

Part II: Deaths from diseases and morbid conditions

Chapter 5

This section provides details of child deaths from diseases and morbid conditions, ranging from congenital abnormalities and perinatal conditions through to cancer and infections.

Chapter 5

Deaths due to diseases and morbid conditions

Between 1 July 2005 and 30 June 2006, 315 children and young people died from diseases and morbid conditions in Queensland, representing 74.0% of all child deaths and a rate of 32.4 deaths per 100,000 children and young people aged from birth to 17 years.

Key issues

- Children in the first year of life are significantly more likely to die from diseases and morbid conditions than any other age group.
- Indigenous infants die at a higher rate than non-Indigenous infants due to diseases and morbid conditions. Indigenous infants died at a rate of 820.3 per 100,000 Indigenous children under 1, compared with 439.4 per 100,000 non-Indigenous children under 1.
- Two-thirds of the children who died from infections were living in low or very low socio-economic areas.
- The leading causes of deaths from diseases and morbid conditions in 2005–06 remain the same as those seen in the 2004–05 12-month period: certain conditions originating in the perinatal period; congenital malformations, deformations and chromosomal abnormalities; neoplasms; and symptoms, signs and abnormal and clinical and laboratory findings, not elsewhere classified.

Diseases and morbid conditions: trends and patterns, 2005–06

Table 5.1 shows the causes of all child deaths from diseases and morbid conditions broken down by ICD-10¹⁰⁵ chapter level classifications and gender.

Table 5.1: Deaths due to diseases and morbid conditions by ICD-10 chapter level classification and gender

Diseases and morbid conditions ICD-10 chapter descriptions	Female	Male	Total	Total
	<i>n</i>	<i>n</i>	<i>n</i>	%
Certain conditions originating in the perinatal period (P00–P96)	62	85	147	46.7%
Congenital malformations, deformations and chromosomal abnormalities (Q00–Q99)	18	42	60	19.0%
Neoplasms (C00–D48)	10	14	24	7.6%
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00–R99)	8	10	18	5.7%
Diseases of the nervous system (G00–G99)	3	13	16	5.1%
Certain infectious and parasitic diseases (A00–B99)	3	9	12	3.8%
Endocrine, nutritional and metabolic diseases (E00–E90)	6	6	12	3.8%
Diseases of the respiratory system (J00–J99)	5	5	10	3.2%
Diseases of the circulatory system (I00–I99)	2	5	7	2.2%
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50–D89)	1	1	2	0.6%
Diseases of the digestive system (K00–K93)	1	1	2	0.6%

¹⁰⁵ ICD-10 was developed by the World Health Organisation and is designed to promote international comparability in the collection, processing, classification and presentation of morbidity and mortality statistics.

Table 5.1 (cont.): Deaths due to diseases and morbid conditions by ICD-10 chapter level classification and gender

Diseases and morbid conditions ICD-10 chapter descriptions	Female	Male	Total	Total
	<i>n</i>	<i>n</i>	<i>n</i>	%
Diseases of the genitourinary system (N00–N99)	1	1	2	0.6%
Mental and behavioural disorders (F00–F09)	1		1	0.3%
Diseases of the ear and mastoid process (H60–H95)	0	1	1	0.3%
Diseases of the musculoskeletal system and connective tissue (M00–M99)	0	1	1	0.3%
Disease of the eye and adnexa (H00–H59)	0	0	0	0.0%
Diseases of the skin and subcutaneous tissue (L00–L99)	0	0	0	0.0%
Pregnancy, childbirth and the puerperium (O00–O08)	0	0	0	0.0%
Total number of deaths from diseases and morbid conditions	121	194	315	100.0%

Data source: Queensland Child Death Register (2005–06)

The main causes of mortality from diseases and morbid conditions were conditions originating in the perinatal period (147 deaths, 46.7%) and congenital malformations, deformations and chromosomal abnormalities (60 deaths, 19.0%). These were followed by neoplasms (24 deaths, 7.6%) and symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (18 deaths, 5.7%). All deaths from symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified were due to sudden infant death syndrome (SIDS) and undetermined causes. Deaths of children from SIDS and undetermined causes are discussed in detail in Chapter 12, ‘Sudden Unexpected Deaths in Infancy’.

Gender

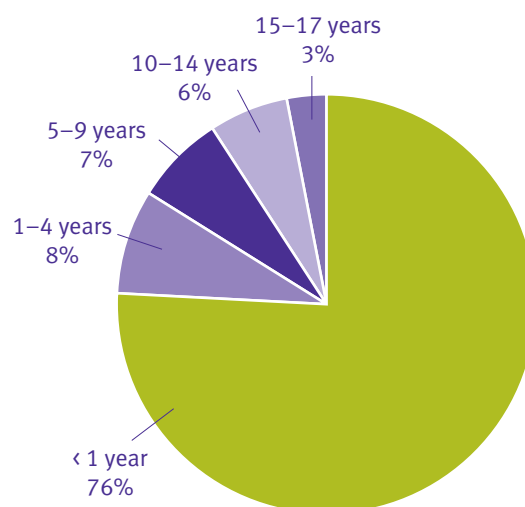
Of the 315 children who died, 194 were males (61.6%) and 121 were females (38.4%). Male children were significantly more likely to die from diseases and morbid conditions than females, with a rate of 38.8 deaths per 100,000 male children and young people aged birth to 17 years, compared with 25.5 deaths per 100,000 female children in the same age range.

These considerable gender differences in child death rates reflect the fact that males in developed countries today have higher mortality than females in every age group and for most causes of death. Research indicates that males are more vulnerable than females to mortality, although the causes of this genetic-biological vulnerability are not well understood (Waldron 1983:321).

Age

Figure 5.1 shows the proportion of deaths due to diseases and morbid conditions for each age category.

Figure 5.1: Proportion of deaths due to diseases and morbid conditions by age



Data source: Queensland Child Death Register (2005–06)

Infants under 1 year

Children were significantly more likely to die from diseases and morbid conditions in the first year of life than in any other age group, with infants under 1 year accounting for 76.2% of deaths due to diseases and morbid conditions (240 deaths), a rate of 464.5 deaths per 100,000 infants (4.6 deaths per 1000 live births).

Infant deaths are divided into neonatal and postneonatal periods. Neonatal deaths are those that occur in the first 28 days after birth (0–27 days), while postneonatal deaths occur during the remainder of the first year (28–364 days). The numbers of deaths from diseases and morbid conditions decrease significantly with the increasing age of the infants.

Table 5.2 shows the age and cause of infant deaths.

In the reporting period, 54.6% of all deaths from diseases and morbid conditions occurred on the day of birth and a further 14.6% had occurred by the end of the first week. In total, 78.8% of infant deaths occurred in the neonatal period, a rate of 3.7 neonatal deaths per 1000 live births. The remaining 21.2% of infant deaths occurred in the postneonatal period.

The vast majority of infants in the neonatal period died because of conditions originating in the perinatal period (133 deaths, 70.4% of neonatal deaths), followed by congenital malformations, deformations and chromosomal abnormalities (47 deaths, 24.9%). Although accounting for only 1.1% of neonatal deaths (2 deaths), SIDS and undetermined causes (symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified) was the equal third most common cause of death in the neonatal period.

The neonatal mortality rate is seen as a reflection of the quality of access to hospital-based medical services such as obstetric care and neonatal intensive care. Determinants include low birth weight, genetic defects and lack of access to adequate antenatal and obstetric services (Lin 2006:2141).

Fifty-one infants died from diseases and morbid conditions in the postneonatal period, a rate of 1.0 deaths per 1000 live births. In the postneonatal period, SIDS and undetermined causes (symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified) was the leading cause of death from diseases and morbid conditions, accounting for 14 deaths (27.5% of postneonatal deaths). The numbers of deaths become more evenly distributed in the postneonatal period, with conditions originating in the perinatal period and congenital malformations, deformations and chromosomal abnormalities accounting for 19.6% (10 deaths) and 15.7% (8 deaths) of postneonatal deaths respectively.

The postneonatal mortality rate mainly reflects the availability and quality of primary health care and paediatric care within the community. It is affected by external factors such as a poor environment, insufficient nutrition and infectious diseases. (Lin 2006:2141).

Table 5.2: Age and cause of infant deaths

Cause of death (ICD-10 chapter)	Neonatal (age in days)			Neonatal (total)	Postneonatal (age in months)											Postneonatal (total)	Total Infant
	<1	1-6	7-27		1*	2	3	4	5	6	7	8	9	10	11		
Certain conditions originating in the perinatal period (P00–P96)	95	27	11	133	3	3	1	2	0	0	1	0	0	0	0	10	143
Congenital malformations, deformations and chromosomal abnormalities (Q00–Q99)	35	5	7	47	1	3	0	0	0	2	0	1	0	0	1	8	55
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00–R99)	0	0	2	2	4	7	0	2	0	0	0	0	0	1	0	14	16
Certain infectious and parasitic diseases (A00–B99)	0	0	2	2	2	1	0	0	0	1	0	0	0	0	1	5	7
Diseases of the nervous system (G00–G99)	0	0	1	1	1	0	0	0	2	0	0	0	0	0	0	3	4
Diseases of the respiratory system (J00–J99)	0	0	0	0	1	0	0	0	0	0	2	1	0	0	0	4	4
Neoplasms (C00–D48)	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	2
Endocrine, nutritional and metabolic diseases (E00–E90)	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Diseases of the circulatory system (I00–I99)	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	2
Other**	0	1	0	1	0	0	3	1	0	0	0	0	0	0	0	4	5
Total	131	35	23	189	13	14	4	5	2	4	4	2	1	2	51	240	

Data source: Queensland Child Death Register (2005–06)

* 28 days to 2 months.

** Includes diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50–D89), diseases of the ear and mastoid process (H60–H95), diseases of the digestive system (K00–K93), diseases of the musculoskeletal system and connective tissue (M00–M99) and diseases of the genitourinary system (N00–N99).

1–4 year olds

As demonstrated in Figure 5.1, there is an inverse relationship between children's age and deaths due to diseases and morbid conditions. That is, the likelihood of children dying from diseases and morbid conditions decreases with increasing age.

Children aged between 1 and 4 years accounted for the second-largest number of deaths due to diseases and morbid conditions, with 25 deaths (7.9% of all deaths from diseases and morbid conditions), a rate of 12.4 deaths per 100,000 children aged between 1 and 4 years.

The three leading causes of death in this age group were neoplasms (8 deaths, 32.0% of deaths due to diseases and morbid conditions in this age group), followed by diseases of the nervous system (4 deaths, 16.0%) and infectious diseases (3 deaths, 12.0%). Twenty-five percent of deaths due to diseases of the central nervous system were the result of infection. All child deaths due to infection are discussed in detail below.

5–9 year olds

Children aged between 5 and 9 years accounted for the third-largest number of deaths due to diseases and morbid conditions, with 23 deaths (7.3% of all deaths from diseases and morbid conditions), a rate of 8.6 deaths per 100,000 children aged between 5 and 9 years.

The three leading causes of death in this age group were neoplasms (8 deaths, 34.8% of deaths due to diseases and morbid conditions in this age group), followed by diseases of the nervous system (5 deaths, 21.7%) and endocrine, nutritional and metabolic diseases (4 deaths, 17.4%).

10–14 year olds

Children aged between 10 and 14 years accounted for 5.7% of deaths due to diseases and morbid conditions (18 deaths), a rate of 6.3 deaths per 100,000 children aged 10–14 years.

Neoplasms; endocrine, nutritional and metabolic diseases; diseases of the nervous system; and diseases of the circulatory system were the leading causes of death in this age group (3 deaths, 16.7% each). Diseases of the respiratory system, certain conditions originating in the perinatal period and congenital malformations, deformations and chromosomal abnormalities were the next most common causes of death among children aged between 10 and 14 years (2 deaths, 11.1% each).

15–17 year olds

Children aged between 15 and 17 years were the least likely to die from diseases and morbid conditions, with 9 deaths (2.9% of all deaths from diseases and morbid conditions), a rate of 5.4 deaths per 100,000 children aged 15–17 years.

The leading causes of death in this age group were neoplasms and endocrine, nutritional and metabolic diseases (3 deaths, 33.3% each), followed by diseases of the circulatory system, diseases of the respiratory system and diseases of the digestive system (1 death, 11.1% each).

Indigenous status

In the reporting period, 30 Indigenous children and young people (25 Aboriginals, 4 Torres Strait Islanders and 1 both Aboriginal and Torres Strait Islander)¹⁰⁶ died from diseases and morbid conditions, a rate of 46.3 deaths per 100,000 Indigenous children aged birth to 17 years in Queensland (compared with 31.4 deaths per 100,000 non-Indigenous children in the same age range).

Twenty-eight of the 30 Aboriginal and Torres Strait Islander child deaths from diseases and morbid conditions were infants, accounting for 93.3% of all Indigenous child deaths (compared with 74.4% percent for non-Indigenous infants). Significantly, of the 28 Aboriginal and Torres Strait Islander infants who died of diseases and morbid conditions, 25.0% (7 deaths) occurred in the post-neonatal period, compared with 20.8% (44 deaths) for non-Indigenous infants.

¹⁰⁶ One additional Indigenous death occurred in this period but has not been accounted for in this chapter as the death had not been registered with the Registry of Births, Deaths and Marriages (refer to Chapter 2).

Geographical distribution (ARIA+)

Of the 315 children who died from diseases and morbid conditions, 194 were living in metropolitan areas (61.6%), 101 in regional areas (32.1%) and 13 in remote Queensland (4.1%).

The rate of child deaths from diseases and morbid conditions was highest in metropolitan areas, with 36.2 deaths per 100,000 children aged birth to 17 years living in metropolitan areas, followed by regional areas, with 26.8 deaths per 100,000 children. Children living in remote areas had the lowest rates of death from diseases and morbid conditions, with 21.4 deaths per 100,000 children.

Seven children and young people who died from diseases and morbid conditions normally resided in an Australian jurisdiction other than Queensland (6 normally resided in New South Wales and 1 in Victoria). (Appendix 4.1 provides additional cause of death information for all children and young people who died in Queensland but normally resided in another Australian state or territory.)

Socio-economic status (SEIFA)

Of the 315 children who died from diseases and morbid conditions, 139 were living in high or very high socio-economic areas (44.1%), and 124 were living in low or very low socio-economic areas (39.4%), with 72 of these living in the lowest socio-economic areas in Queensland. Forty-five children were living in moderate areas (14.3%). Seven children were not able to be classified as their usual place of residence was outside Queensland. See Appendix 4.1 for further details.

The rate of death from diseases and morbid conditions was highest in high socio-economic areas, with 38.0 deaths per 100,000 children aged birth to 17 in high socio-economic areas, compared with 21.8 deaths per 100,000 children in moderate areas and 30.9 deaths per 100,000 children in low socio-economic areas.

Child protection population

Of the 315 children who died from diseases and morbid conditions between 1 July 2005 and 30 June 2006, 24 were known to the Department of Child Safety (DChS) in the 3 years before their deaths (7.6%). The Department's involvement with these cases will be considered by the Child Death Case Review Committee (CDCRC). In a further 2 cases, the Police Report of Death to a Coroner (Form 1) indicated that the family had a history of departmental involvement with the deceased infant's siblings only.¹⁰⁷ Children known to the DChS died from diseases and morbid conditions at a rate of 39.8 deaths per 100,000 children in the child protection population, compared with 32.4 deaths per 100,000 children in Queensland.

Deaths from diseases and morbid conditions: major causes

As discussed earlier, the main causes of mortality from diseases and morbid conditions were conditions originating in the perinatal period (147 deaths, 46.7%), congenital malformations, deformations and chromosomal abnormalities (60 deaths, 19.0%), followed by neoplasms (24 deaths, 7.6%) and SIDS and undetermined causes (18 deaths, 5.7%).¹⁰⁸

Within the World Health Organisation's classificatory system (ICD-10), deaths due to infection may be categorised separately, according to which part of the body they affect. When considered as an aggregate category, however, infections become the third major cause of death, accounting for 6.0% of all deaths due to diseases and morbid conditions (19 deaths). Deaths due to infection are, in the main, both unexpected and potentially preventable. The four major causes of death from diseases and morbid conditions – perinatal conditions, congenital abnormalities, neoplasms and infections – are considered in detail below.

¹⁰⁷ These cases have not been considered by the CDCRC to date (refer to Chapter 4 for further information).

¹⁰⁸ Two deaths from undetermined causes were of children over the age of 1 year. All other deaths in this category were of infants.

Perinatal conditions¹⁰⁹

Perinatal conditions (ICD-10 Chapter XVI, Certain conditions originating in the perinatal period) are diseases and conditions that originated during pregnancy or the neonatal period (first 28 days of life), even though death or morbidity may occur later. These include maternal conditions that 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.

Because the majority (97.3%) of perinatal deaths occurred in infants (aged less than one year) all rates in this section have been given for infant populations.

Table 5.3: Deaths due to perinatal conditions by gender

Cause of death	Female <i>n</i>	Male <i>n</i>	Total <i>n</i>
Foetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00–P04)	45	49	94
Respiratory and cardiovascular disorders specific to the perinatal period (P20–P29)	8	8	16
Infections specific to the perinatal period (P35–P39)	3	6	9
Haemorrhagic and haematological disorders of foetus and newborn (P50–P61)	1	8	9
Digestive system disorders of foetus and newborn (P75–P78)	1	4	5
Other disorders originating in the perinatal period (P90–P96)	4	10	14
Total	62	85	147

Data source: Queensland Child Death Register (2005–06)

One hundred and forty-seven children died from perinatal conditions, a rate of 284.5 deaths per 100,000 infants. As demonstrated in Table 5.3, the

majority of deaths due to perinatal conditions were caused by the foetus and/or newborn being affected by maternal factors or complications of pregnancy, labour and delivery (94 deaths, 63.9%), followed by respiratory and cardiovascular disorders (16 deaths, 10.9%). Together these causes accounted for 74.8% of all deaths due to perinatal conditions.

Gender

As shown in Table 5.3, 85 males (57.8%) and 62 females (42.2%) died from perinatal conditions. Males were more likely to die from perinatal conditions than females, with a rate of 320.5 deaths per 100,000 male infants, compared with 246.6 deaths per 100,000 female infants.

Age

Ninety-seven percent of deaths due to perinatal conditions occurred in infants under 1 year of age, with only 4 deaths occurring in other age categories. Of the 143 infant deaths, the vast majority (93.0%) occurred in the neonatal period (133 deaths), with only 7.0% occurring in the postneonatal period (10 deaths).

Indigenous status

Sixteen children who died from perinatal conditions were Indigenous (12 Aboriginals and 4 Torres Strait Islanders), accounting for 10.9% of deaths in this category. Indigenous children were over-represented in deaths from perinatal conditions, with a rate of 468.8 deaths per 100,000 Indigenous infants, compared with 263.2 deaths per 100,000 non-Indigenous infants.

Geographical distribution (ARIA+)

Most deaths due to perinatal conditions occurred in metropolitan areas (100 deaths), compared with 41 in regional areas and 5 in remote areas. One child who died normally lived in New South Wales. The rate of death was also highest in metropolitan areas, with 340.0 deaths per 100,000 infants living in metropolitan areas. Regional areas had the next highest rate, with 217.3 deaths per 100,000 infants living in regional areas, followed by remote areas, with 147.7 deaths per 100,000 infants living in remote areas.

¹⁰⁹ Perinatal conditions have been coded based on medical cause of death only (as provided by the Registry of Births, Deaths and Marriages under s. 48A of the *Births, Deaths and Marriages Registration Act 2003*). The Commission does not currently have access to either complete death certificates or perinatal data collection forms. Death certificates for infants who die in the neonatal period include information on birth weight and gestation which may impact on the underlying cause of death.

Socio-economic status (SEIFA)

Seventy-two children who died from perinatal conditions were living in high or very high socio-economic areas, while 56 were living in low or very low areas. Eighteen children were living in moderate socio-economic areas. Children in high socio-economic areas had the highest rate of death, with 356.1 deaths per 100,000 infants living in high socio-economic areas, compared with 258.8 deaths per 100,000 infants in low socio-economic areas and 164.2 deaths per 100,000 infants living in moderate socio-economic areas.

Congenital anomalies

Congenital anomalies (ICD-10 Chapter XVII, Congenital malformations, deformations and chromosomal abnormalities) are mental and physical conditions present at birth that are either hereditary or caused by environmental factors.

Table 5.4: Deaths due to congenital anomalies by gender

Cause of death	Female <i>n</i>	Male <i>n</i>	Total <i>n</i>
Congenital malformations of the nervous system (Q00–Q07)	2	9	11
Congenital malformations of the circulatory system (Q20–Q28)	8	9	17
Congenital malformations of the respiratory system (Q30–Q34)	1	5	6
Other congenital malformations of the digestive system (Q38–Q45)	0	2	2
Congenital malformations of the urinary system (Q60–Q64)	1	6	7
Congenital malformations and deformations of the musculoskeletal system (Q65–Q79)	1	3	4
Other congenital malformations (Q80–Q89)	4	5	9
Chromosomal abnormalities, not elsewhere classified (Q90–Q99)	1	3	4
Total	18	42	60

Data source: Queensland Child Death Register (2005–06)

Sixty children and young people died from congenital anomalies, a rate of 6.2 deaths per 100,000 children aged birth to 17 years. As demonstrated in Table 5.4, the greatest number of deaths due to congenital anomalies were caused by malformations of the circulatory system (17 deaths, 28.3%), followed by malformations of the nervous system (11 deaths, 18.3%) and other congenital malformations (9 deaths, 15.0%). Together these 3 causes accounted for 61.7% of all deaths due to congenital anomalies.

Gender

Forty-two males (70.0%) and 18 females (30.0%) died from congenital anomalies. Males were more likely to die from congenital anomalies than females, with a rate of 8.4 deaths per 100,000 male children and young people aged birth to 17 years, compared with 3.8 deaths per 100,000 female children and young people.

Age

The vast majority of deaths due to congenital anomalies occurred in infants under 1 year of age (55 deaths, 91.7%), with only 3 deaths occurring in the 1–4 year and 2 deaths in the 10–14 year age categories. Of the 55 infant deaths, most occurred in the neonatal period (47 deaths, 85.5%), with the remaining 14.5% occurring in the postneonatal period (8 deaths).

Indigenous status

Three children who died from congenital anomalies were Aboriginal, accounting for 5.0% of deaths in this category.

Geographical distribution (ARIA+)

Forty children who died due to congenital anomalies were living in metropolitan areas (66.7%), followed by 16 in regional areas (26.7%) and 3 in remote areas (5.0%). One child who died normally lived in New South Wales. The rate of death was highest in metropolitan areas, with 7.5 deaths per 100,000 children living in metropolitan areas. Regional

areas had the next highest rate, with 4.3 deaths per 100,000 children in regional areas. Rates could not be calculated for remote areas because of the small number of deaths.

Socio-economic status (SEIFA)

The majority of children who died from congenital anomalies were living in high or very high socio-economic areas (30 deaths, 50.0%), while 19 lived in low or very low socio-economic areas (31.7%). Ten children were living in moderate socio-economic areas (16.7%). One child's usual place of residence was outside Queensland. Children in high socio-economic areas had the highest rate of death from congenital anomalies, with 8.2 deaths per 100,000 children living in high socio-economic areas, compared with 4.9 deaths per 100,000 children in moderate socio-economic areas and 4.7 deaths per 100,000 children living in low socio-economic areas.

Neoplasms (cancers and tumours)

Although these terms are not synonymous, the term 'neoplasm' (ICD-10 Chapter II) is often used interchangeably with words such as 'tumour' and 'cancer'. 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 that have a specific function in the body. Occasionally, however, cells multiply in an uncontrolled way after being affected by a carcinogen, or after developing a random genetic mutation. They may form a mass which is called a tumour or neoplasm. A 'benign neoplasm' refers to a benign (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.

Table 5.5: Deaths due to neoplasms by gender

Cause of death	Female <i>n</i>	Male <i>n</i>	Total <i>n</i>
Malignant neoplasms of bone and articular cartilage (C40–C41)	0	3	3
Malignant neoplasms of mesothelial and soft tissue (C45–C49)	0	1	1
Malignant neoplasms of eye, brain and other parts of central nervous system (C69–C72)	4	3	7
Malignant neoplasms of thyroid and other endocrine glands (C73–C75)	2	2	4
Malignant neoplasms of lymphoid, haematopoietic and related tissue (C81–C96)	3	4	7
Neoplasms of uncertain or unknown behaviour (D37–D48)	1	1	2
Total	10	14	24

Data source: Queensland Child Death Register (2005–06)

Twenty-four children and young people died from cancers and tumours, a rate of 2.5 deaths per 100,000 children aged birth to 17 years. As demonstrated in Table 5.5, the most common causes of death due to cancers were malignant neoplasms of the eye, brain and other parts of the central nervous system and malignant neoplasms of lymphoid, haematopoietic and related tissue (7 deaths, 29.2% each). Malignant neoplasms of thyroid and other endocrine glands were the third most common cause of deaths from cancers (4 deaths, 16.7%). Together these three causes accounted for 75.0% of all deaths due to cancers.

Gender

As shown in Table 5.5, 14 males (58.3%) and 10 females (41.7%) died from cancers. Males were more likely to die from cancer than females, with a rate of 2.8 deaths per 100,000 male children and young people aged birth to 17 years, compared with 2.1 deaths per 100,000 female children.

Age

Table 5.6 shows the number of deaths from neoplasms by age.

Table 5.6: Neoplasms deaths by age

Age	Number of deaths <i>n</i>	Percent %
Under 1 year	2	8.3
1–4 years	8	33.3
5–9 years	8	33.3
15–17 years	3	12.5
Grand total	24	100.0%

Data source: Queensland Child Death Register (2005–06)

Deaths from cancers were distributed across all age categories, but the highest number of deaths occurred among children aged between 1 and 4 years and 5 and 9 years (8 deaths, 33.3% each), followed by young people aged 15–17 years (3 deaths, 12.5%).

Indigenous status

One child who died from cancer was Aboriginal.

Geographical distribution (ARIA+)

Fourteen children who died from cancers were living in metropolitan areas (58.3%), followed by 7 in regional areas (29.2%) and 1 death in a remote area. Two children who died from cancers normally lived in New South Wales. The rate of death was highest in metropolitan areas, with 2.6 deaths per 100,000 children living in metropolitan areas. Regional areas had the next highest rate, with 1.9 deaths per 100,000 children living in regional areas. Rates could not be calculated for remote areas because of the small number of deaths.

Socio-economic status (SEIFA)

Nine of the 24 children who died from cancers were living in high or very high socio-economic areas (37.5%). Seven children were living in low or very low socio-economic areas (29.2%) and 6 in moderate socio-economic areas (25.0%). The rate of child death from cancers was highest in moderate

socio-economic areas, with 2.9 deaths per 100,000 children living in moderate socio-economic areas, followed closely by high or very high socio-economic areas, with 2.5 deaths per 100,000 children in high socio-economic areas and 1.7 deaths per 100,000 children living in low socio-economic areas.

Infections

Infections, including central nervous system infections and respiratory infections, is a hybrid category composed of code ranges from the following ICD-10 chapters: certain infections and parasitic diseases (ICD-10 Chapter I), diseases of the nervous system (ICD-10 Chapter VI, codes G00–G09 only) and diseases of the respiratory system (ICD-10 Chapter X, codes J00–J22 only).

Table 5.7: Deaths due to infections by gender

Cause of death	Female <i>n</i>	Male <i>n</i>	Total <i>n</i>
Other bacterial diseases (A30–A49)	1	5	6
Viral infections of the central nervous system (A80–A89)	2	0	2
Viral infections characterised by skin and mucous membrane lesions (B00–B09)	0	3	3
Other viral diseases (B25–B34)	0	1	1
Inflammatory diseases of the central nervous system (G00–G09)	1	0	1
Acute upper respiratory infections (J00–J06)	0	1	1
Influenza and pneumonia (J10–J18)	3	1	4
Other acute lower respiratory infections (J20–J22)	0	1	1
Total	7	12	19

Data source: Queensland Child Death Register (2005–06)

Nineteen children and young people died from infections, a rate of 2.0 deaths per 100,000 children aged birth to 17 years. As demonstrated in Table

5.7, the highest number of deaths due to infections were caused by other bacterial diseases (6 deaths, 31.6%), followed by influenza and pneumonia (4 deaths, 21.1%) and viral infections characterised by skin and mucous membrane lesions (3 deaths, 15.8%). Together these three causes accounted for 68.4% of all deaths due to infections.

Gender

As shown in Table 5.7, 12 males (63.2%) and 7 females (36.8%) died from infections. Males were more likely to die from infections than females, with a rate of 2.4 deaths per 100,000 male children and young people aged birth to 17 years, compared with 1.5 deaths per 100,000 female children and young people.

Age

Table 5.8 shows the number of deaths from infections by age.

Table 5.8: Deaths due to infections by age

Age	Number of deaths <i>n</i>	Percent %
Under 1 year	10	52.6
1–4 years	5	26.3
5–9 years	2	10.5
10–14 years	2	10.5
15–17 years	0	0.0
Total	19	100.0

Data source: Queensland Child Death Register (2005–06)

Deaths from infections can be seen to generally decrease with the increasing age of the child. Over half the deaths due to infections (52.6%) occurred in infants under 1 year, with 8 of the 10 deaths in this age group occurring in the postneonatal period. Five of the 10 infant deaths due to infection occurred suddenly and unexpectedly (50.0%). These are discussed in more detail in Chapter 12, ‘Sudden Unexpected Deaths in Infancy’. The 1–4 year age group had the next highest number of deaths due to infections, with 5 deaths (26.3%), followed by the

5–9 and 10–14 year age groups with 2 deaths each (10.5%). No children aged between 15 and 17 died from infections.

Indigenous status

Two of the 19 children who died from infections were Indigenous (1 Aboriginal and 1 both Aboriginal and Torres Strait Islander) (10.5%). Both Indigenous deaths due to infection were of infants under 1 year and occurred suddenly and unexpectedly after the infant had been placed to sleep. These cases are discussed in Chapter 12, ‘Sudden Unexpected Deaths in Infancy’.

Geographical distribution (ARIA+)

Eleven deaths due to infections occurred in metropolitan areas (57.9%), followed by 6 in regional areas (31.6%) and 1 death in a remote area. One child who died from infection normally lived in New South Wales. The rate of death was highest in metropolitan areas, with 2.1 deaths per 100,000 children living in metropolitan areas. Regional areas had the next highest rate, with 1.6 per 100,000 children. Rates could not be calculated for remote areas because of the small number of deaths.

Socio-economic status (SEIFA)

Over two-thirds of the children who died from infections were living in low or very low socio-economic areas (13 deaths, 68.4%), with 5 of these children (26.3%) living in the most disadvantaged areas of the state. Four children were living in high or very high socio-economic areas (21.1%), while 1 child lived in a moderate socio-economic area.

Children in low socio-economic areas were over-represented in deaths from infections, dying at 3 times the rate of children living in high socio-economic areas. There were 3.2 deaths per 100,000 children living in low socio-economic areas, compared with 1.1 deaths per 100,000 children in high socio-economic areas. Rates could not be calculated for moderate socio-economic areas because of the small number of deaths.

Children in poverty are known to be more likely to die from a range of causes, particularly accidents and infections (Bor et al. 1993:1053).

Deaths from communicable (nationally notifiable) diseases

Communicable diseases (including infectious and parasitic diseases) are those diseases capable of being transmitted from one person to another, or from one species to another.

A disease may be made notifiable to state health authorities if there is potential for its control. Most of the notifiable diseases are included on a core list agreed by all states and territories. Factors considered 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 patterns of occurrence of disease.

The National Notifiable Diseases Surveillance System (NNDSS) was established in 1990 under the auspices of the Communicable Diseases Network Australia. The NNDSS coordinates the national surveillance of more than 50 communicable diseases or disease groups. Under this scheme, in Queensland notifications are made under the provisions of the *Public Health Act 2005* (See Appendix 5.1 for the complete Notifiable Diseases Schedule).

Between 1 July 2005 and 30 June 2006, 5 children and young people died of a notifiable disease in Queensland.

Table 5.9 presents the number of notifiable diseases by gender.

Table 5.9: Notifiable diseases by gender

Cause of death	Female <i>n</i>	Male <i>n</i>	Total <i>n</i>
Meningococcaemia, unspecified (A394)	0	2	2
Septicaemia due to streptococcus, group A (A400)	1	0	1
Streptococcal infection, unspecified (A491)	0	1	1
Whooping cough, unspecified (A379)	0	1	1
Total	1	4	5

Data source: Queensland Child Death Register (2005–06)

As shown in Table 5.9, between 1 July 2005 and 30 June 2006, 4 males and 1 female died of notifiable diseases in Queensland.

Three of the 5 children who died from notifiable diseases were aged less than 1 year, one child was aged between 1 and 4 years and one child between 5 and 9 years.

No deaths from notifiable conditions were due to human immunodeficiency virus (HIV), hepatitis or other sexually transmissible infections (STIs).¹¹⁰

None of the deaths from notifiable conditions were due to vaccine-preventable conditions.¹¹¹

None of the children who died from notifiable conditions were Indigenous.

110 The Queensland HIV, Hepatitis C and Sexually Transmissible Infections Strategy 2005–2011 represents a whole-of-government approach to the management of HIV, hepatitis C and STIs across Queensland. Under this strategy the Commission has agreed to report numbers of deaths from HIV, hepatitis or other STIs.

111 In Australia, programs of mass immunisation are mostly administered by state and territory governments. The National Health and Medical Research Council takes an advisory role on immunisation and sets a Standard Childhood Vaccination Schedule. The current schedule includes vaccinations against the following diseases: diphtheria, tetanus, pertussis (whooping cough), poliomyelitis, haemophilus influenzae type b (HiB), measles, mumps and rubella. Haemophilus influenzae type b (HiB) vaccination has been included on the schedule since 1994; the remaining vaccinations were included on the schedule throughout the period 1982–95. Although not part of the immunisation schedule, hepatitis B vaccine is provided to high-risk populations.