend in child deaths from natural causes over time.
- Perinatal conditions was the leading cause of death for infants (under 1 year).
- Neoplasms (cancers) was the leading cause of death for ages 5–9 and 10–14 years.

Natural cause deaths in Queensland

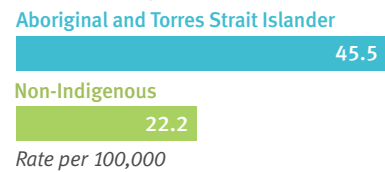


Five-year summary (2016–21)

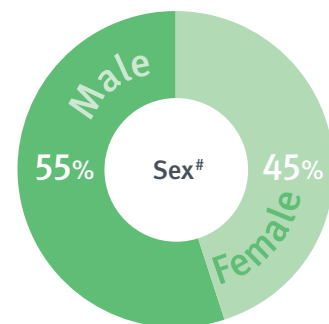
Cause of death category



Indigenous status



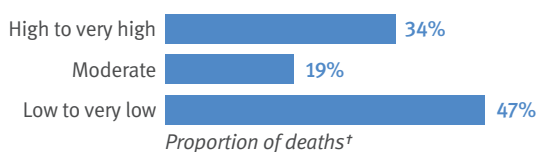
Age



Remoteness



Socio-economic status



Notes: Counting is by date of death registration. Percentages may not add to 100 due to rounding.

[^] all other diseases and conditions within natural causes
[#] not shown, 0.1% sex indeterminate
[†] of Qld resident deaths only
^{*} in the 12 months prior to death

Classification of causes of death using ICD-10

The QFCC uses *the International statistical classification of diseases and related health problems, tenth revision* (ICD-10) to classify causes of death. The ICD-10 chapters and codes form the major groups and sub-groups of diseases and conditions in reporting on deaths from natural causes.

Key findings

During 2020–21, there were 266 deaths of children and young people from diseases and morbid conditions (or natural causes) registered in Queensland, at a 5-year average rate of 24.1 deaths per 100,000 children aged 0–17 years.^{14,15}

The majority of child deaths each year are from natural causes. Over the last 5 years, 71% of all deaths were from natural causes.

The largest categories within natural causes were perinatal conditions and congenital anomalies, which in 2020–21 were the causes for 126 and 73 deaths respectively. Together, these causes accounted for 75% of all deaths from natural causes.

Appendix A, Table A.4 provides summary data and key characteristics for deaths from natural causes.

Sex

During 2020–21, there were 141 deaths of male children from natural causes, compared to 125 female children, with mortality rates of 26.0 deaths per 100,000 male children and 22.1 deaths per 100,000 female children (5-year average).

Child mortality from natural causes is marginally higher for males compared to females, with the male mortality rate over the last 17 years being about 1.2 times the rate for females (32.2 deaths per 100,000 male children and 27.1 deaths per 100,000 female children).

Age

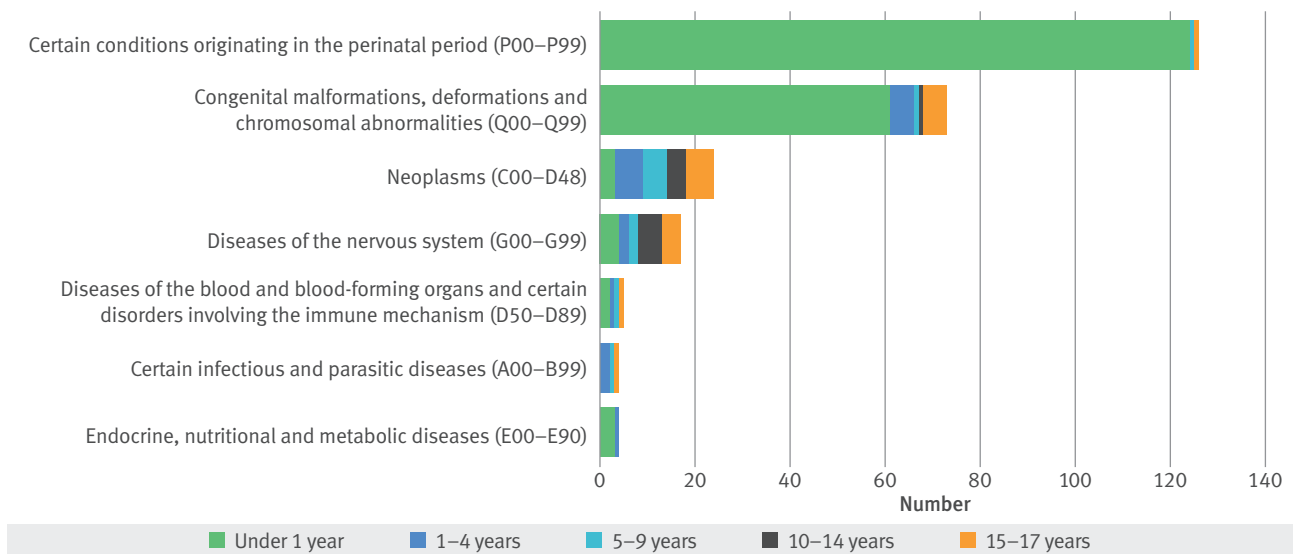
Figure 2.1 illustrates the causes of death from natural causes, for each age category. The following findings by age were evident:

- Almost all natural causes of death for infants (under 1 year) were from perinatal conditions and congenital anomalies (93% of all causes within this group).
- Neoplasms (cancer) was the primary natural cause for the remaining age groups (1–4 years, 5–9 years, 10–14 years and 15–17 years).

¹⁴ Deaths are reported as explained diseases and morbid conditions only. Deaths from unexplained causes (referred to as unexplained diseases and morbid conditions in earlier reports) are included in **Chapter 7**.

¹⁵ Tables with data from 2004 are available online at <http://www.qfcc.qld.gov.au/kids/preventing-child-injury-death>

Figure 2.1: Deaths from natural causes by ICD-10 chapter and age (number), 2020–21



Notes: Excludes causes where the total number of deaths was less than 4.

Neonatal and post-neonatal infants

Most child deaths from natural causes occur in the first year, the large majority within the first days and weeks of life. Table 2.1 shows the age and causes of infant deaths in major groups in the last 5 years, divided into the neonatal and post-neonatal periods. Neonatal deaths are those which occur in the first 28 days after birth (0–27 days), while post-neonatal deaths occur during the remainder of the first year (28–364 days).

Neonatal period (0–27 days)

Of the 1,063 infant deaths due to natural causes in the last 5 years, 82% of deaths occurred in the neonatal period. Of the 875 neonatal deaths, 63% occurred on the day of birth and a further 19% had occurred by the end of the first week.

The two leading causes—perinatal conditions (611 deaths) and congenital anomalies (242 deaths)—represent 97% of the neonatal deaths from natural causes.

Post-neonatal period (28–364 days)

During the last 5 years there were 188 deaths from natural causes during the post-neonatal period. The leading cause of death from natural causes in the post-neonatal period was congenital anomalies (69 deaths or 37%).¹⁶

Table 2.1: Age and cause of infant deaths from natural causes (number), 2016–17 to 2020–21

Age		Cause of death			
		Perinatal conditions (P00–P96)	Congenital anomalies (Q00–Q99)	Other diseases and morbid conditions ^b	Total
Neonatal (age in days)	<1	382	163	5	550
	1–6	109	49	5	163
	7–27	120	30	12	162
Neonatal total		611	242	22	875
Post-neonatal (age in months)	1 ^a	28	22	13	63
	2	10	12	11	33
	3	2	6	7	15
	4	4	10	10	24
	5	4	3	3	10
	6	2	5	5	12
	7	1	5	4	10
	8	1	3	5	9
	9	0	1	3	4
	10	0	1	2	3
	11	2	1	2	5
Post-neonatal total		54	69	65	188
Total infants		665	311	87	1,063

^a 28 days to <two months.

^b Includes certain infectious and parasitic diseases (A00–B99); neoplasms (C00–D48); diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50–D89); endocrine, nutritional and metabolic diseases (E00–E90); diseases of the nervous system (G00–G99); diseases of the circulatory system (I00–I99); diseases of the respiratory system (J00–J99); diseases of the digestive system (K00–K93); symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00–R99).

¹⁶ The leading cause of death in the post-neonatal period was SIDS and undetermined causes (93 deaths), see [Table 1.1](#).

Major causes

Perinatal conditions

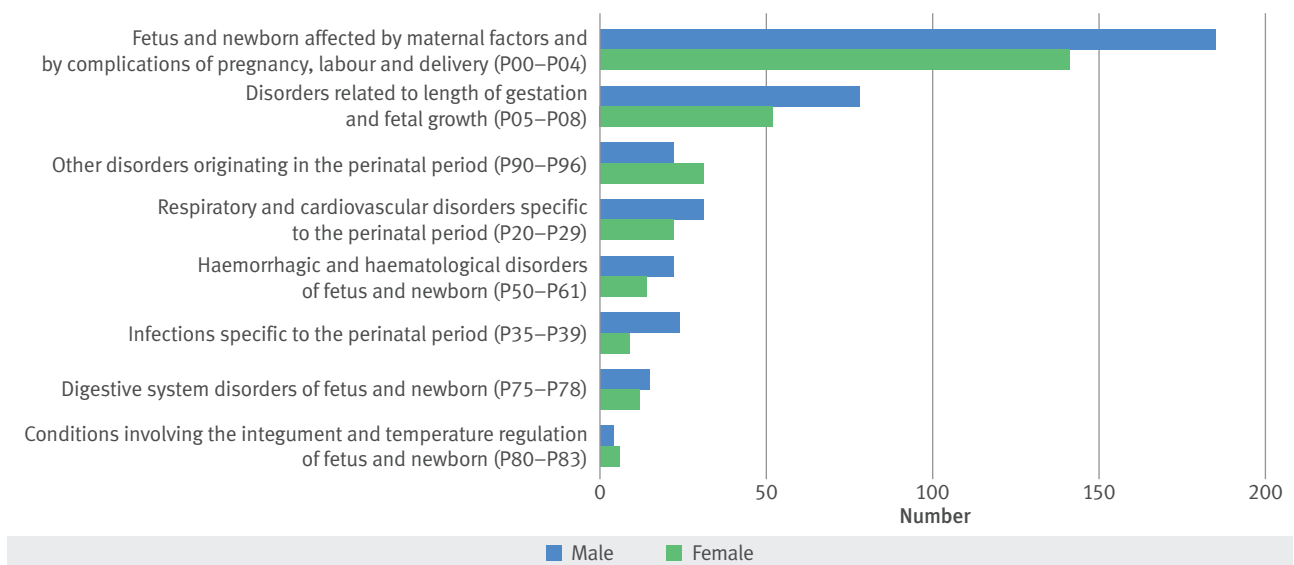
During 2020–21 there were 126 child deaths from perinatal conditions, at a mortality rate of 11.6 deaths per 100,000 children aged 0–17 years (5-year average).

Perinatal conditions are diseases and conditions which originate during pregnancy or the neonatal period (first 28 days of life), even though death or morbidity may occur later.

Perinatal conditions include maternal conditions which affect the newborn, such as complications of labour and delivery, disorders relating to foetal growth, length of gestation and birth weight, as well as disorders specific to the perinatal period such as respiratory and cardiovascular disorders, infections, and endocrine and metabolic disorders.

As shown in Figure 2.2, over the past 5 years the majority of deaths due to perinatal conditions resulted from the foetus and/or newborn being affected by maternal factors or complications of pregnancy, labour and delivery (48%, 326 deaths), followed by disorders related to the length of gestation and foetal growth (19%, 130 deaths). Together, these causes accounted for 68% of all deaths due to perinatal conditions (456 of 673 deaths).¹⁷

Figure 2.2: Deaths due to perinatal conditions by sex (number), 2016–17 to 2020–21



Notes: Excludes causes where the total number of deaths was less than 4.

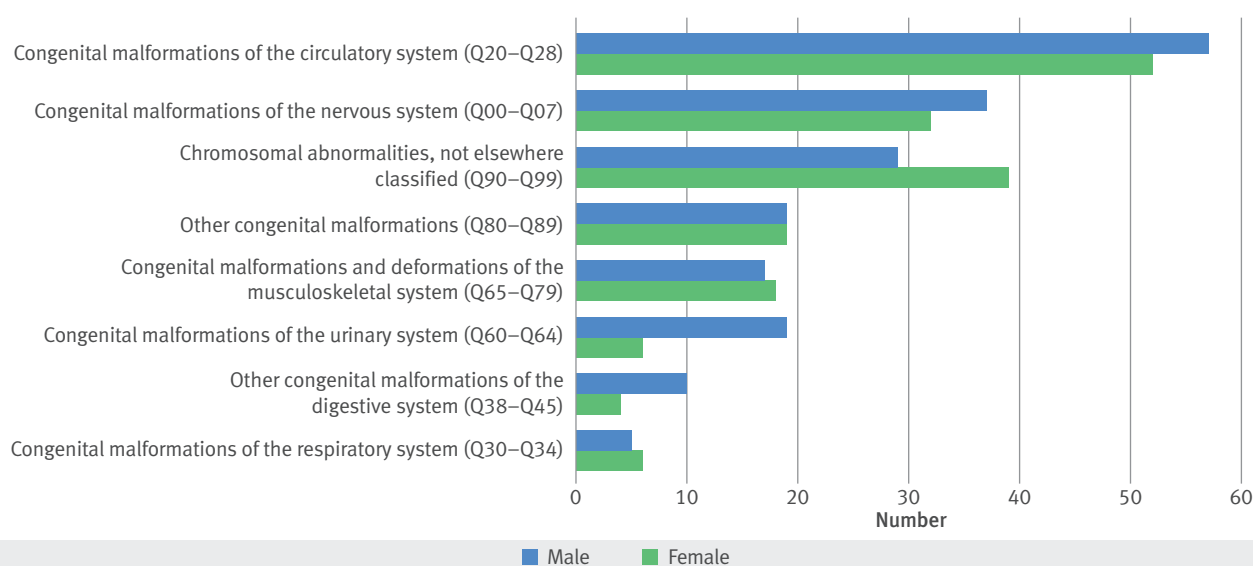
¹⁷ Noting a small number of deaths from perinatal conditions occur in children aged one year and over.

Congenital anomalies

During 2020–21 there were 73 child deaths from congenital anomalies, at a 5-year average rate of 6.4 deaths per 100,000 children aged 0–17 years. Congenital anomalies are mental and physical conditions present at birth which are either hereditary or caused by environmental factors.¹⁸

As shown in Figure 2.3, over the last 5 years the leading causes of death due to congenital anomalies were malformations of the circulatory system (29%, 109 deaths) and congenital malformations of the nervous system (19%, 70 deaths).

Figure 2.3: Deaths due to congenital anomalies by sex (number), 2016–17 to 2020–21



Notes: Excludes causes where the total number of deaths was less than 4.

Neoplasms (cancers and tumours)

The term ‘neoplasm’ is often used interchangeably with the words ‘tumour’ and ‘cancer’.¹⁹ Cancer includes a range of diseases in which abnormal cells proliferate and spread out of control. Normally, cells grow and multiply in an orderly way to form organs which have a specific function in the body. However, occasionally cells multiply in an uncontrolled way after being affected by a carcinogen, or after developing a random genetic mutation. They may form a mass called a tumour or neoplasm. A ‘benign neoplasm’ refers to a non-cancerous tumour, whereas a ‘malignant neoplasm’ usually refers to a cancerous tumour (that is, cancer). Benign tumours do not invade other tissues or spread to other parts of the body, although they can expand to interfere with healthy structures.

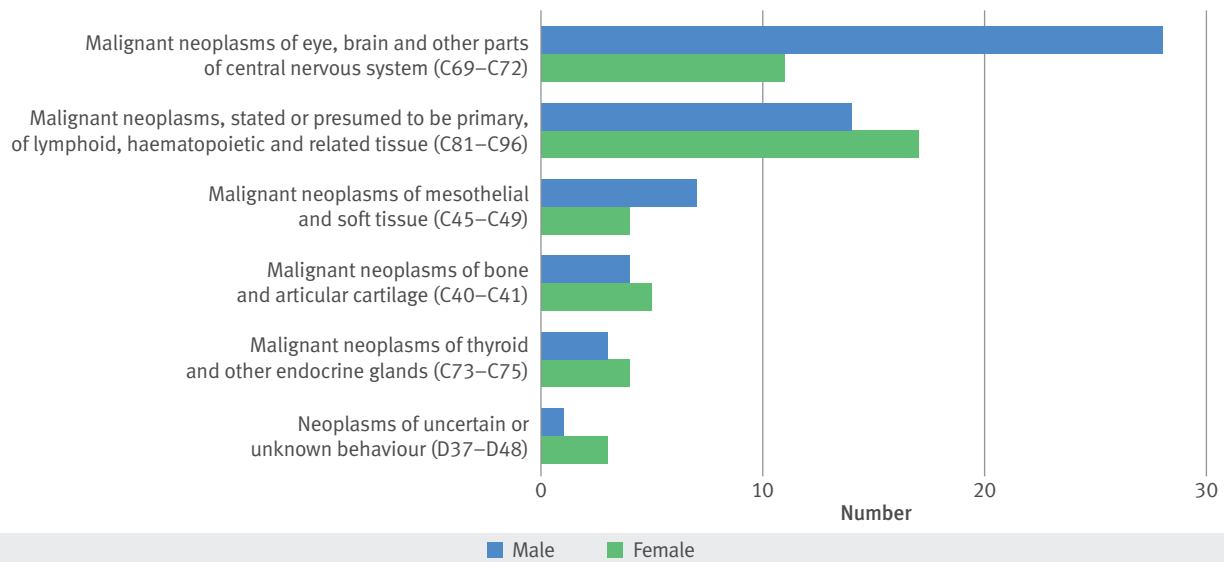
Twenty-four children and young people died from neoplasms (cancer) in 2020–21, at a 5-year average rate of 2.0 deaths per 100,000 children aged 0–17 years.

18 ICD-10 Chapter XVII, Congenital malformations, deformations and chromosomal abnormalities.

19 ICD-10 Chapter II, Neoplasms.

Over the last 5 years 116 children lost their lives to cancers and tumours. As illustrated in Figure 2.4 the most common types were neoplasms of the eye, brain and other parts of the central nervous system (39 deaths or 34%),²⁰ followed by malignant neoplasms, stated or presumed to be primary, of lymphoid, haematopoietic and related tissue (31 deaths or 27%).²¹ Neoplasms was the leading cause of death (of all causes) for children aged 5–9 and 10–14 years, as noted in [Chapter 1](#).

Figure 2.4: Deaths due to neoplasms by sex (number), 2016–17 to 2020–21



Notes: Excludes causes where the total number of deaths was less than 4.

Infections

‘Infections’ is a hybrid category composed of certain infections and parasitic diseases, diseases of the nervous system and diseases of the respiratory system.²² Five children died from infections in 2020–21. Over the last 5 years 71 children and young people died from infections. The highest number of infections were caused by influenza and pneumonia (25 deaths or 35%).²³

²⁰ ICD-10 Chapter II, Neoplasms, Malignant neoplasms of eye, brain and other parts of the central nervous system (C69–C72).

²¹ ICD-10 Chapter II, Neoplasms, Malignant neoplasm, stated or presumed to be primary, of lymphoid, haematopoietic and related tissue (C81–C96).

²² ICD-10 references: Chapter I, Certain infectious and parasitic diseases; Chapter VI, Diseases of the nervous system, codes G00–G09 only; Chapter X, Diseases of the respiratory system, codes J00–J22 only.

²³ ICD-10 Chapter X, Diseases of the respiratory system, Influenza and pneumonia (J09–J18).

Deaths from notifiable conditions

A disease may be notifiable to state health authorities if there is potential for its control or if there is a demonstrated public interest in a condition.²⁴ Key factors considered when deciding if a condition should be notifiable include the overall impact of the disease on morbidity and mortality, and the availability of control measures. Notification allows authorities to detect outbreaks early and take rapid public health action, if necessary, and to plan and monitor these efforts. It also provides information on the occurrence of disease.

Twenty-eight children and young people died from a notifiable condition over a 5-year period as shown in Table 2.2. Fifteen (54%) of the 28 deaths due to notifiable conditions were the result of potentially vaccine-preventable conditions, with the most common of these being influenza, invasive meningococcal disease and invasive pneumococcal disease.^{25,26}

COVID-19 was added to Queensland's Schedule of Notifiable Conditions in the *Public Health Regulation 2018* in January 2020. There have been no child deaths to date.

Table 2.2: Child deaths due to notifiable conditions (number), 2016–17 to 2020–21

Notifiable condition	Total
Influenza [^]	5
Invasive group A streptococcal infection	6
Pneumococcal disease (invasive) [^]	5
Meningococcal disease (invasive) [^]	4
Melioidosis	3
Salmonellosis	2
<i>Haemophilus influenzae</i> type b infection (invasive)	1
Listeriosis	1
Tuberculosis	1
Total	28

[^] Potentially vaccine-preventable condition. Vaccines are available for selected strains of meningococcal, seasonal influenza and selected serotypes of pneumococcal disease. Serotyping information in relation to influenza, meningococcal and pneumococcal-related deaths is not available to the QFCC, and so deaths are reported as being potentially vaccine-preventable only.

Notes: Includes 4 deaths where the usual residence was outside of Queensland. The child deaths with notifiable conditions in this report may differ from communicable disease reports which use date of notification or date of onset of disease to define the reporting period. The deaths reported by the QFCC use date of death registration to define the reporting period, which may occur sometime after the notification of disease.

24 The Queensland Health list of notifiable conditions can be found at <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/diseases-infection/notifiable-conditions/list>.

25 In Australia, publicly funded immunisation programs are administered by state and territory governments. The current National Immunisation Program Schedule (valid from July 2020) includes vaccinations against the following diseases: hepatitis B, diphtheria, tetanus, pertussis (whooping cough), poliomyelitis, *Haemophilus influenzae* type b (Hib), pneumococcal disease, rotavirus, measles, mumps, rubella, meningococcal ACWY disease, varicella (chickenpox), influenza and human papillomavirus (HPV).

26 Vaccines are available for only selected strains of influenza, meningococcal disease and pneumococcal disease.