

## CHAPTER 2

# Deaths from diseases and morbid conditions

This chapter provides details of child deaths from diseases and morbid conditions, ranging from congenital anomalies and perinatal conditions through to cancers and infections.

## KEY FINDINGS

- In 2015 – 16, the deaths of 291 children and young people were the result of diseases and morbid conditions, a rate of 26.0 deaths per 100 000 children and young people aged 0–17 years in Queensland. Both the number and rate of deaths from diseases and morbid conditions in 2015 – 16 are the lowest recorded over the 12 years since reporting commenced.
- Deaths of children from diseases and morbid conditions are most likely to occur in the first weeks and months of life, with infants accounting for 73% of deaths from diseases and morbid conditions in 2015 – 16.
- Infant deaths from the two leading causes—conditions originating in the perinatal period and congenital malformations, deformations and chromosomal abnormalities (187 deaths combined)—make up the largest proportion of all deaths of children and young people (64% of all 291 deaths from diseases and morbid conditions and 48% of the 390 deaths from all causes).
- Aboriginal and Torres Strait Islander children died from diseases and morbid conditions at a rate of 43.8 per 100 000 Indigenous children aged 0–17 years (compared with 24.5 deaths per 100 000 non-Indigenous children). Over the last 12 reporting periods, the Indigenous mortality rates from diseases and morbid conditions have generally been 1.5–2 times the rates for non-Indigenous children.
- Six children and young people died with notifiable conditions, 3 of which were from diseases potentially preventable by vaccines. Over the last three years, 11 children have died with vaccine preventable diseases, with the most common of these including invasive meningococcal disease, invasive pneumococcal disease and influenza.<sup>8</sup>

<sup>8</sup> Vaccines are available for only selected strains of pneumococcal disease and influenza.

## DEATHS FROM DISEASES AND MORBID CONDITIONS 2013 – 16

An expanded version of Table 2.1 containing data since 2004 is available online at [www.qfcc.qld.gov.au](http://www.qfcc.qld.gov.au).

**Table 2.1: Summary of deaths from diseases and morbid conditions of children and young people in Queensland 2013 – 16**

	2013 – 14		2014 – 15		2015 – 16		Yearly average
	Total <i>n</i>	Rate per 100 000	Total <i>n</i>	Rate per 100 000	Total <i>n</i>	Rate per 100 000	Rate per 100 000
<b>All deaths from diseases and morbid conditions</b>							
<b>Diseases and morbid conditions</b>	<b>367</b>	<b>33.2</b>	<b>338</b>	<b>30.2</b>	<b>291</b>	<b>26.0</b>	<b>29.7</b>
Explained diseases and morbid conditions	336	30.4	318	28.4	285	25.5	28.0
Unexplained diseases and morbid conditions	31	2.8	20	1.8	6	0.5	1.7
<i>SIDS and undetermined causes (infants)</i>	29	2.6	18	1.6	5	0.4	1.6
<i>Undetermined &gt; 1 year</i>	2	*	2	*	1	*	0.1
<b>Sex<sup>a</sup></b>							
Female	171	31.8	163	30.0	128	23.5	28.3
Male	195	34.3	173	30.2	163	28.4	30.9
<b>Age category</b>							
Under 1 year	291	456.2	265	426.4	212	341.1	411.9
1–4 years	31	12.3	25	9.8	17	6.7	9.5
5–9 years	23	7.4	16	5.0	18	5.7	6.0
10–14 years	10	3.4	12	4.0	23	7.6	5.0
15–17 years	12	6.6	20	10.9	21	11.5	9.7
<b>Aboriginal and Torres Strait Islander status</b>							
Indigenous	51	59.5	46	53.1	38	43.8	51.9
Non-Indigenous	316	31.0	292	28.3	253	24.5	27.8
<b>Geographical area of usual residence (ARIA+)</b>							
Remote	20	37.4	15	28.3	13	24.5	30.2
Regional	127	31.0	123	29.8	109	26.4	29.0
Metropolitan	210	32.6	181	27.7	159	24.4	28.1
<b>Socio-economic status of usual residence (SEIFA)</b>							
Low to very low	178	40.2	161	36.2	128	28.8	35.0
Moderate	58	27.0	56	25.9	58	26.8	26.5
High to very high	121	27.0	102	22.4	95	20.8	23.2
<b>Known to the child protection system</b>							
Known to the child protection system	47	28.1	15	15.5	17	20.2	..

	2013 – 14		2014 – 15		2015 – 16		Yearly average
	Total <i>n</i>	Rate per 100 000	Total <i>n</i>	Rate per 100 000	Total <i>n</i>	Rate per 100 000	Rate per 100 000
<b>Perinatal conditions</b>							
Perinatal conditions	150	235.2	146	234.9	120	193.1	223.1
<i>Indigenous</i>	22	422.7	19	354.4	23	429.0	397.9
<b>Congenital anomalies</b>							
Congenital anomalies	95	8.6	93	8.3	79	7.1	8.0
<i>Indigenous</i>	5	5.8	12	13.8	6	6.9	8.8
<b>Neoplasms</b>							
Neoplasms	20	1.8	21	1.9	31	2.8	2.1
<i>Indigenous</i>	3	*	0	0.0	2	*	1.9
<b>Infections</b>							
Infections	23	2.1	18	1.6	18	1.6	1.8
<i>Indigenous</i>	3	*	5	5.8	4	4.6	4.6

Data source: Queensland Child Death Register (2013 – 16)

\* Rates have not been calculated for numbers less than four.

.. Average across the three-year period has not been calculated due to the break in series (see note 4).

a Excludes deaths of children where sex was undetermined.

1. Data presented here is current in the Queensland Child Death Register as at August 2016 and thus may differ from those presented in previously published reports.
2. Rates are based on the most up-to-date denominator data available and are calculated per 100 000 children (in the sex/age/Indigenous status/ARIA+ region/SEIFA region) in Queensland each year. Rates for the 2013 – 14 period use the ERP data as at June 2013 and rates for the 2014 – 15 and 2015 – 16 periods use the ERP data as at June 2014.
3. Rates for the various types of diseases and morbid conditions are calculated per 100 000 children aged 0–17 years in Queensland in each year, with the exception of 'Perinatal conditions', which is calculated per 100 000 children under the age of 1 year in Queensland.
4. For 2013 – 14, the number of children known to the child protection system represents the number of children whose deaths were registered in the reporting period, who were known to the DCCSDS within the three-year period prior to their death. From 2014 – 15 on, this relates to the deaths of children known to the DCCSDS within the one-year period prior to their death. The denominator for calculating rates is the number of children aged 0–17 who were known to the DCCSDS, through either being subject to a child concern report, notification, investigation and assessment, ongoing intervention, orders or placement, in the one-year period prior to the reporting period.
5. ARIA+ and SEIFA exclude the deaths of children whose usual place of residence was outside Queensland.
6. Yearly average rates have been calculated using the ERP data as at June 2014.

## DEATHS FROM DISEASES AND MORBID CONDITIONS: FINDINGS 2015 – 16

During 2015 – 16, the deaths of 291 children and young people from diseases and morbid conditions were registered in Queensland, at a rate of 26.0 deaths per 100 000 children aged 0–17 years. This is the lowest number and rate of deaths from diseases and morbid conditions since reporting commenced in 2004. It should be noted that 35 deaths were still pending a cause of death at the time of reporting, and based on previous years a large proportion of these deaths are likely to be found to be from diseases and morbid conditions. The number of deaths from diseases and morbid conditions since 2004 ranges from 291 to 420 per year, with an average of 369 per year.<sup>9</sup>

Diseases and morbid conditions were the leading cause of death in 2015 – 16, accounting for 75% of the 390 deaths.

The leading causes of mortality from diseases and morbid conditions were conditions originating in the perinatal period (120 deaths) and congenital malformations, deformations and chromosomal abnormalities (79 deaths). Together, these causes accounted for 68% of all deaths from diseases and morbid conditions.

### Sex

During 2015 – 16, there were 128 deaths of female children from diseases and morbid conditions, compared to 163 male children.

In the current reporting period, the mortality rate from diseases and morbid conditions for males is higher than the rate for females (28.4 deaths per 100 000 male children aged 0–17 years, compared to 23.5 deaths per 100 000 female children).

### Age

There is generally 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. Rates for 2015 – 16 were generally consistent with this trend. Table 2.2 provides counts of the causes of death from diseases and morbid conditions, for each age category.

### Infants (under 1 year)

Children are significantly more likely to die from diseases and morbid conditions in the first year of life than at any other age. Infants under 1 year accounted for 73% of deaths due to diseases and morbid conditions during 2015 – 16 (212 of 291 deaths), at a rate of 341.1 deaths per 100 000 infants. The infant mortality rate from diseases and morbid conditions (using live births as the denominator) is 3.4 deaths per 1000 live births.

Infant deaths from the two leading causes—conditions originating in the perinatal period (118 deaths) and congenital malformations, deformations and chromosomal abnormalities (69 deaths) represent 64% of all 291 deaths from diseases and morbid conditions and 48% of all 390 child deaths.

Table 2.3 shows the age and selected causes of infant deaths.

Infant deaths are divided into neonatal and post-neonatal periods. Neonatal deaths are those occurring 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). The overall number of deaths from diseases and morbid conditions decreases significantly in the post-neonatal period.

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<sup>9</sup> Tables with data for 2004 – 16 are available online at [www.qfcc.qld.gov.au](http://www.qfcc.qld.gov.au)

**Table 2.2: Deaths from diseases and morbid conditions by ICD-10 chapter level classification 2015 – 16**

Cause of death	Under 1 year <i>n</i>	1–4 years <i>n</i>	5–9 years <i>n</i>	10–14 years <i>n</i>	15–17 years <i>n</i>	Total		Rate per 100 000
						<i>n</i>	%	
Certain conditions originating in the perinatal period (P00–P96)	118	2	0	0	0	120	41.2	10.7
Congenital malformations, deformations and chromosomal abnormalities (Q00–Q99)	69	3	2	4	1	79	27.2	7.1
Neoplasms (C00–D48)	3	6	6	10	6	31	10.7	2.8
SIDS and undetermined causes (R95–R99)	5	0	0	1	0	6	2.1	0.5
Diseases of the nervous system (G00–G99)	3	2	1	1	5	12	4.2	1.1
Certain infectious and parasitic diseases (A00–B99)	2	0	2	1	0	5	1.7	0.4
Endocrine, nutritional and metabolic diseases (E00–E90)	1	0	1	1	5	8	2.7	0.7
Diseases of the respiratory system (J00–J99)	5	3	3	4	1	16	5.5	1.4
Diseases of the circulatory system (I00–I99)	4	1	0	1	3	9	3.1	0.8
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50–D89)	2	0	0	0	0	2	0.7	*
Diseases of the digestive system (K00–K93)	0	0	3	0	0	3	1.0	*
<b>Total</b>	<b>212</b>	<b>17</b>	<b>18</b>	<b>23</b>	<b>21</b>	<b>291</b>	<b>100.0</b>	<b>26.0</b>
<b>Rate per 100 000</b>	<b>341.1</b>	<b>6.7</b>	<b>5.7</b>	<b>7.6</b>	<b>11.5</b>	<b>26.0</b>		

Data source: Queensland Child Death Register (2015 – 16)

\* Rates have not been calculated for numbers less than four.

1. Rates by cause of death have been calculated per 100 000 children aged 0–17 years in Queensland or relevant age group. Rates for the 2015 – 16 period use the ERP data as at June 2014.

### Neonatal period (0–27 days)

Of the 212 infant deaths due to diseases and morbid conditions during 2015 – 16, 79% (168 deaths) occurred in the neonatal period, at a rate of 2.7 neonatal deaths per 1000 live births. Of the 168 neonatal deaths, 63% (106 deaths) occurred on the day of birth and a further 22% (37 deaths) had occurred by the end of the first week.

The two leading causes—conditions originating in the perinatal period (110 deaths) and congenital malformations, deformations and chromosomal abnormalities (55 deaths) represent 98% of the neonatal deaths from diseases and morbid conditions and 42% of all 390 child deaths.

### Post-neonatal period (28–364 days)

During 2015 – 16 there were 44 deaths from diseases and morbid conditions during the post-neonatal period, at a rate of 0.7 deaths per 1000 live births.

The leading causes of death in the post-neonatal period were congenital malformations, deformations and chromosomal abnormalities (14 deaths) and conditions originating in the perinatal period (8 deaths).

### SIDS and undetermined cases in neonates and post-neonates

SUDI cases may take 1–2 years before a cause of death is finalised through autopsy and coronial investigations. Updated information for the 2013 – 14 period (where only one infant death was still pending a cause) records 5 neonate deaths and 24 post-neonate deaths as SIDS and undetermined. Consequently, SIDS and undetermined causes was the leading cause of death for infants in the post-neonatal period and third-highest in the neonatal period.

**Table 2.3: Age and cause of infant deaths from diseases and morbid conditions 2015 – 16**

Age	Cause of death					Total <i>n</i>
	Certain conditions originating in the perinatal period (P00–P96)	Congenital malformations, deformations and chromosomal abnormalities (Q00–Q99)	SIDS and undetermined causes (R95–R99)	Other diseases and morbid conditions <sup>a</sup>		
Neonatal (age in days)	<1	71	33	0	2	<b>106</b>
	1–6	23	13	0	1	<b>37</b>
	7–27	16	9	0	0	<b>25</b>
<b>Neonatal total</b>	<b>110</b>	<b>55</b>	<b>0</b>	<b>3</b>	<b>168</b>	
Post-neonatal (age in months)	1 <sup>b</sup>	2	4	1	4	<b>11</b>
	2	2	1	2	2	<b>7</b>
	3	3	2	1	0	<b>6</b>
	4	1	2	0	3	<b>6</b>
	5	0	0	1	2	<b>3</b>
	6	0	1	0	0	<b>1</b>
	7	0	2	0	0	<b>2</b>
	8	0	1	0	4	<b>5</b>
	9	0	0	0	1	<b>1</b>
	10	0	0	0	0	<b>0</b>
	11	0	1	0	1	<b>2</b>
<b>Post-neonatal total</b>	<b>8</b>	<b>14</b>	<b>5</b>	<b>17</b>	<b>44</b>	
<b>Total infants</b>	<b>118</b>	<b>69</b>	<b>5</b>	<b>20</b>	<b>212</b>	

Data source: Queensland Child Death Register (2015 – 16)

a Includes diseases of the nervous system (G00–G99), diseases of the respiratory system (J00–J99), diseases of the blood-forming organs and certain disorders involving the immune mechanism (D50–D89), diseases of the circulatory system (I00–I99), diseases of the digestive system (K00–K93), endocrine, nutritional and metabolic diseases (E00–E90), certain infectious and parasitic diseases (A00–B99) and neoplasms (C00–D48).

b 28 days to two months.

## Children aged 1–17 years

For children aged over one year, the following findings were evident in Table 2.2:

**Children aged 1–4 years** died from diseases and morbid conditions at a rate of 6.7 deaths per 100 000 children for this age category (17 deaths). Neoplasms were the leading cause of death (6 deaths).

**Children aged 5–9 years** died from diseases and morbid conditions at a rate of 5.7 deaths per 100 000 children for this age category (18 deaths). Neoplasms were the leading cause of death (6 deaths).

**Children aged 10–14 years** died from diseases and morbid conditions at a rate of 7.6 deaths per 100 000 children for this age category (23 deaths). Neoplasms were the leading cause of death (10 deaths).

**Young people aged 15–17 years** died from diseases and morbid conditions at a rate of 11.5 deaths per 100 000 children for this age category (21 deaths). Neoplasms were the leading cause of death (6 deaths), followed by diseases of the nervous system and endocrine, nutritional and metabolic diseases (5 deaths each).

## Aboriginal and Torres Strait Islander status

Of the 291 deaths from diseases and morbid conditions during 2015 – 16, 38 were of Aboriginal and Torres Strait Islander children.

In the current reporting period, the mortality rate from diseases and morbid conditions for Indigenous children was 1.8 times the rate for non-Indigenous children (43.8 deaths per 100 000 Indigenous children aged 0–17 years, compared to 24.5 deaths per 100 000 non-Indigenous children).

Indigenous children have been over-represented in deaths from diseases and morbid conditions since reporting commenced in 2004, with mortality rates generally 1.5–2 times the rates for non-Indigenous children.

## Geographical area of usual residence (ARIA+)

Of the 291 deaths from diseases and morbid conditions during 2015 – 16, 13 were children who resided in remote areas of Queensland, 109 were children from regional areas and 159 were children from metropolitan areas.

In the current reporting period, the mortality rates from diseases and morbid conditions for children from remote, regional and metropolitan areas were similar (24.5, 26.4 and 24.4 deaths per 100 000 children aged 0–17 years).

## Socio-economic status of usual residence (SEIFA)

Of the 291 deaths from diseases and morbid conditions during 2015 – 16, 128 were of children who resided in low to very low SES areas of Queensland, 58 were of children from moderate SES areas and 95 were of children from high to very high SES areas.

In the current reporting period, the mortality rates from diseases and morbid conditions for children from low to very low and moderate SES areas were slightly higher than the rate for children from high to very high SES areas (28.8 and 26.8 deaths per 100 000 children aged 0–17 years from low to very low or moderate SES areas, compared to 20.8 deaths per 100 000 children from high to very high SES areas).

## Children known to the child protection system

Of the 291 deaths from diseases and morbid conditions during 2015 – 16, 17 (6%) were of children known to the Queensland child protection system within the year before their death.

The 2015 – 16 mortality rate from diseases and morbid conditions for children known to the Queensland child protection system was lower than the rate for all Queensland children (20.2 deaths per 100 000 children known to the child protection system, compared with 26.0 deaths per 100 000 children aged 0–17 years).

## MAJOR CAUSES

As discussed above, the main causes of mortality from diseases and morbid conditions in Queensland during 2015 – 16 were conditions originating in the perinatal period (120 deaths) and congenital malformations, deformations and chromosomal abnormalities (79 deaths).

### Perinatal conditions

During 2015 – 16 there were 120 child deaths from perinatal conditions, at a mortality rate of 193.1 deaths per 100 000 infants.<sup>10</sup> This represents a decrease of 18% from 146 deaths in 2014 – 15.

Perinatal conditions are diseases and conditions that originate during pregnancy or the neonatal period (first 28 days of life), even though death or morbidity may occur later. During 2015 – 16 only 2 of 120 deaths due to perinatal conditions occurred after infancy.

Perinatal conditions 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.

As shown in table 2.4, 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 (51%, 61 deaths), followed by disorders related to the length of gestation and foetal growth (22%, 26 deaths). Together, these causes accounted for 73% of all deaths due to perinatal conditions (87 of 120 deaths).

**Table 2.4: Deaths due to perinatal conditions by sex 2015 – 16**

Cause of death	Female <i>n</i>	Male <i>n</i>	Total <i>n</i>	Rate per 100 000
Foetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00–P04)	30	31	61	98.2
Disorders related to length of gestation and foetal growth (P05–P08)	9	17	26	41.8
Haemorrhagic and haematological disorders of foetus and newborn (P50–P61)	1	3	4	6.4
Respiratory and cardiovascular disorders specific to the perinatal period (P20–P29)	2	5	7	11.3
Other disorders originating in the perinatal period (P90–P96)	3	4	7	11.3
Infections specific to the perinatal period (P35–P39)	2	3	5	8.0
Digestive system disorders of foetus and newborn (P75–P78)	2	7	9	14.5
Conditions involving the integument and temperature regulation of foetus and newborn (P80–P83)	0	1	1	*
<b>Total</b>	<b>49</b>	<b>71</b>	<b>120</b>	<b>193.1</b>
<b>Rate per 100 000</b>	<b>161.3</b>	<b>223.5</b>	<b>193.1</b>	

Data source: Queensland Child Death Register (2015 – 16)

\* Rates have not been calculated for numbers less than four.

1. Rates are calculated per 100 000 children under the age of 1 year in Queensland. Rates for the 2015 – 16 period use the ERP data as at June 2014.

10 All rates in this section have been given for infant populations, includes the deaths of two children over one year.



## Congenital anomalies

During 2015 – 16 there were 79 child deaths from congenital abnormalities, at a mortality rate of 7.1 deaths per 100 000 children aged 0–17 years. This represents a decrease of 15% from 93 deaths in 2014 – 15.

Congenital anomalies are mental and physical conditions present at birth that are either hereditary or caused by environmental factors.<sup>11</sup>

As shown in Table 2.5, the leading causes of death due to congenital anomalies were malformations of the circulatory system (27%, 21 deaths), and chromosomal abnormalities, not elsewhere classified (23%, 18 deaths). Together these causes accounted for 49% of all deaths due to congenital anomalies (39 of 79 deaths).

**Table 2.5: Deaths due to congenital anomalies by sex 2015 – 16**

Cause of death	Female <i>n</i>	Male <i>n</i>	Total <i>n</i>	Rate per 100 000
Congenital malformations of the circulatory system (Q20–Q28)	9	12	21	1.9
Chromosomal abnormalities, not elsewhere classified (Q90–Q99)	10	8	18	1.6
Congenital malformations of the nervous system (Q00–Q07)	8	5	13	1.2
Congenital malformations of the urinary system (Q60–Q64)	1	4	5	0.4
Other congenital malformations (Q80–Q89)	3	4	7	0.6
Congenital malformations and deformations of the musculoskeletal system (Q65–Q79)	2	7	9	0.8
Congenital malformations of the respiratory system (Q30–Q34)	2	1	3	*
Other congenital malformations of the digestive system (Q38–Q45)	2	0	2	*
Cleft lip and cleft palate (Q35–Q37)	0	1	1	*
<b>Total</b>	<b>37</b>	<b>42</b>	<b>79</b>	<b>7.1</b>
<b>Rate per 100 000</b>	<b>6.8</b>	<b>7.3</b>	<b>7.1</b>	

Data source: Queensland Child Death Register (2015 – 16)

\* Rates have not been calculated for numbers less than four.

1. Rates are calculated per 100 000 children and young people aged 0–17 years in Queensland. Rates for the 2015 – 16 period use the ERP data as at June 2014.

## 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.<sup>12</sup> The 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 patterns of occurrence of disease.

Six children and young people died with a notifiable condition as shown in Table 2.6; however it should be noted that in 2 of the cases the notifiable condition was not the underlying cause of death, as the young people had other serious illnesses. Three of the 6 deaths with notifiable conditions were vaccine-preventable or potentially vaccine-preventable conditions.<sup>13</sup>

Over the last three years 11 children died with vaccine preventable diseases, with the most common of these being invasive meningococcal disease, invasive pneumococcal disease and influenza.<sup>14</sup>

Commonwealth laws introduced in January 2016 (*'no jab, no pay'*) require parents to ensure their children meet their immunisation requirements in order to be eligible for, and to continue receiving, the Child Care Benefit, Child Care Rebate and the Family Tax Benefit.

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

12 For the complete Queensland Notifiable Conditions Schedule contained in the *Public Health Regulation 2005*, see the online supplementary materials.

13 In Australia, publicly-funded immunisation programs are administered by state and territory governments. The current National Immunisation Program Schedule (valid from May 2012) includes vaccinations against the following diseases: hepatitis B, diphtheria, tetanus, pertussis (whooping cough), poliomyelitis, Haemophilus influenzae type b (Hib), invasive pneumococcal disease, rotavirus, measles, mumps, rubella, meningococcal C disease, varicella (chicken pox), influenza and human papillomavirus (HPV).

14 Vaccines are available for only selected strains of pneumococcal disease and influenza.

**Table 2.6: Child deaths with notifiable conditions by sex 2015 – 16**

Cause of death	Female <i>n</i>	Male <i>n</i>	Total <i>n</i>
Invasive group A streptococcal infection	0	2	2
Foetus and newborn affected by maternal infectious and parasitic diseases	1	0	1
Influenza (laboratory confirmed, includes swine flu) <sup>a</sup>	1	1	2
Pneumococcal disease (invasive) <sup>a</sup>	0	1	1
<b>Total</b>	<b>2</b>	<b>4</b>	<b>6</b>

Data source: Queensland Child Death Register (2015 – 16)

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

### Delay in retrieval services: Coronial recommendations

A coronial report<sup>15</sup> released in 2016 found that a male child died in 2012 when his clinical needs exceeded the capability of his treating team and the retrieval team initially tasked to do the retrieval. The child was initially admitted to Mt Isa hospital suffering acute heart failure. While his condition initially appeared to stabilise, it later deteriorated. Arrangements were made with the Royal Flying Doctor Service for transfer to Townsville, however before the transfer could occur the child's condition further deteriorated and he became unresponsive. The focus of the coronial inquest was to identify opportunities for better clinical management of retrievals of acutely ill children, as the coroner found that if the severity of the child's illness been accurately assessed at the time of his initial admission to hospital, his condition could have been stabilised and he could have been successfully transferred to a higher level of care. The findings from a Coronial Inquest into the death resulted in six key recommendations which aim to improve and expand aeromedical retrieval services:

1. There needed to be better use of Children's Early Warning Tool.
2. Each District Health Service needs to ensure that there is a transfer management plan for every child who is admitted to hospital and may require retrieval to a higher level care facility.
3. Townsville Hospital is to receive additional resources to enable the retrieval of critically unwell children.
4. The Northern hub within Retrieval Services Qld (RSQ) is to be expanded to provide 24/7 co-ordination services.
5. Queensland Health is to initiate the development of a State-wide evidence based clinical pathway for the management of children with acute cardiac conditions to ensure a stratified risk approach to timely access to the best available care in Queensland.
6. Queensland Health (and other stakeholders) is to initiate a consensus model for care for clinical management of acute patients requiring retrieval.

15 Queensland Courts (2016) Office of the State Coroner Findings of Inquest: *Inquest into the death of Kesler Lee James*.