Queensland
Family & Child
Commission

ANNUAL REPORT

Deaths of children and young people Queensland

2016—17

Queensland Government

About this Report

This report has been prepared under section 29 of the *Family and Child Commission Act 2014*. It describes information on the deaths of children and young people in Queensland registered in the period 1 July 2016 to 30 June 2017.

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We value the views of our readers and invite you to give us feedback on this report.

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Information security

This document has been security classified using the Queensland Government Information Security Classification (QGISCF) as PUBLIC and will be managed according to the requirements of the QGISCF.

Queensland Government

Queensland Family & Child Commission

31 October 2017

The Honourable Annastacia Palaszczuk MP
Premier of Queensland and Minister for the Arts
1 William Street
BRISBANE CITY QLD 4000

Dear Premier

In accordance with section 29(1) of the *Family and Child Commission Act 2014*, I provide to you the Queensland Family and Child Commission's annual report analysing the deaths of Queensland children and young people.

The report analyses the deaths of all children and young people in Queensland registered in the period 1 July 2016 to 30 June 2017, with a particular focus on external (non-natural) causes.

I draw your attention to section 29(7) of the *Family and Child Commission Act 2014* which requires you to table this report in the Parliament within 14 sitting days.

Yours sincerely

Cheryl Vardon

Cheryl Vardon
Principal Commissioner
Queensland Family and Child Commission

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Acknowledgements

The Queensland Family and Child Commission (QFCC) acknowledges the unique and diverse cultures of Aboriginal and Torres Strait Islander peoples and notes, throughout this document, the term Aboriginal and Torres Strait Islander has been used to collectively describe two distinct groups of people. The QFCC respects the beliefs of the Aboriginal and Torres Strait Islander peoples and advises there is information regarding Aboriginal and Torres Strait Islander deceased people in this report.

The QFCC would like to thank the government departments and non-government organisations who contributed data and provided advice for this report. Particular appreciation is expressed to officers from the Registry of Births, Deaths and Marriages; the Office of the State Coroner; the Queensland Police Service; the Queensland Ambulance Service; Queensland Health; the Department of Communities, Child Safety and Disability Services (DCCSDS); the Australian Bureau of Statistics (ABS); and Queensland Treasury. The Victorian Department of Justice and Regulation is also acknowledged as administrators of the National Coronial Information System.

The QFCC would like to acknowledge the Queensland Paediatric Quality Council's Infant Mortality Sub-Committee, which has used this report to share findings from reviews of sudden unexpected infant deaths. The findings can be found within Chapter 8.

The QFCC would also like to acknowledge the contribution of data from other Australian and New Zealand agencies and committees which perform similar child death review functions. This data has been compiled for an inter-jurisdictional overview representing further steps towards developing a nationally comparable child death review dataset. The overview is available online at www.qfcc.qld.gov.au/child-death-reports-and-data-o.

The contribution of officers from the QFCC's Family and Child Research team who maintained the Queensland Child Death Register, analysed the data and prepared the report is also acknowledged and appreciated.

Foreword

On behalf of the Queensland Family and Child Commission, I would like to extend my sincere condolences to the families, carers and friends of the 421 children and young people who passed away in 2016–17.

The *Family and Child Commission Act 2014* requires the QFCC to maintain a register of information relating to child deaths in Queensland, and to classify, analyse and report on trends and patterns in child deaths each year. The register maintained by the QFCC contains information about the deaths of all children and young people in Queensland since 1 January 2004.

This report, the 13th in the series, found the rate of child deaths for 2016–17 was 37.3 per 100,000 children aged 0–17 years. Overall the rate of deaths of children and young people has been in decline since reporting commenced in 2004, primarily due to a reduction in the number of natural cause deaths from diseases and morbid conditions. This year represents the second lowest recorded annual rate.

During the year 2016–17 we noted:

- Aboriginal and/or Torres Strait Islander children were consistently over-represented in child deaths. Their rate of death is 1.9 times that of non-Indigenous children. This highlights the significant, ongoing disadvantage experienced by this vulnerable group.
- Rates of death are consistently higher among those children known to the child protection system, especially for external causes of death. Their rate of death due to external causes is 5 times that of all Queensland children with drowning and suicide the predominant causes this year.
- Twenty-one young people aged 10–17 suicided. This represents almost half of all deaths due to external causes for this age group. Youth suicide is an area of concern for the QFCC and there is a continuing need to improve prevention in this space.

I am sad to report this year 19 children died from drowning, which is the equal highest number since 2004. This included 5 children who drowned in bathtubs and 6 children aged 1–4 years who drowned in private swimming pools. Inevitably, young children drown during lapses in adult supervision. Too often pool gates have been propped open leading to back yard pool drownings. It cannot be emphasised enough a few minutes of inattention can have tragic consequences.

Pool fencing legislation has meant young children can be safer in their own homes as a result, but this cannot lead to complacency. Young children need adult supervision when they are in the bath or pool. Pool gates should not be propped open and gates must latch properly every time. It is important to recognise that barriers are still needed when repairs are being done and not assume a pool in disrepair is not a danger to an inquisitive child. It may not be possible to protect children in every situation, but all must be done to reduce known risks.

Growing evidence indicates the Pepi-Pod® Program, currently being rolled out as a portable sleep space with safe sleep education in Indigenous communities, improves the safety of infants in high risk sleep environments. Given the numbers of sudden unexpected infant deaths each year, consideration could be given to extending the program into other settings in which vulnerable families and their babies are displaced from their homes or have complex needs.

We hope this report will contribute to understanding of, and action on, child death prevention. The death of a child under any circumstances is a tragedy. The main focus of this report is on the circumstances and risk factors surrounding the deaths of the children and young people who lost their lives due to external causes of death, including transport incidents, drowning, suicide and non-accidental trauma. This provides our greatest opportunities to prevent future deaths.

The QFCC's functions include sharing child death data with researchers conducting work aimed at preventing child deaths. This year, I am pleased to report data provided from the QFCC's child death register has supported a number of academic research publications in the area of child death and injury prevention.

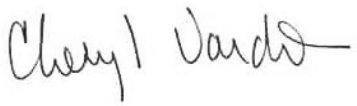
A significant number of agencies and organisations are accessing and utilising our high-quality and contemporary evidence base to inform their policy and program development and for the formulation of strategies and campaigns aimed at preventing child deaths. During the year we responded to 17 requests for tailored child death data from external stakeholders. Our data has been used for a large number of purposes including informing the Victorian Inquest into drowning deaths, informing an RACQ driving education campaign, supporting the drowning research studies conducted by the Royal Life Saving Society of Australia, as well as supporting a number of other research and prevention activities being conducted across Australia.

The QFCC is also legislated to make recommendations relating to laws, policies, practices and services to help reduce the likelihood of future deaths. We have used information in the register to inform the development of evidence-based policy submissions for reviews of national safety standards for toys and child- and baby-related products.

Every death in this report is a heavy loss for families, friends and communities. Every potentially preventable death leaves regret, heartache and grief. We hope by collecting and sharing information on child deaths we can raise awareness of possible risks and better inform prevention activities.

The QFCC welcomes actions from the past year to increase awareness and reduce preventable deaths of Queensland's children and young people. This year's report highlights the need to continue and to extend these efforts.

I look forward to working with stakeholders to further advance these endeavours in the year ahead. As Principal Commissioner of the QFCC I am committed to working with you to make sure all Queensland children, young people and their families are more than safe.



Cheryl Vardon
Principal Commissioner
Queensland Family and Child Commission

Executive summary

CHILD DEATHS IN QUEENSLAND, FINDINGS IN 2016–17 AND TRENDS SINCE 2004

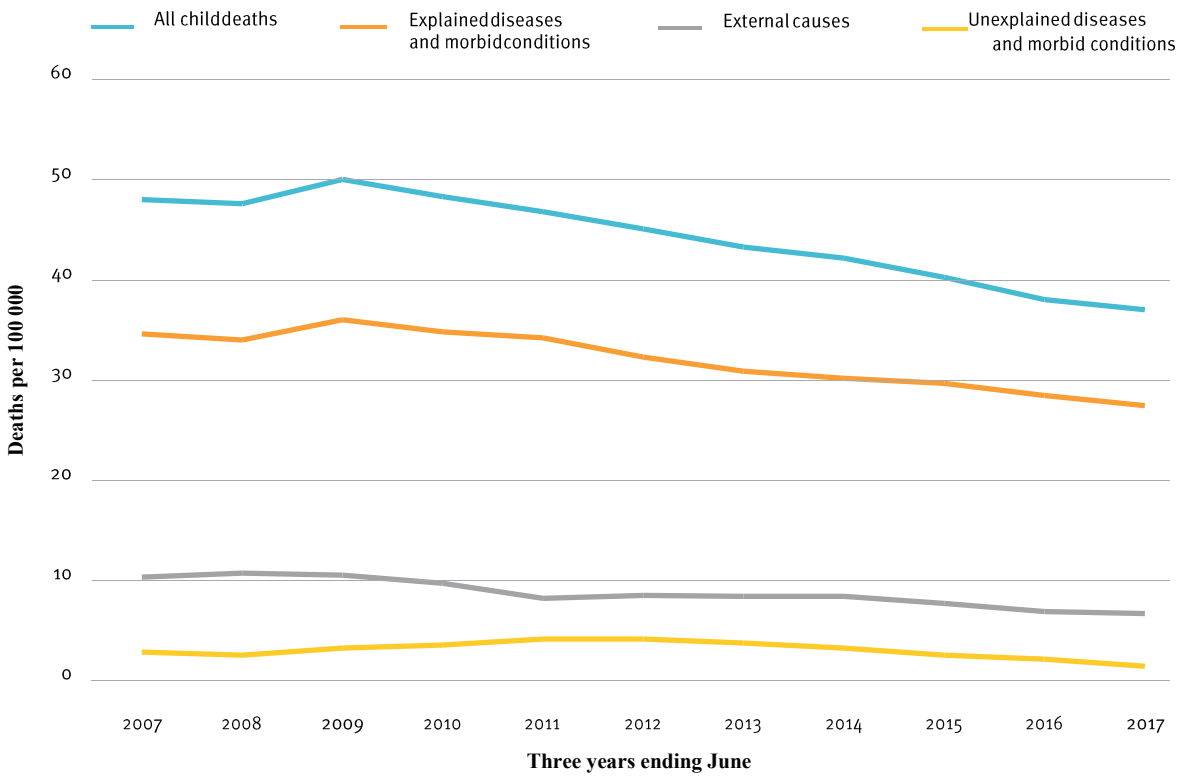
In the 12-month period from 1 July 2016 to 30 June 2017, the deaths of 421 children and young people were registered[1] in Queensland, a rate of 37.3 deaths per 100 000 children aged 0–17 years. The 421 deaths were an increase (7.9%) from 390 child deaths (34.6 deaths per 100 000) in 2015–16.

Infant mortality in Queensland was 4.4 deaths per 1000 live births, up from 3.8 deaths per 1000 in 2015–16.

Trends in child mortality rates, shown in Figure 1, include:

- In general, child mortality rates have decreased over the period 2004 to 2017. The 3-year rolling average rates in Figure 1 smooth out year to year changes including the most recent increase in 2016–17.
- The overall trend is driven by decreases in child mortality from explained diseases and morbid conditions, the two largest contributors of which are deaths from perinatal conditions[2] and congenital anomalies.
- Child mortality from unexplained diseases and morbid conditions (i.e. from natural causes but the illness has not been identified) has shown some recent decreases, but there is no strong overall trend. Almost all of this group are infant deaths classified as Sudden Infant Death Syndrome (SIDS) or undetermined causes.
- Child mortality from external (or non-natural) causes have generally decreased over the period. This group includes deaths from injuries, either non-intentional (accidental) injuries such as transport incidents or drowning, or from intentional injuries, which includes suicide and fatal assault and neglect.

Figure 1: Child deaths by major cause group (3-year rolling averages) 2004–17



Data source: Queensland Child Death Register (2004–17)

1. Rates (deaths per 100 000 population aged 0–17 years) are averaged over 3-year periods.

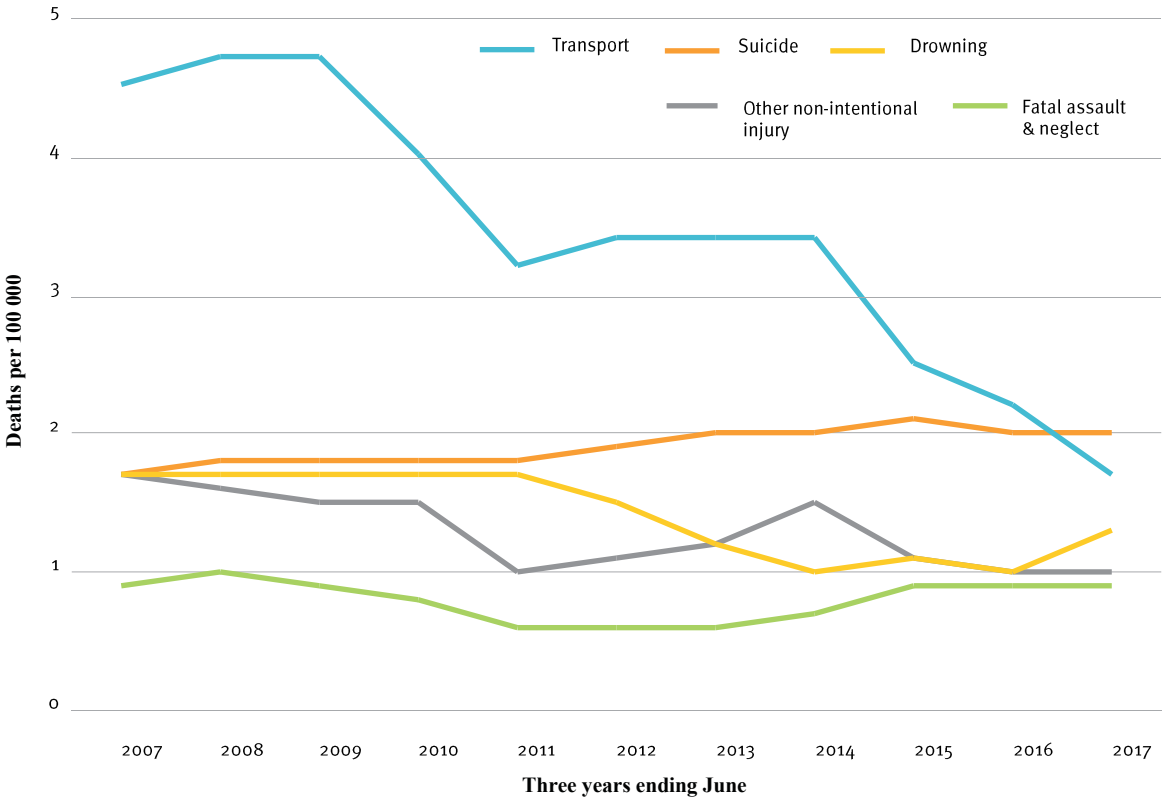
1 The Queensland Child Death Register is based on death registrations recorded by the Queensland Registry of Births, Deaths and Marriages. Deaths in this Annual Report are counted by date of death registration and may therefore differ from child death data based on date of death.

2 Diseases and conditions which originate during pregnancy or the neonatal period (first 28 days of life).

Mortality rates for categories of externally-caused child deaths from 2004 to 2017 are illustrated in Figure 2. Due to the relatively small numbers involved, caution should be exercised in interpreting year-to-year changes.

Transport-related child mortality declined, dropping by 62% over the 13-year period. While there were some changes over time in the numbers and rates of deaths from drowning, other non-intentional injury, suicide and fatal assault, the changes were not indicative of trends (changes were not statistically significant).

Figure 2: Externally caused child deaths by primary cause (3-year rolling averages) 2004–17



Data source: Queensland Child Death Register (2004–17)
1. Rates (deaths per 100 000 population aged 0–17 years) are averaged over 3-year periods.

Leading causes of child deaths in 2016–17

Table 1 broadly outlines the causes of death by age group for the 421 registered deaths.

- Deaths from diseases and morbid conditions (natural causes) accounted for the majority of deaths of children registered in 2016–17 (315 deaths—or 75%), occurring at a rate of 27.9 deaths per 100 000 children aged 0–17 years.
- External (non-natural) causes of death accounted for 72 deaths (17%), and occurred at a rate of 6.4 deaths per 100 000 children. A further 34 deaths (8%) were pending a cause ofdeath.
- Suicide (21 deaths) was the leading external cause of death for the third consecutive year, occurring at a rate of 1.9 deaths per 100 000children.
- Drowning deaths increased from 9 to 19 deaths in the last year to be the second leading external cause of death.
- Transport has been the leading external cause for the first 10 periods of the Queensland Child Death Register, but decreased to 14 deaths in 2016–17 from 25 deaths in 2014–15 and 18 deaths in 2015–16.
- Thirty infant deaths were sudden unexpected deaths in infancy (SUDI), a category where an infant dies suddenly with no immediately obvious cause (not shown in Table1).

By age and sex

- In 2016–17, the mortality rate for males aged 0–17 years was higher than females, with a rate of 39.5 deaths per 100 000 males compared to 35.0 deaths per 100 000 females.
- Diseases and morbid conditions was the most frequent cause of death for infants under one year of age, accounting for 90% of the deaths in this age category (242 of 269 deaths).
- The leading cause of death for children aged 1–4 years was diseases and morbid conditions (29 deaths), followed by drowning (11 deaths) and transport incidents (4 deaths).
- The leading cause of death for children aged 5–9 years was diseases and morbid conditions (15 deaths), followed by drowning (4 deaths).
- The leading cause of death for children aged 10–14 years was diseases and morbid conditions (16 deaths). The leading external cause of death for children aged 10–14 years was suicide (9 deaths).
- The leading cause of death for young people aged 15–17 years was diseases and morbid conditions (13 deaths). Suicide was the leading external cause of death in this age category (12 deaths). Five young people aged 15–17 years died in transport incidents which is the lowest number recorded since the commencement of the child death register in 2004.

Table 1: Cause of death by age category 2016–17

Cause of death	Under 1 year n	1–4 years n	5–9 years n	10–14 years n	15–17 years n	Total n	Rate per 100 000
Diseases and morbid conditions	**242**	**29**	**15**	**16**	**13**	**315**	**27.9**
Explained diseases and morbid conditions	**236**	**28**	**14**	**16**	**13**	**307**	**27.2**
Unexplained diseases and morbid conditions	**6**	**1**	**1**	**0**	**0**	**8**	**0.7**
SIDS and undetermined causes (infants)	*6*	*0*	*0*	*0*	*0*	*6*	*0.5*
Undetermined › 1 year	*0*	*1*	*1*	*0*	*0*	*2*	*
External causes	**6**	**20**	**7**	**18**	**21**	**72**	**6.4**
Suicide	**0**	**0**	**0**	**9**	**12**	**21**	**1.9**
Transport	**1**	**4**	**2**	**2**	**5**	**14**	**1.2**
Motor vehicle	*0*	*1*	*0*	*1*	*2*	*4*	*0.4*
Pedestrian	*1*	*2*	*1*	*0*	*1*	*5*	*0.4*
Motorcycle	*0*	*0*	*0*	*1*	*1*	*2*	*
Other	*0*	*1*	*1*	*0*	*1*	*3*	*
Drowning	**3**	**11**	**4**	**0**	**1**	**19**	**1.7**
Non-pool	*3*	*5*	*3*	*0*	*1*	*12*	*1.1*
Pool	*0*	*6*	*1*	*0*	*0*	*7*	*0.6*
Fatal assault and neglect	**0**	**3**	**1**	**0**	**1**	**5**	**0.4**
Other non-intentional injury	**2**	**2**	**0**	**7**	**2**	**13**	**1.2**
Threats to breathing	*2*	*1*	*0*	*2*	*0*	*5*	*0.4*
Exposure to smoke, fire and flames	*0*	*0*	*0*	*1*	*0*	*1*	*
Exposure to inanimate mechanical forces	*0*	*0*	*0*	*2*	*1*	*3*	*
Poisoning by noxious substances	*0*	*0*	*0*	*1*	*0*	*1*	*
Other	*0*	*1*	*0*	*1*	*1*	*3*	*
Cause of death pending	**21**	**4**	**5**	**1**	**3**	**34**	**3.0**
Total	**269**	**53**	**27**	**35**	**37**	**421**	**37.3**
Rate per 100 000	**429.6**	**20.7**	**8.4**	**11.5**	**20.2**	**37.3**	

Data source: Queensland Child Death Register (2016–17)

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

1. Rates are based on the most up-to-date denominator data available and are calculated per 100 000 children aged 0–17 years in Queensland each year. Rates for the 2016–17 period use the estimated resident population (ERP) data as at June 2015.
2. Rates for age categories are calculated per 100 000 children in each age category. Age-specific death rates are discussed in the chapters relating to each cause of death.

Aboriginal and Torres Strait Islander children

- Fifty-seven Aboriginal and/or Torres Strait Islander children died in 2016–17, an increase from 52 deaths in 2015–16.
- The mortality rate for Aboriginal and/or Torres Strait Islander children was 1.9 times the rate for non-Indigenous children (64.9 deaths per 100 000 Indigenous children, compared to 35.0 deaths per 100 000 non-Indigenous children).
- The infant mortality rate for Aboriginal and/or Torres Strait Islander children was 6.7 deaths per 1000 live births compared to the non-Indigenous rate of 4.1 deaths per 1000 live births.
- Indigenous child mortality rates have decreased over the last 13 years. Based on 3-year averages, between 2004 and 2017 infant mortality for Indigenous children decreased from 11.6 to 7.0 deaths per 1000 live births. The mortality rate for Indigenous children aged 1–17 years decreased from 35.3 to 28.5 deaths per 100 000 children over the same period. Aboriginal and/or Torres Strait Islander child mortality, however, continues to be twice the rate for non-Indigenous children as decreases in Indigenous mortality have been matched by decreases in non-Indigenous mortality.
- Queensland's infant mortality rates were higher than the most recently available national averages. In 2015, the national Indigenous infant mortality rate was 6.1 deaths per 1000 live births, while the non-Indigenous infant mortality rate was 3.2 deaths per 1000 live births.
- There were 3 suicide deaths of Aboriginal and/or Torres Strait Islander young people during 2016–17. The suicide rate among Aboriginal and/or Torres Strait Islander young people was three times the rate of their non-Indigenous peers (3-year average).
- Aboriginal and/or Torres Strait Islander infants are over-represented in SUDI. Over the last 3 years, Indigenous infants died suddenly and unexpectedly at twice the rate of non-Indigenous infants.
- Encouragingly there have been fewer Indigenous SUDI deaths in the last 2 years compared to earlier periods.

Children known to the child protection system

- A child is deemed to have been known to the child protection system if, within one year before the child's death, the child was: in the custody or guardianship of the Department of Communities, Child Safety and Disability Services[3] (DCCSDS); or, DCCSDS was aware of alleged harm or risk of harm; or, DCCSDS took action under the *Child Protection Act 1999*; or, DCCSDS was notified of concerns before the birth of a child and reasonably suspected the child to be in need of protection after their birth.
- Of the 421 children who died, 57 were known to the child protection system, representing a rate of 70.8 deaths per 100 000,[4] compared to 37.3 deaths per 100 000 for all Queensland children.
- The rates of death of children known to the child protection system have consistently been higher than all children, especially for deaths from external causes.
- Notably, children known to the child protection system made up large proportions of child deaths from suicide, drowning and fatal assault in 2016–17:
  - 10 of the 19 children who drowned were known to the child protection system
  - 9 of the 21 youth suicides were known to the child protection system
  - 4 of the 5 children who died from fatal assault were known to the child protection system.

Diseases and morbid conditions

- In 2016–17, the deaths of 315 children and young people were the result of diseases and morbid conditions, a rate of 27.9 deaths per 100 000 children and young people aged 0–17 years in Queensland.
- Deaths of children from diseases and morbid conditions are most likely to occur in the first days and weeks of life, with infants accounting for 77% of deaths from diseases and morbid conditions in 2016–17.

3 The DCCSDS administers the child protection system in Queensland.
4 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.

- Infant deaths from the two leading causes—conditions originating in the perinatal period and congenital malformations, deformations and chromosomal abnormalities (219 deaths combined)—make up the largest proportion of all deaths of children and young people (70% of all 315 deaths from diseases and morbid conditions and 52% of the 421 deaths from allcauses).
- Aboriginal and/or Torres Strait Islander children died from diseases and morbid conditions at a rate of 50.1 per 100 000 Indigenous children aged 0–17 years (compared to 26.1 deaths per 100 000 non-Indigenous children) in 2016–17. Over the last 13 years, the Indigenous mortality rates from diseases and morbid conditions have generally been 1.5 to 2 times the rates for non-Indigenous children.
- Five children and young people died with notifiable conditions, two of which were diseases potentially preventable by vaccines. Over the last 3 years, 13 children have died from diseases which were potentially vaccine-preventable, with the most common of these including influenza, invasive meningococcal disease and invasive pneumococcaldisease.[5]

Transport-related deaths

- Fourteen children and young people died in transport-related incidents in Queensland during 2016–17, at a rate of 1.2 deaths per 100 000 children aged 0–17 years. This is the lowest number and rate of transport-related fatalities since reporting commenced in2004.
- Four deaths were in motor vehicle crashes, which was the lowest number of deaths in this category in the child death register (from 2004). Much of the reduction in transport mortality rates (indicated in Figure 2) have been due to reductions in motor vehicle deaths, with 20 or more deaths each year common prior to 2012–13.
- Five children died as pedestrians. Three of these children died in low-speed vehicle run-overs of children under five.
- Male children were twice as likely as female children to be involved in a transport-related fatality.
- Young people aged 15–17 years were the most likely age group to be involved in a transport-related fatality.

Drowning

- Nineteen children and young people drowned in Queensland in 2016–17 (rate of 1.7 per 100 000 children aged 0–17 years) compared to 9 in 2015–16 and 16 in 2014–15.
- Seven children drowned in swimming pools in 2016–17, 5 in bathtubs, 3 in lakes, ponds and ruraldams, 2 in objects containing water, and one each at the beach and in a river or creek.
- Children aged 1–4 years made up the largest group of drowning deaths (11 deaths), a pattern which has been found in all previous reporting periods, and an indication of the particular vulnerability of this age group.
- Ten of the 19 children who drowned were known to the child protection system in the year prior to their death.
- Pool fencing standards were introduced in 1991 and have been incrementally strengthened over time. The numbers of private-pool drowning deaths of children aged under 5 have fluctuated from year to year; however, numbers before the introduction of pool fencing requirements were generally higher than those since the introduction of standards, and especially in the last decade.
- The increase in drownings in 2016–17 highlights the importance of prevention strategies in reducing the risk to children. Children under 5 years are particularly vulnerable, and there were 14 drowning deaths in 2016–17, with swimming pools (6 deaths) and bathtubs (5 deaths) the most common hazards for young children.
- The circumstances surrounding swimming pool and bathtub drownings points to a range of particular factors which placed young children at increased risk. Risk factors for pool drownings included leaving, or keeping pool gates propped open, failing to have a pool fence which meets legislative requirements, not keeping the fencing in good repair, or having objects nearby which could be climbed to open the gate. Further, precautions still need to be taken even when pools are in disrepair, or when work is being done on the pool or fencing.
- Specific risk factors for bathtub drownings were lapses in adult supervision, the presence of other siblings and leaving water running in the bath, even if the bathplug was removed. The child or their siblings may access the plug, or toys may stop the bath water from draining.

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

Other non-intentional injuries including fire

- In 2016–17, 13 children and young people died in non-intentional injury-related incidents, other than a drowning or transport incident, at a rate of 1.2 deaths per 100 000 children aged 0–17 years.
- Five of the deaths were caused by accidental threats to breathing, 3 were caused by exposure to inanimate mechanical forces and one each was caused by non-intentional poisoning by noxious substances and exposure to smoke, fire and flames.
- The highest number of deaths occurred in the 10–14-year age group, with 7 deaths.
- Thirty-five children died in 23 house or dwelling fires in Queensland over the 13-year period 2004–17. Young children are at particular risk in house fires with 17 of the deaths being of children aged under five.
- The *Fire and Emergency Services (Domestic Smoke Alarms) Amendment Act 2016* came into effect in January 2017. All new and renovated dwellings are required to have inter-connected photoelectric smoke alarms in bedrooms and on each level. Smoke alarms in existing dwellings must be replaced after 10 years as stipulated in the new legislation.

Suicide

- Twenty-one young people died of suspected or confirmed suicide during 2016–17 (rate of 1.9 deaths per 100 000 children aged 0–17 years). The number of suicide deaths recorded over the 13 years since 2004 ranges from 15 to 26 with an average of 19.8 per year.
- Suicide was the leading external cause of death in 2016–17 (29% of external causes of death for all children). Suicide accounted for almost half of the deaths by external causes among young people aged 10–17 years.
- Male suicides usually outnumber female suicides. Over the most recent 3-year period, the suicide rate for males was 1.4 times the rate for females.
- Twelve of the 21 suicides were of young people aged 15–17 years. Over the most recent 3-year period, the suicide rate of young people aged 15–17 years was 5.1 times the rate of young people aged 10–14 years.
- Young people may exhibit one or more suicidal or self-harm behaviours prior to suicide, as was the case for 14 of the 21 young people who suicided. However, there was no evidence of previous self-harm or suicidal behaviour for 7 young people.
- Nine of the 21 young people who died as a result of suicide were known to the Queensland child protection system in the 12 months prior to their death.

Fatal assault and neglect

- Five children died as a result of suspected or confirmed assault and neglect in Queensland during 2016–17. The number of child deaths from assault and neglect recorded over the 13 years since 2004 ranges from 4 to 14 with an average of just over 8 deaths per year.
- Four children were alleged to have been killed by a family member and one child by a non-family member.
- Of the 4 children alleged to have been killed by a family member, 2 of these deaths were identified as domestic homicide, and 2 were classified as fatal child abuse.
- None of the children who died from assault or neglect during 2016–17 were Aboriginal and/or Torres Strait Islander.
- Four of the children who died as a result of assault or neglect were known to the child protection system in the 12 months prior to their death.

Sudden unexpected death in infancy and SIDS

- Sudden unexpected death in infancy (SUDI) is a category of deaths where an infant (aged under one year) dies suddenly with no immediately obvious cause. Predominantly, deaths from SUDI are recorded as cause pending until the outcomes of coroners' investigations or post-mortem examinations are concluded and cause of death is determined.
- There were 30 SUDI cases in 2016–17, a rate of 47.9 deaths per 100 000 infants. The numbers of SUDI deaths have fluctuated over the last 13 years, ranging between 29 and 55 deaths each year.
- Aboriginal and/or Torres Strait Islander infants are over-represented in SUDI deaths. Over the last 3 years, Indigenous infants died suddenly and unexpectedly at twice the rate of non-Indigenous infants.
- Encouragingly the rates of Aboriginal and/or Torres Strait Islander SUDI deaths in the last 2 years have been lower than most earlier periods since 2004 (4 deaths in 2015–16 and 3 in 2016–17).
- Children known to the child protection system had SUDI rates over three times that for all children over the last 3 years.
- Six of the 12 deaths with an official cause of death were attributed to SIDS and undetermined causes. Official causes of death were still pending for 18 deaths.
- Six of the SUDI deaths were found to have an explained cause of death. Four children died as a result of infant illnesses or conditions unrecognised prior to their deaths and 2 died from sleep accidents.
- In 2015–16, when all but 2 SUDI deaths had recorded causes of death, the rate of death for SIDS and undetermined causes was 24.0 per 100 000 infants (15% of infant deaths from all causes), representing the third highest cause of death after perinatal conditions and congenital anomalies.
- Compared to other explained causes, SIDS and undetermined causes are a much more common contributor to infant deaths in the post-neonatal period (28 days to 11 months), accounting for 24% of all deaths in this age group in 2015–16 (14 of 59 post-neonatal infant deaths).
- Risk factors for SUDI deaths include shared sleeping and unsafe sleep surfaces (such as soft surfaces, sofas, folding beds, other temporary bedding), as well as infant factors (prematurity, history of respiratory illness) and parental factors (smoking, high-risk lifestyles).
- Multidisciplinary expert panel reviews of SUDI cases, the findings of which are presented in this report, revealed the following themes:
  - for SUDI, there is rarely a single cause in isolation
  - the SUDI infant's family environment is complex and vulnerable
  - for SUDI families, safe sleeping messages have not been acted on
- Growing evidence indicates the Pepi-Pod® Program, currently being rolled out as a portable sleep space with safe sleep education in Indigenous communities, improves the safety of infants in high risk sleep environments. Consideration could be given to extending the program into other settings in which vulnerable families and their babies are displaced from their homes or have complex needs, including: young mothers' programs; domestic violence and homeless shelters; drug and alcohol support services; and as part of emergency responses in cyclone, flood and fire-affected locations. There would also be value in developing studies which would map the impact of targeted programs for vulnerable families on infant mortality patterns.

QUEENSLAND CHILD DEATH REGISTER ACCESS AND DATA REQUESTS

Access to comprehensive child death data is available at no cost to organisations or individuals conducting genuine research or prevention activities. Child death register data requests which were actioned during the year are set out in Chapter 9. Stakeholders wishing to access the Queensland Child Death Register to support their research, policy or community education initiatives should email their request to child_death_prevention@qfcc.qld.gov.au.

REPORT STRUCTURE

The report structure is divided into nine chapters as follows:

Chapter 1—Child deaths in Queensland

Chapter 2—Deaths from diseases and morbid conditions

Chapter 3—Transport-related deaths

Chapter 4—Drowning

Chapter 5—Other non-intentional injury-related deaths

Chapter 6—Suicide

Chapter 7—Fatal assault and neglect

Chapter 8—Sudden unexpected deaths in infancy

Chapter 9—Child death prevention activities

Appendices

Supplementary Information

The following information is available on the 2016–17 Child Death Annual Report page at www.qfcc.qld.gov.au/child-death-reports-and-data-o.

- A collection of Australian and New Zealand Child Death Statistics for the year 2015
- The 2016–17 13-yeartables

CHAPTER 1

Child deaths in Queensland

This chapter provides an overview of child deaths in Queensland in 2016–17.

KEY FINDINGS

- The deaths of 421 children and young people were registered in Queensland between 1 July 2016 and 30 June 2017, a rate of 37.3 per 100 000 children aged 0–17 years, a 7.9% increase from 390 child deaths in 2015–16.
- Generally, however, child deaths and mortality rates have declined, with the rates below 40 per 100 000 in the last 3 years compared to rates in the 40s ranging up to 52 per 100 000 in the 10 years to 2013–14.
- Infant mortality in Queensland was 4.4 per 1000 live births, up from 3.8 deaths per 1000 in 2015–16.
- The mortality rate for Aboriginal and/or Torres Strait Islander children was 1.9 times the rate for non-Indigenous children (64.9 deaths per 100 000 Indigenous children, compared to 35.0 deaths per 100 000 non-Indigenous children).
- The infant mortality rate for Aboriginal and/or Torres Strait Islander children was 6.7 deaths per 1000 live births compared to the non-Indigenous rate of 4.1 deaths per 1000 live births.
- Indigenous child mortality rates have decreased over the last decade. Based on 3-year averages, between 2004 and 2017 infant mortality for Indigenous children decreased from 11.6 to 7.0 deaths per 1000 live births. The mortality rate for Indigenous children aged 1–17 years decreased from 35.3 to 28.5 deaths per 100 000 children. Aboriginal and/or Torres Strait Islander child mortality, however, continues to be twice the rate for non-Indigenous children as decreases in Indigenous mortality have been matched by decreases in non-Indigenous mortality.
- Queensland's infant mortality rates are higher than the most recently available national averages. In 2015, the national Indigenous infant mortality rate was 6.1 deaths per 1000 live births, while the non- Indigenous infant mortality rate was 3.2 deaths per 1000 live births.
- Of the 421 children who died, 57 were known to the child protection system in the year before their death, representing a rate of 70.8 deaths per 100 000, compared to 37.3 deaths per 100 000 for all Queensland children.
- Diseases and morbid conditions (natural causes) accounted for 75% of deaths of children in 2016–17 (315 deaths), occurring at a rate of 27.9 deaths per 100 000 children.[6]
- External causes of death (transport, drowning, other non-intentional injury, suicide and fatal assault and neglect) accounted for 17% of child deaths, and occurred at a rate of 6.4 deaths per 100 000 children.
- Suicide was the leading external cause of death (21 deaths) for the third consecutive year, occurring at a rate of 1.9 deaths per 100 000 children.
- Drowning deaths increased from 9 to 19 to be the second leading external cause of death.
- Transport-related deaths decreased over the last four consecutive years, from 31 deaths in 2013–14 to 14 deaths in 2016–17.
- Thirty infant deaths were sudden unexpected deaths in infancy (SUDI), a category where an infant dies suddenly with no immediately obvious cause.
- The numbers of SUDI deaths fluctuate from year to year. In 2014-15 there were 39 SUDI deaths and 29 in 2015-16. Since reporting began in 2004 the numbers of SUDI deaths each year have ranged from 29 to 55 deaths.
- The rates of death of children known to the child protection system have consistently been higher than the rates for all children, especially for deaths from external causes. Notably, 10 of the 19 children who drowned were known to the child protection system as were 9 of the 21 youth who died by suicide.

6 Cause-of-death information is subject to change once coronial findings are available for cases pending a cause at time of reporting – the majority of these findings are likely to be classified as unexplained diseases and morbid conditions.

CHILD DEATHS IN QUEENSLAND 2014–17

An expanded version of Table 1.1 containing data since 2004 is available online at www.qfcc.qld.gov.au.

Table 1.1: Summary of deaths of children and young people in Queensland 2014–17

	2014–15		2015–16		2016–17		Yearly average
	Total n	Rate per 100 000	Total n	Rate per 100 000	Total n	Rate per 100 000	Rate per 100 000
All deaths							
Deaths of children 0–17 years	445	39.8	390	34.6	421	37.3	37.1
Cause of death							
Diseases and morbid conditions	**351**	**31.4**	**317**	**28.1**	**315**	**27.9**	**29.1**
Explained diseases and morbid conditions	327	29.2	299	26.5	307	27.2	27.6
Unexplained diseases and morbid conditions	24	2.1	18	1.6	8	0.7	1.5
SIDS and undetermined causes (infants)	*22*	*2.0*	*15*	*1.3*	*6*	*0.5*	*1.3*
Undetermined causes (>1 year)	*2*	*	*3*	*	*2*	*	*0.2*
External causes	**91**	**8.1**	**66**	**5.9**	**72**	**6.4**	**6.8**
Transport	25	2.2	18	1.6	14	1.2	1.7
Drowning	16	1.4	9	0.8	19	1.7	1.3
Other non-intentional injury-related death	9	0.8	11	1.0	13	1.2	1.0
Suicide	26	2.3	19	1.7	21	1.9	2.0
Fatal assault and neglect	15	1.3	9	0.8	5	0.4	0.9
Cause of death pending	**3**	*	**7**	**0.6**	**34**	**3.0**	**1.3**
Sudden unexpected deaths in infancy (SUDI)							
Sudden unexpected infant deaths	39	61.7	29	46.3	30	47.9	52.2
Sex[a]							
Female	207	38.1	167	30.5	192	35.0	34.4
Male	236	41.1	223	38.5	229	39.5	39.6
Age category							
Under 1 year	285	451.2	235	375.3	269	429.6	420.0
1–4 years	54	21.2	41	16.0	53	20.7	19.3
5–9 years	31	9.8	23	7.2	27	8.4	8.4
10–14 years	22	7.3	38	12.5	35	11.5	10.4
15–17 years	53	29.0	53	28.9	37	20.2	26.0
Aboriginal and Torres Strait Islander status							
Indigenous	72	83.1	52	59.3	57	64.9	68.7
Non-Indigenous	373	36.2	338	32.5	364	35.0	34.5
Known to the child protection system							
Known to the child protection system	51	52.7	47	55.8	57	70.8	59.3

Data source: Queensland Child Death Register (2014–17)

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

[a] Excludes deaths of children where sex was undetermined.

1. Data presented here is current in the Queensland Child Death Register as at August 2017 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) in Queensland each year. Rates for the 2014–15 period use the ERP data as at June 2014 and rates for the 2015–16 and 2016–17 periods use the ERP data as at June 2015.
3. Rates for cause of death are calculated per 100 000 children aged 0–17 years in Queensland in each year, with the exception of SUDI, which is calculated per 100 000 children under the age of one year in Queensland.
4. 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 1-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 1-year period prior to the reporting period.
5. Yearly average rates have been calculated using the ERP data as at June 2015.

CHILD DEATHS IN QUEENSLAND: FINDINGS 2016–17

Between 1 July 2016 and 30 June 2017, the deaths of 421 children and young people were registered in Queensland, representing a rate of 37.3 deaths per 100 000 children aged 0–17 years.[7] The 421 deaths in 2016–17 was a 7.9% increase from the 13-year low in child deaths recorded in 2015–16 (390 deaths). Generally, however, child deaths and mortality rates have declined, with the rates under 40 per 100 000 in the last 3 years compared to rates in the 40s ranging up to 52 per 100 000 in the 10 years to 2013–14.[8]

Infant mortality in Queensland was 4.4 per 1000 live births, up from 3.8 deaths per 1000 in 2015–16.

Two deaths registered in 2016–17 related to children who had been missing for 3 or more years, for which coronial inquests determined in both (unrelated) cases the child was deceased.

Cause of death

Table 1.1 broadly outlines the causes of death for the children and young people where their death was registered in the last 3 years.

Diseases and morbid conditions (natural causes) accounted for the majority of deaths of children and young people in 2016–17 (75%), occurring at a rate of 27.9 deaths per 100 000 children aged 0–17 years. As noted below, cause-of-death information is subject to change once coronial findings are available for cases pending a cause at time of reporting. The majority of these are infant deaths, and based on previous years, are likely to be classified in due course as unexplained diseases and morbid conditions.

Seventy-two deaths were from external causes (transport, drowning, other non-intentional injury, suicide and fatal assault and neglect), an increase from 66 in 2015–16. External causes accounted for 17% of child deaths, and occurred at a rate of 6.4 deaths per 100 000 children aged 0–17 years.

Suicide was the leading external cause of death, occurring at a rate of 1.9 deaths per 100 000 children aged 0–17 years. Drowning deaths increased from 9 to 19, with these being predominantly non-pool drownings.

Over the 13 reporting periods since 2004, the leading external causes of death have generally been transport, suicide or drowning. Transport incidents were the leading external cause for the first 10 periods; however, in the last 3 years, suicide has been the leading external cause of death for children aged 0–17 years. In 2016–17, drowning was the second leading external cause of death ahead of transport. Notably deaths from transport incidents continued to decrease, from 31 deaths in 2013–14 to 14 in 2016–17.

For a number of child deaths, the cause of death may not be available until the outcomes of autopsy and coronial investigations are final. For this reason, the causes of a number of deaths are recorded as 'cause of death pending' in the year they are registered. Final outcomes are usually available within one to two years, at which point the child death register is updated to reflect the official cause. Of the 421 deaths of children and young people in 2016–17, 8% (34 deaths) were recorded as 'cause of death pending'. The majority of 'cause of death pending' deaths are infant deaths and are most likely to be found to be from unexplained diseases and morbid conditions (based on outcomes in previous periods).

Sex

Males comprised 54% of child deaths registered in 2016–17, with a rate of 39.5 deaths per 100 000 male children aged 0–17 years. In comparison, females made up 46% of child deaths, with a rate of 35.0 deaths per 100 000 female children.

7 For a summary of the population data used to calculate rates, see Appendix 1 Methodology.
8 Tables with data for 2004–17 are available online at www.qfcc.qld.gov.au

Age

Table 1.2 outlines the causes of death by age for the 421 deaths of children and young people in 2016–17. Table 1.3 indicates the leading causes of death in each age category by rate of death per 100 000, based on rates averaged over the 3-year period 2014–15 to 2016–17. Leading causes in the table use the major subgroups (chapter level of the International Classification of Diseases and Health Related Problems version 10 (ICD-10)) within the broad classification of diseases and morbid conditions.

Under one year

Infants under one year of age account for 64% of all child deaths (269 of the 421 deaths).

Diseases and morbid conditions were the most frequent cause of death for infants in 2016–17, accounting for 90% of the deaths in this age category (242 of 269 deaths). There were 6 infant deaths from external causes, with 3 of these being drowning deaths. Thirty deaths were classified as sudden unexpected deaths in infancy (SUDI), a category of deaths where an infant dies suddenly with no immediately obvious cause.

Table 1.3 indicates the leading causes of infant death over the last 3 years were perinatal conditions followed by congenital anomalies. Unexplained conditions, SIDS, and undetermined causes (as a group) were the third leading cause of infant deaths.

1–4 years

Of the 53 deaths in 2016–17 of children aged 1–4 years, 29 were from diseases and morbid conditions while 20 were from external causes. Eleven deaths were from drowning, while 3 were caused by fatal assault and neglect (suspected or confirmed).

Drowning followed by congenital anomalies were the leading causes of death for children aged 1–4 years over the last 3 years.

5–9 years

Of the 27 deaths in 2016–17 of children aged 5–9 years, 15 were from diseases and morbid conditions while seven were from external causes, 4 of which were drowning. The 5–9-years age group had the lowest child mortality rate of any group.

Neoplasms (cancer) were the leading cause of death for children aged 5–9 years over the last 3 years.

10–14 years

Of the 35 deaths in 2016–17 of children aged 10–14 years, 18 were from external causes and 16 from diseases and morbid conditions. There were nine suspected suicides and seven deaths from other non-intentional injuries.

Neoplasms, followed by suicide, were the leading causes of death for children aged 10–14 years over the last 3 years.

15–17 years

Of the 37 deaths of young people aged 15–17 years during 2016–17, 21 were from external causes and 13 from diseases and morbid conditions. Twelve deaths were suspected suicides. Five deaths were transport related; this is the lowest recorded number in this age group since the commencement of the child death register in 2004.

Suicide was the leading cause of death for young people aged 15–17 years over the last 3 years, followed by transport and neoplasms.

Table 1.2: Cause of death by age category 2016–17

Cause of death	Under 1 year n	1–4 years n	5–9 years n	10–14 years n	15–17 years n	Total n	Rate per 100 000
Diseases and morbid conditions	**242**	**29**	**15**	**16**	**13**	**315**	**27.9**
Explained diseases and morbid conditions	**236**	**28**	**14**	**16**	**13**	**307**	**27.2**
Unexplained diseases and morbid conditions	**6**	**1**	**1**	**0**	**0**	**8**	**0.7**
SIDS and undetermined causes (infants)	*6*	*0*	*0*	*0*	*0*	*6*	*0.5*
Undetermined › 1 year	*0*	*1*	*1*	*0*	*0*	*2*	*
External causes	**6**	**20**	**7**	**18**	**21**	**72**	**6.4**
Transport	**1**	**4**	**2**	**2**	**5**	**14**	**1.2**
Motor vehicle	*0*	*1*	*0*	*1*	*2*	*4*	*0.4*
Pedestrian	*1*	*2*	*1*	*0*	*1*	*5*	*0.4*
Motorcycle	*0*	*0*	*0*	*1*	*1*	*2*	*
Quad bike	*0*	*0*	*0*	*0*	*0*	*0*	*0.0*
Other	*0*	*1*	*1*	*0*	*1*	*3*	*
Drowning	**3**	**11**	**4**	**0**	**1**	**19**	**1.7**
Non-pool	*3*	*5*	*3*	*0*	*1*	*12*	*1.1*
Pool	*0*	*6*	*1*	*0*	*0*	*7*	*0.6*
Other non-intentional injury-related death	**2**	**2**	**0**	**7**	**2**	**13**	**1.2**
Threats to breathing	*2*	*1*	*0*	*2*	*0*	*5*	*0.4*
Exposure to smoke, fire and flames	*0*	*0*	*0*	*1*	*0*	*1*	*
Exposure to inanimate mechanical forces	*0*	*0*	*0*	*2*	*1*	*3*	*
Non-intentional poisoning by noxious substances	*0*	*0*	*0*	*1*	*0*	*1*	*
Exposure to forces of nature	*0*	*1*	*0*	*0*	*0*	*1*	*
Contact with venomous animals and plants	*0*	*0*	*0*	*1*	*0*	*1*	*
Other non-intentional injury NEC#	*0*	*0*	*0*	*0*	*1*	*1*	*
Suicide	**0**	**0**	**0**	**9**	**12**	**21**	**1.9**
Fatal assault and neglect	**0**	**3**	**1**	**0**	**1**	**5**	**0.4**
Cause of death pending	**21**	**4**	**5**	**1**	**3**	**34**	**3.0**
Sudden unexpected infant deaths (SUDI)	30	. .	. .	. .	. .	30	. .
Total	**269**	**53**	**27**	**35**	**37**	**421**	**37.3**
Rate per 100 000	**429.6**	**20.7**	**8.4**	**11.5**	**20.2**	**37.3**	

Data source: Queensland Child Death Register (2016–17)

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

NEC Not elsewhere classified.

. . The SUDI category relates to deaths of infants under 1 only.

1. Rates are based on the most up-to-date denominator data available and are calculated per 100 000 children aged 0–17 years in Queensland each year. Rates for the 2016–17 period use the ERP data as at June 2015.
2. Rates for age categories are calculated per 100 000 children in each age category. Age-specific death rates are discussed in the chapters relating to each cause ofdeath.
3. Sudden unexpected infant death (SUDI) is a research category applying to infants only, where the death was sudden with no immediately obvious cause. The category is not a cause of death (which will be counted within the relevant cause) and will not add to the total.

Table 1.3: Leading cause of death by age category 2014–15 to 2016–17 (annual average)

Rank	Under 1 year (n = 789)	1–4 years (n = 148)	5–9 years (n = 81)	10–14 years (n = 95)	15–17 years (n = 143)
1	**Perinatal conditions** (221.4 per 100 000)	**Drowning** (3.4 per 100 000)	**Neoplasms** (2.1 per 100 000)	**Neoplasms** (2.2 per 100 000)	**Suicide** (9.1 per 100 000)
2	**Congenital anomalies** (117.1 per 100 000)	**Congenital anomalies** (2.5 per 100 000)	**Drowning** (0.9 per 100 000)	**Suicide** (1.8 per 100 000)	**Transport** (4.2 per 100 000)
3	**SIDS & undetermined causes** (23.4 per 100 000)	**Transport** (2.3 per 100 000)	**Fatal assault** / **Congenital anomalies** (0.8 per 100 000)	**Other non-intentional injury** / **Congenital anomalies** (1.1 per 100 000)	**Neoplasms** (3.1 per 100 000)
4	**Diseases of the respiratory system** (8.5 per 100 000)	**Neoplasms** (2.2 per 100 000)	**Diseases of the nervous system** (0.6 per 100 000)	**Transport** / **Diseases of the respiratory system** (0.9 per 100 000)	**Diseases of the nervous system** (1.8 per 100 000)

Data source: Queensland Child Death Register (2014–17)

1. Yearly average rates have been calculated for age categories per 100 000 children in Queensland using the Estimated Resident Population data as at June 2015.
2. This table uses 3-year average rates and International statistical classification of diseases and related health problems, tenth revision (ICD-10) chapter classifications for diseases and morbid conditions (rather than the broader category of deaths reported elsewhere), and may therefore differ from other cause of death comparisons within the report.

Aboriginal and Torres Strait Islander status

Of the 421 children and young people who died in 2016–17, 57 were identified as Aboriginal and/or Torres Strait Islander, up from 52 in 2015–16.

The mortality rate for Indigenous children was 1.9 times the rate for non-Indigenous children (64.9 deaths per 100 000 Indigenous children aged 0–17 years, compared to 35.0 deaths per 100 000 non-Indigenous children). Table 1.4 shows the breakdown by age and cause of death for Indigenous children and young people.

The greatest proportion of Indigenous deaths occurred among children under one year (61%) followed by children aged 5–9 years. A high proportion of infant deaths, compared to other age groups, due to diseases and morbid conditions is also seen in mortality data for non-Indigenous children.

Ten Indigenous children and young people died from external causes in 2016–17, with 3 deaths each from causes transport, drowning and suicide, and the remaining death was from non-intentional injury.

The leading causes of death of Aboriginal and/or Torres Strait Islander children from 2014–17 are diseases and morbid conditions, transport incidents and drownings. Aboriginal and/or Torres Strait Islander children are overrepresented in each of the primary causes of death, with rates of mortality twice (or more) the rates for non-Indigenous children.

The infant mortality rate for Indigenous children was 6.7 deaths per 1000 Indigenous live births, compared to 4.1 deaths per 1000 non-Indigenous live births.

Table 1.4: Aboriginal and Torres Strait Islander deaths by cause of death and age category 2016–17

Cause of death	Under 1 year n	1–4 years n	5–9 years n	10–14 years n	15–17 years n	Total n	Rate per 100 000 Indigenous children	Rate per 100 000 non-Indigenous children
Diseases and morbid conditions	**32**	**2**	**5**	**3**	**2**	**44**	**50.1**	**26.1**
Explained diseases and morbid conditions	31	2	5	3	2	43	49.0	25.4
Unexplained diseases and morbid conditions	1	0	0	0	0	1	*	0.7
SIDS and undetermined causes (infants)	*1*	*0*	*0*	*0*	*0*	*1*	*	*0.5*
Undetermined >1 year	*0*	*0*	*0*	*0*	*0*	*0*	*0.0*	*
External causes	**1**	**2**	**3**	**1**	**3**	**10**	**11.4**	**6.0**
Transport	0	1	1	0	1	3	*	1.1
Drowning	1	0	2	0	0	3	*	1.5
Other non-intentional injury	0	1	0	0	0	1	*	1.2
Suicide	0	0	0	1	2	3	*	1.7
Fatal assault and neglect	0	0	0	0	0	0	0.0	0.5
Cause of death pending	**2**	**0**	**0**	**0**	**1**	**3**	*	**3.0**
Total	**35**	**4**	**8**	**4**	**6**	**57**	**64.9**	**35.0**
Rate per 100 000 Indigenous children	**634.1**	**19.3**	**32.2**	**17.1**	**45.0**	**64.9**		
Rate per 100 000 non-Indigenous children	**409.8**	**20.9**	**6.4**	**11.0**	**18.2**	**35.0**		

Data source: Queensland Child Death Register (2016–17)

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

1. Rates are calculated per 100 000 Aboriginal and Torres Strait Islander children aged 0–17 years in Queensland, and per 100 000 non-Indigenous children aged 0–17 years in Queensland. Rates for the 2016–17 period use the ERP data as at June 2015.
2. Rates for age categories are calculated per 100 000 Indigenous/non-Indigenous children in each age category.
3. All rates by cause of death have been calculated per 100 000 children aged 0–17 years in Queensland (including SIDS and undetermined causes). Age-specific death rates are discussed in the chapters relating to each cause of death.

Indigenous child mortality rates have decreased over the last decade, as indicated in Table 1.5. Based on 3-year averages, between 2004 and 2017:

- Infant mortality for Indigenous children decreased from 11.6 to 7.0 deaths per 1000 live births.
- The mortality rate for Indigenous children aged 1–17 years decreased from 35.3 to 28.5 deaths per 100 000 children aged 1–17 years.

Aboriginal and/or Torres Strait Islander child mortality, however, continues to be twice the rate for non-Indigenous children as decreases in Indigenous mortality have been matched by decreases in non-Indigenous mortality.

Queensland's infant mortality rates are higher than the most recently available national averages. In 2015, the national Indigenous infant mortality rate was 6.1 deaths per 1000 live births, while the non-Indigenous infant mortality rate was 3.2 deaths per 1000.[9]

9 Australian Institute of Health and Welfare (2017), *Children's Headline Indicators*, downloaded 18 August 2017

Table 1.5: Child mortality rates by Aboriginal and Torres Strait Islander status by age category 2004–17 (selected years)

	3 years to June 2007	3 years to June 2010	3 years to June 2014	3 years to June 2017
	Rate	Rate	Rate	Rate
All child deaths 0–17 years	**48.1**	**48.4**	**42.3**	**37.2**
Indigenous	93.2	77.9	80.0	69.1
Non-Indigenous	44.7	46.0	39.1	34.6
Infant mortality (<1 year)	**5.7**	**5.0**	**4.6**	**4.2**
Indigenous	11.6	8.0	8.0	7.0
Non-Indigenous	5.3	4.7	4.3	4.0
Mortality 1–17 years	**19.1**	**18.9**	**16.3**	**14.7**
Indigenous	35.3	32.7	31.0	28.5
Non-Indigenous	17.9	17.8	15.1	13.5

Data source: Queensland Child Death Register (2004–17)

1. Infant mortality rates are calculated per 1000 live births in Queensland, other mortality rates are per 100 000 children in the age/Indigenous status group.
2. Rates are based on the most up-to-date denominator data available.
3. Rates are averaged over 3-year periods.

Geographical area of usual residence (ARIA+)[10]

During 2016–17, remote areas of Queensland had the highest child mortality rate (53.4 per 100 000 children aged 0–17 years), compared to regional and metropolitan areas (35.3 and 35.8 deaths per 100 000, respectively).

Remote areas recorded the highest child mortality rate from diseases and morbid conditions (40.0 deaths per 100 000 children), compared to regional and metropolitan areas (25.7 and 27.2 deaths per 100 000, respectively). Remote areas also had the highest rate for external causes (13.3 deaths per 100 000), compared to regional and metropolitan areas (7.0 and 5.3 deaths per 100 000, respectively).

Socio-economic status of usual residence (SEIFA)

During 2016–17, areas with low-to-very-low socio-economic status (SES) recorded the highest child mortality rates (46.8 deaths per 100 000 children aged 0–17 years). Moderate-SES areas recorded a mortality rate of 35.3 deaths per 100 000 children, while areas with high-to-very-high SES recorded the lowest mortality rate (27.0 deaths per 100 000 children). This pattern was similar to that in the previous three reporting periods.

Areas with low-to-very-low SES recorded the highest rate of deaths due to diseases and morbid conditions (35.6 deaths per 100 000), compared to areas with moderate and high-to-very-high SES (22.9 and 21.2 deaths per 100 000, respectively).

Child mortality rates for external causes by SES status were more variable from year to year. During 2016–17 rates per 100 000 children for external causes were 7.6 in low-SES areas, 8.7 in moderate-SES areas and 3.9 in areas with high-to-very-high SES.

Children known to the child protection system

Following recommendations made in the Queensland Child Protection Commission of Inquiry Final Report, *Taking Responsibility: A Road Map for Queensland Child Protection*, changes were made to the timeframes required for the DCCSDS to conduct a review of the death of a child. For the purpose of this report, a child is deemed to have been known to the Queensland child protection system if, within one year before the child's death:

- DCCSDS was notified of concerns of alleged harm or risk of harm, or if
- DCCSDS was notified of concerns before the birth of a child and reasonably suspected the child might be in need of protection after their birth, or if
- DCCSDS took action under the *Child Protection Act 1999*, or if
- the child was in the custody or guardianship of DCCSDS.

10 Note the ARIA+ and SEIFA breakdowns exclude 10 children whose usual residence was outside of Queensland, 8 died from diseases and morbid conditions, one from external causes and one was pending a cause of death.

Prior to July 2014, a review was required if the department's last involvement with the child was in the 3 years prior to the child's death.

The population used as a denominator for 'children known to the child protection system' for the financial years since July 2014 is based on the number of children known to the department in the previous financial year who were subject to a child concern report, notification, investigation and assessment, ongoing intervention, child protection orders or placements provided by DCCSDS.

Of the 421 children and young people who died in 2016–17, 57 were known to the Queensland child protection system. Table 1.6 shows the breakdown by age and cause of death for children known to the child protection system.

Of the children known to the child protection system, 21 (37%) died as a result of diseases and morbid conditions and 26 (46%) as a result of external causes. Ten deaths of children known to the child protection system were from drowning, 9 were suicide and 4 were fatal assault and neglect.

In 2016–17, the mortality rate for children known to the child protection system was 70.8 deaths per 100 000 children aged 0–17 years, compared to 37.3 deaths per 100 000 for all Queensland children. For external causes of death, the mortality rate for children known to the child protection system was five times the rate for all children in Queensland (32.3 deaths per 100 000 children, compared to 6.4 deaths per 100 000 children).

The rates of death of children known to the child protection system have consistently been higher than the rates for all children, especially for deaths from external causes. This is explained, to an extent, by the significant disadvantage, abuse and neglect these children experience prior to coming to the attention of the child protection system, as well as the often multiple risk factors present in their families. Notable in 2016–17 are the drowning and suicide deaths among children known to the system, which represent around half of all child deaths in these categories.

Table 1.6: Cause of death of children known to the child protection system by age category 2016–17

Cause of death	Under 1 year n	1–4 years n	5–9 years n	10–14 years n	15–17 years n	Total n	Rate per 100 000 in child protection system	Rate per 100 000 all Queensland children
Diseases and morbid conditions	**6**	**5**	**5**	**2**	**3**	**21**	**26.1**	**27.9**
Explained diseases and morbid conditions	6	5	5	2	3	**21**	26.1	27.2
Unexplained diseases and morbid conditions	0	0	0	0	0	**0**	0.0	0.7
SIDS and undetermined causes (infants)	*0*	*0*	*0*	*0*	*0*	**0**	*0.0*	*0.5*
Undetermined >1 year	*0*	*0*	*0*	*0*	*0*	**0**	*0.0*	*
External causes	**2**	**11**	**2**	**4**	**7**	**26**	**32.3**	**6.4**
Transport	0	0	0	1	1	**2**	*	1.2
Drowning	2	7	1	0	0	**10**	12.4	1.7
Other non-intentional injury	0	1	0	0	0	**1**	*	1.2
Suicide	0	0	0	3	6	**9**	11.2	1.9
Fatal assault and neglect	0	3	1	0	0	**4**	5.0	0.4
Cause of death pending	**7**	**1**	**2**	**0**	**0**	**10**	**12.4**	**3.0**
Total	**15**	**17**	**9**	**6**	**10**	**57**	**70.8**	**37.3**

Data source: Queensland Child Death Register (2016–17)

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

1. 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 1-year period prior to their death.
2. Rates of death for children known to the child protection system use as a denominator the number of children aged 0–17 years who were known to DCCSDS, through either being subject to a child concern report, notification, investigation and assessment, ongoing intervention, orders or placement, in the 1-year period prior to the reporting period. For the 1-year period to 30 June 2016 there were 80 510 children known to DCCSDS.
3. Rates of death for all Queensland children are based on the number of children aged 0–17 years in Queensland, using the most up-to-date denominator data available. Rates for the 2016–17 period use the ERP data as at June 2015.

WHEN A CHILD IS MISSING

In November 2015, the Premier requested the QFCC undertake a whole-of-government systems review into children missing from out-of-home care following the disappearance and death of Tiahleigh Palmer. The Premier asked two things when calling for this review: 1) Could more have been done when concerns were first raised about Tiahleigh's disappearance? and 2) How can systems be improved to provide timely and appropriate information which is actioned responsively when critical incidents occur?

The review[11] examined current legislative frameworks, policies and guidelines for key government agencies in sharing information and responding when a child in out-of-home care is missing or absent from their placement. The QFCC worked closely with government agencies including the Queensland Police Service, the DCCSDS, the Department of Education and Training, Queensland Health, the Office of the Public Guardian and the Department of Science, Information Technology and Innovation. The QFCC also worked with non-government agencies throughout the review, specifically Bravehearts, CREATE Foundation, Foster Care Queensland, the Family Inclusion Network and the Queensland Aboriginal and Torres Strait Islander Child Protection Peak.

The review contains 29 recommendations to achieve whole-of-government system improvements in responding to children missing from out-of-home care. The recommendations are designed to provide quality systems and improved responses through revised policies and procedures, a marked cultural shift across agencies, enhanced media campaigns and improved information sharing between agencies. Work is underway to implement the recommendations under the oversight of the QFCC.

In response to Recommendation 24 of the review, the child death register was updated during 2016–17 to enable recording of whether a child was reported missing at the time of death.

Of deaths registered in 2016–17, 9 children and young people had been reported missing to the police in relation to their death.[12] None of these children were in out-of-home care at the time of death. Two of the deaths related to unrelated cases of children who had been missing for a number of years, and who, coronial inquests determined, were deceased.

The cause of death for the nine children and young people were found (or suspected) to be:

- drowning – 4 deaths
- suicide – 2 deaths
- transport-related – one death
- other non-intentional injury – one death
- fatal assault and neglect – one death.

11 The State of Queensland (QFCC). When a child is missing: Remembering Tiahleigh—A report into Queensland's children missing from out-of-home care (2016)

12 In most cases when a child is noticed to be missing, initial searches are undertaken, after which the child is reported to the police as a missing person.

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 neoplasms (cancers) and infections.

KEY FINDINGS

- In 2016–17, the deaths of 315 children and young people were the result of diseases and morbid conditions, a rate of 27.9 deaths per 100 000 children and young people aged 0–17 years in Queensland.
- Deaths of children from diseases and morbid conditions are most likely to occur in the first days and weeks of life, with infants accounting for 77% of deaths from diseases and morbid conditions in 2016–17.
- Infant deaths from the two leading causes—conditions originating in the perinatal period and congenital malformations, deformations and chromosomal abnormalities (219 deaths combined)—make up the largest proportion of all deaths of children and young people (70% of all 315 deaths from diseases and morbid conditions and 52% of the 421 deaths from all causes).
- Aboriginal and/or Torres Strait Islander children died from diseases and morbid conditions at a rate of 50.1 per 100 000 Indigenous children aged 0–17 years (compared to 26.1 deaths per 100 000 non-Indigenous children) in 2016–17. Over the last 13 years, the rates of Indigenous mortality from diseases and morbid conditions have generally been 1.5–2 times the rates for non-Indigenous children.
- Five children and young people died with notifiable conditions, two of which were diseases potentially preventable by vaccines. Over the last 3 years, 13 children have died with potentially vaccine- preventable diseases, with the most common of these including influenza, invasive meningococcal disease and invasive pneumococcal disease.[13]

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

DEATHS FROM DISEASES AND MORBID CONDITIONS 2014–17

An expanded version of Table 2.1 containing data since 2004 is available online at www.qfcc.qld.gov.au.

Table 2.1: Summary of deaths from diseases and morbid conditions of children and young people in Queensland 2014–17

	2014–15		2015–16		2016–17		Yearly average
	Total n	Rate per 100 000	Total n	Rate per 100 000	Total n	Rate per 100 000	Rate per 100 000
All deaths from diseases and morbid conditions							
Diseases and morbid conditions	**351**	**31.4**	**317**	**28.1**	**315**	**27.9**	**29.1**
Explained diseases and morbid conditions	327	29.2	299	26.5	307	27.2	27.6
Unexplained diseases and morbid conditions	24	2.1	18	1.6	8	0.7	1.5
SIDS and undetermined < 1 year	*22*	*2.0*	*15*	*1.3*	*6*	*0.5*	*1.3*
Undetermined > 1 year	*2*	*	*3*	*	*2*	*	*0.2*
Sex[a]							
Female	169[a]	31.1	140	25.5	146	26.6	27.7
Male	180[a]	31.4	177	30.6	169	29.2	30.3
Age category							
Under 1 year	275	435.3	230	367.3	242	386.5	397.6
1–4 years	27	10.6	23	9.0	29	11.3	10.3
5–9 years	17	5.4	19	5.9	15	4.7	5.3
10–14 years	12	4.0	23	7.5	16	5.3	5.6
15–17 years	20	10.9	22	12.0	13	7.1	10.0
Aboriginal and Torres Strait Islander status							
Indigenous	47	54.2	40	45.6	44	50.1	49.8
Non-Indigenous	304	29.5	277	26.6	271	26.1	27.3
Geographical area of usual residence (ARIA+)							
Remote	15	28.3	14	26.7	21	40.0	31.8
Regional	127	30.8	114	27.6	106	25.7	28.0
Metropolitan	190	29.1	180	27.2	180	27.2	27.7
Socio-economic status of usual residence (SEIFA)							
Low to very low	170	38.2	142	31.8	159	35.6	35.2
Moderate	56	25.8	59	27.1	50	22.9	25.2
High to very high	106	23.2	107	23.1	98	21.2	22.4
Known to the child protection system							
Known to the child protection system	19	19.6	27	32.0	21	26.1	26.5

	2014–15		2015–16		2016–17		Yearly average
	Total n	Rate per 100 000	Total n	Rate per 100 000	Total n	Rate per 100 000	Rate per 100 000
Perinatal conditions							
Perinatal conditions	150	237.5	121	193.2	151	241.1	224.6
Indigenous	*19*	*354.4*	*22*	*398.6*	*22*	*398.6*	*380.4*
Congenital anomalies							
Congenital anomalies	96	8.6	83	7.4	85	7.5	7.8
Indigenous	*12*	*13.8*	*7*	*8.0*	*12*	*13.7*	*11.8*
Neoplasms							
Neoplasms	21	1.9	32	2.8	29	2.6	2.4
Indigenous	*0*	*0.0*	*2*	*	*3*	*	*1.9*
Infections[b]							
Infections[b]	20	1.8	19	1.7	14	1.2	1.6
Indigenous	*5*	*5.8*	*4*	*4.6*	*2*	*	*4.2*

Data source: Queensland Child Death Register (2014–17)

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

[a] Excludes the deaths of 2 infants of indeterminate sex in 2014–15.

[b] 'Infections' is a hybrid category composed of ICD-10 Chapter I, Certain infectious and parasitic diseases; ICDO-10 Chapter VI, Diseases of the nervous system, codes G00–G09 only; ICD-10 Chapter X, Diseases of the respiratory system, codes J00–J22 only.

1. Data presented here is current in the Queensland Child Death Register as at August 2017 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 categories) in Queensland each year. Rates for the 2014–15 period use the ERP data as at June 2014 and rates for the 2015–16 and 2016–17 periods use the ERP data as at June 2015.
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 one year in Queensland.
4. 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 1-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 1-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 2015.

DEATHS FROM DISEASES AND MORBID CONDITIONS: FINDINGS 2016–17

During 2016–17, there were 315 deaths children and young people from diseases and morbid conditions registered in Queensland, at a rate of 27.9 deaths per 100 000 children aged 0–17 years. This is consistent with the general number and rate of deaths from diseases and morbid conditions since reporting commenced in 2004. The number of deaths from diseases and morbid conditions since 2004 ranges from 315 to 420 per year, with an average of 367 per year.[14] It should be noted 34 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.

Diseases and morbid conditions were the leading cause of death in 2016–17, accounting for 75% of the 421 deaths.

The leading causes of mortality from diseases and morbid conditions were conditions originating in the perinatal period (151 deaths) and congenital malformations, deformations and chromosomal abnormalities (85 deaths). Together, these causes accounted for 75% of all deaths from diseases and morbid conditions.

Sex

During 2016–17, there were 169 deaths of male children from diseases and morbid conditions, compared to 146 female children, representing mortality rates of 29.2 deaths per 100 000 male children and 26.6 deaths per 100 000 female children.

Child mortality from diseases and morbid conditions is generally higher for males compared to females, with the male mortality rate for males over the last 13 years being about 1.2 times the rate for females (37.6 deaths per 100 000 male children and 31.4 deaths per 100 000 female children.

Age

Table 2.2 provides counts of the causes of death from diseases and morbid conditions, for each age category.

Infants (under one 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 one year accounted for 77% of deaths due to diseases and morbid conditions during 2016–17 (242 of 315 deaths), at a rate of 386.5 deaths per 100 000 infants. The infant mortality rate from diseases and morbid conditions (using live births as the denominator) is 3.9 deaths per 1000 live births.

Infant deaths from the two leading causes—conditions originating in the perinatal period (148 deaths) and congenital malformations, deformations and chromosomal abnormalities (71 deaths)—represent 70% of all 315 deaths from diseases and morbid conditions and 52% of all 421 child deaths.

Table 2.3 shows the age and causes of infant deaths in major groups.

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

14 Tables with data for 2004–17 are available online at www.qfcc.qld.gov.au

Table 2.2: Deaths from diseases and morbid conditions by ICD-10 chapter level classification 2016–17

Cause of death	Under 1 year n	1–4 years n	5–9 years n	10–14 years n	15–17 years	Tota n	%	Rate per 100 000
Certain conditions originating in the perinatal period (P00–P96)	148	3	0	0	0	151	47.9	13.4
Congenital malformations, deformations and chromosomal abnormalities (Q00–Q99)	71	9	3	1	1	85	27.0	7.5
Neoplasms (C00–D48)	3	7	4	10	5	29	9.2	2.6
Diseases of the nervous system (G00–G99)	3	2	2	3	3	13	4.1	1.2
Diseases of the respiratory system (J00–J99)	5	1	2	0	2	10	3.2	0.9
SIDS and undetermined causes (R95–R99)	6	1	1	0	0	8	2.5	0.7
Endocrine, nutritional and metabolic diseases (E00–E90)	3	3	0	2	0	8	2.5	0.7
Certain infectious and parasitic diseases (A00–B99)	3	2	1	0	0	6	1.9	0.5
Diseases of the circulatory system (I00–I99)	0	0	2	0	1	3	1.0	*
Diseases of the digestive system (K00–K93)	0	1	0	0	0	1	0.3	*
Pregnancy, childbirth and the pueperium (O00–O99)	0	0	0	0	1	1	0.3	*
Total	**242**	**29**	**15**	**16**	**13**	**315**	**100.0**	**27.9**
Rate per 100 000	**386.5**	**11.3**	**4.7**	**5.3**	**7.1**	**27.9**		

Data source: Queensland Child Death Register (2016–17)

* 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 2016–17 period use the ERP data as at June 2015.

Neonatal period (0–27 days)

Of the 242 infant deaths due to diseases and morbid conditions during 2016–17, 82% (199 deaths) occurred in the neonatal period, at a rate of 3.2 neonatal deaths per 1000 live births. Of the 199 neonatal deaths, 68% (136 deaths) occurred on the day of birth and a further 17% (33 deaths) had occurred by the end of the first week.

The two leading causes—conditions originating in the perinatal period (136 deaths) and congenital malformations, deformations and chromosomal abnormalities (59 deaths)—represent 98% of the neonatal deaths from diseases and morbid conditions and 46% of all 421 child deaths.

Post-neonatal period (28–364 days)

During 2016–17 there were 43 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 conditions originating in the perinatal period (12 deaths) and congenital malformations, deformations and chromosomal abnormalities (12 deaths).

Table 2.3: Age and cause of infant deaths from diseases and morbid conditions 2016–17

Age		Cause of death				
		Perinatal conditions P96)	Congenital anomalies (Q00–Q99) Total	SIDS and undetermined causes (R95–R99)	Other diseases and (P00–morbid conditions[a]	
Neonatal (age in days)	<1	93	42	0	1	136
	1–6	21	11	0	1	33
	7–27	22	6	1	1	30
Neonatal total		136	59	1	3	199
Post-neonatal (age in months)	1*	4	4	0	4	12
	2	3	3	1	2	9
	3	2	0	2	0	4
	4	1	2	2	4	9
	5	0	1	0	1	2
	6	0	1	0	1	2
	7	1	0	0	0	1
	8	0	1	0	2	3
	9	0	0	0	0	0
	10	0	0	0	0	0
	11	1	0	0	0	1
Post-neonatal total		12	12	5	14	43
Total infants		148	71	6	17	242

Data source: Queensland Child Death Register (2016–17)

* 28 days to two months

[a] Includes certain infectious and parasitic diseases (A00–B99), neoplasms (C00–D48), diseases of the 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) and diseases of the respiratory system (J00–J99).

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 11.3 deaths per 100 000 children of this age category (29 deaths). Congenital anomalies were the leading cause of death (9 deaths).
- Children aged 5–9 years died from diseases and morbid conditions at a rate of 4.7 deaths per 100 000 children of this age category (15 deaths). Neoplasms were the leading cause of death (4 deaths).
- Children aged 10–14 years died from diseases and morbid conditions at a rate of 5.3 deaths per 100 000 children of this age category (16 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 7.1 deaths per 100 000 children of this age category (13 deaths). Neoplasms were the leading cause of death (5 deaths).

Aboriginal and Torres Strait Islander status

Of the 315 deaths from diseases and morbid conditions during 2016–17, 44 were of Aboriginal and/or Torres Strait Islander children. The 2016–17 rate of mortality from diseases and morbid conditions for Indigenous children was 1.9 times the rate for non-Indigenous children (50.1 deaths per 100 000 Indigenous children aged 0–17 years, compared to 26.1 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+)

Over the last 3 years, the child mortality rate for diseases and morbid conditions in remote areas was 31.8 per 100 000, while the rate was 28.0 per 100 000 in regional areas and 27.7 per 100 000 in metropolitan areas.

Socio-economic status of usual residence (SEIFA)

Over the last 3 years, the child mortality rate for diseases and morbid conditions was highest in areas of low-to-very-low SES with 35.2 deaths per 100 000 children, compared to 25.2 per 100 000 in moderate-SES areas and 22.4 per 100 000 in areas of high-to-very-high SES. Higher child mortality rates in areas of low-to-very-low SES has been a consistent pattern across the 13 years of the child death register.

Children known to the child protection system

Of the 315 deaths from diseases and morbid conditions during 2016–17, 21 (7%) were of children known to the Queensland child protection system within the year before their death.

The 2016–17 mortality rate from diseases and morbid conditions for children known to the Queensland child protection system was consistent with the rate for all Queensland children (26.1 deaths per 100 000 children known to the child protection system, compared to 27.9 deaths per 100 000 children aged 0–17 years).

MAJOR CAUSES

Perinatal conditions

During 2016–17 there were 151 child deaths from perinatal conditions, at a mortality rate of 241.1 deaths per 100 000 infants.[15]

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. During 2016–17, 3 of the 151 deaths due to perinatal conditions occurred after infancy (the first 12months).

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 table 2.4, the majority of infant deaths due to perinatal conditions resulted from the foetus and/or newborn being affected by maternal factors or complications of pregnancy, labour and delivery (47%, 69 deaths), followed by disorders related to the length of gestation and foetal growth (28%, 42 deaths). Together, these causes accounted for 75% of all deaths due to perinatal conditions (111 of 148 deaths).

Table 2.4: Infant deaths due to perinatal conditions by sex 2016–17

Cause of death	Female	Male	Total	Rate per 100 000
Foetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery (P00–P04)	31	38	69	110.2
Disorders related to length of gestation and foetal growth (P05–P08)	14	28	42	67.1
Respiratory and cardiovascular disorders specific to the perinatal period (P20–P29)	5	5	10	16.0
Infections specific to the perinatal period (P35–P39)	3	5	8	12.8
Digestive system disorders of foetus and newborn (P75–P78)	1	5	6	9.6
Other disorders originating in the perinatal period (P90–P96)	3	2	5	8.0
Haemorrhagic and haematological disorders of foetus and newborn (P50–P61)	1	3	4	6.4
Conditions involving the integument and temperature regulation of foetus and newborn (P80–P83)	1	1	2	*
Birth trauma (P10–P15)	0	1	1	*
Transitory endocrine and metabolic disorders specific to foetus and newborn (P70–P74)	1	0	1	*
Total	**60**	**88**	**148**	**236.3**
Rate per 100,000	**197.1**	**273.5**	**236.3**	

Data source: Queensland Child Death Register (2016–17)

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

1. Rates are calculated per 100 000 children under the age of one year in Queensland. Rates for the 2016–17 period use the ERP data as at June 2015.
2. Three deaths due to perinatal conditions are not included in this table as the children were over one year of age.

15 Includes the deaths of 3 children over one year of age.

Congenital anomalies

During 2016–17 there were 85 child deaths from congenital anomalies, at a mortality rate of 7.5 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.[16]

As shown in Table 2.5, the leading causes of death due to congenital anomalies were malformations of the circulatory system (25%, 21 deaths), congenital malformations of the nervous system (16%, 14 deaths) and congenital malformation and deformations of the musculoskeletal system (16%, 14 deaths). Together, these causes accounted for 58% of all deaths due to congenital anomalies (49 of 85 deaths).

Table 2.5: Deaths due to congenital anomalies by sex 2016–17

Cause of death	Female n	Male n	Total n	Rate per 100 000
Congenital malformations of the circulatory system (Q20–Q28)	17	4	21	1.9
Congenital malformations of the nervous system (Q00–Q07)	5	9	14	1.2
Congenital malformations and deformations of the musculoskeletal system (Q65–Q79)	7	7	14	1.2
Other congenital malformations (Q80–Q89)	6	7	13	1.2
Chromosomal abnormalities, not elsewhere classified (Q90–Q99)	7	6	13	1.2
Congenital malformations of the urinary system (Q60–Q64)	1	3	4	0.4
Congenital malformations of the respiratory system (Q30–Q34)	2	1	3	*
Other congenital malformations of the digestive system (Q38–Q45)	0	3	3	*
Total	**45**	**40**	**85**	**7.5**
Rate per 100 000	**8.2**	**6.9**	**7.5**	

Data source: Queensland Child Death Register (2016–17)
* 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 2016–17 period use the ERP data as at June 2015.

Neoplasms (cancers and tumours)

Although these terms are not synonymous, the term 'neoplasm' is often used interchangeably with words such as 'tumour' and 'cancer'.[17] 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-nine children and young people died from cancers and tumours, at a rate of 2.6 deaths per 100 000 children aged 0–17 years. The most common types of neoplasms were of the lymphoid, haematopoietic and related tissues (11 deaths), followed by neoplasms of the eye, brain and other parts of the central nervous system (7 deaths).

Infections

'Infections' is a hybrid category composed of certain infections and parasitic diseases, diseases of the nervous system and diseases of the respiratory system.[18] Fourteen children and young people died from infections, a rate of 1.2 per 100 000 children aged 0–17 years. The highest number of infections were caused by influenza and pneumonia (6 deaths).

16 ICD-10 Chapter XVII, Congenital malformations, deformations and chromosomal abnormalities.
17 ICD-10 Chapter II, Neoplasms
18 'Infections' is a hybrid category composed of ICD-10 Chapter I, Certain infectious and parasitic diseases; ICDO-10 Chapter VI, Diseases of the nervous system, codes G00–G09 only; ICD-10 Chapter X, Diseases of the respiratory system, codes J00–J22 only.

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.[19] 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.

Five children and young people died from a notifiable condition as shown in Table 2.6. Two of the 5 deaths due to notifiable conditions were due to potentially vaccine-preventable conditions.[20]

Over the last 3 years, 13 children died with diseases which were potentially vaccine preventable, with the most common of these being influenza, invasive meningococcal disease and invasive pneumococcal disease.[21]

Commonwealth laws introduced in January 2016 ('No jab, No pay') require parents ensure their children (aged 19 years and under) are either fully immunised or on a recognised catch up schedule in order to be eligible for, and to continue receiving, the Child Care Benefit, Child Care Rebate and the Family Tax Benefit Part A supplement.

Table 2.6: Child deaths with notifiable conditions by sex 2016–17

Cause of death	Female	Male	Total
Invasive group A streptococcal infection	2	0	2
Influenza (laboratory confirmed)[a]	0	1	1
Listeriosis	0	1	1
Invasive pneumococcal disease[a]	0	1	1
Total	**2**	**3**	**5**

Data source: Queensland Child Death Register (2016–17)

[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.

1. 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 QFCC use date of death registration to define the reporting period, which may occur sometime after the notification of disease.

19 For the complete Queensland Notifiable Conditions Schedule contained in the *Public Health Regulation 2005*, see Appendix 4 – Notifiable diseases.

20 In Australia, publicly funded immunisation programs are administered by state and territory governments. The current National Immunisation Program Schedule (valid from April 2015) 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).

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

SIDS and undetermined causes

Sudden unexpected death in infancy (SUDI) is a category of deaths where an infant (aged under one year) dies suddenly with no immediately obvious cause. In these instances, it may take 1–2 years before a cause of death is determined through autopsy and coronial investigations. Consequently, reliable data about SIDS and deaths from undetermined causes in infancy in 2016–17 is not yet available. More comprehensive information is available for the 2015–16 period (for which only 3 infant deaths were pending a cause), identifying one neonate death and 14 post-neonate deaths as SIDS and from undetermined causes.

Table 2.7: Age and cause of infant deaths from diseases and morbid conditions 2015–16

	Cause of death				
Age	Perinatal conditions (P00–P96) n	Congenital anomalies (Q00–Q99) n	SIDS and undetermined causes (R95–R99) n	Other diseases and morbid conditions[a] n	Total
Neonatal (1–27 days) total	111	56	1	3	171
Post-neonatal (≥28 days) total	8	14	14	23	59
Total infants	**119**	**70**	**15**	**26**	**230**

Data source: Queensland Child Death Register (2016–17)

* 28 days to two months

[a] Includes certain infectious and parasitic diseases (A00–B99), neoplasms (C00–D48), endocrine, nutritional and metabolic diseases (E00–E90), diseases of the nervous system (G00–G99) and diseases of the respiratory system (J00–J99).

CHAPTER 3

Transport-related deaths

This chapter provides details of child deaths from injury as a result of transport incidents.

KEY FINDINGS

- Fourteen children and young people died in transport-related incidents in Queensland during 2016–17, at a rate of 1.2 deaths per 100 000 children aged 0–17 years. This is the lowest number and rate of transport-related fatalities since reporting commenced in 2004.
- Four deaths were in motor vehicle crashes, which was the lowest number of deaths in this category in the child death register (from 2004). Much of the overall reduction in transport mortality rates has been due to reductions in motor vehicle deaths, with 20 or more deaths each year common prior to 2012–13.
- Five children died as pedestrians. Three of these deaths involved low-speed vehicle run-overs of children aged under five.
- Male children were twice as likely as female children to be involved in a transport-related fatality.
- Young people aged 15–17 years were the most likely age group to be involved in a transport-related fatality.
- Aboriginal and/or Torres Strait Islander children and children from remote and regional areas are over-represented in transport-related deaths, based on the last 3 years of data.

TRANSPORT-RELATED DEATHS 2014–17

An expanded version of Table 3.1 containing data since 2004 is available online at www.qfcc.qld.gov.au.

Table 3.1: Summary of transport deaths of children and young people in Queensland 2014–17

	2014–15		2015–16		2016–17		Yearly average
	Total n	Rate per 100 000	Total n	Rate per 100 000	Total n	Rate per 100 000	Rate per 100 000
All transport deaths							
Transport	25	2.2	18	1.6	14	1.2	1.7
Incident type							
Motor vehicle	19	1.7	10	1.7	4	0.4	1.0
Pedestrian	4	0.4	5	0.4	5	0.4	0.4
Low-speed vehicle run-over	*2*	*	*4*	*0.2*	*3*	*	*0.3*
Motorcycle	1	*	1	*	2	*	0.1
Watercraft	0	0.0	0	0.0	1	*	*
Bicycle	0	0.0	0	0.0	1	*	*
Other	1	*	2	*	1	*	0.1
Sex							
Female	11	2.0	4	0.7	3	*	1.1
Male	14	2.4	14	2.4	11	1.9	2.2
Age category							
Under 1 year	1	*	0	0.0	1	*	*
1–4 years	9	3.5	5	2.0	4	1.6	2.3
5–9 years	3	*	1	*	2	*	0.6
10–14 years	3	*	3	*	2	*	0.9
15–17 years	9	4.9	9	4.9	5	2.7	4.2
Aboriginal and Torres Strait Islander status							
Indigenous	6	6.9	4	4.6	3	*	4.9
Non-Indigenous	19	1.8	14	1.3	11	1.1	1.4
Geographical area of usual residence (ARIA+)							
Remote	3	*	2	*	4	7.6	5.7
Regional	12	2.9	12	2.9	5	1.2	2.3
Metropolitan	10	1.5	4	0.6	5	0.8	1.0
Socio-economic status of usual residence (SEIFA)							
Low to very low	9	2.0	9	2.0	7	1.5	1.9
Moderate	8	3.7	1	*	6	2.8	2.3
High to very high	8	1.8	8	1.7	1	*	1.2
Known to the child protection system							
Known to the child protection system	8	8.3	2	*	2	*	4.7

Data source: Queensland Child Death Register (2014–17)

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

1. Data presented here is current in the Queensland Child Death Register as at August 2017 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 categories) in Queensland each year. Rates for the 2014–15 use ERP data as at June 2014. The 2015–16 and 2016–17 periods use the ERP data as at June 2015.
3. 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 1-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 1-year period prior to the reporting period.
4. ARIA+ and SEIFA exclude the deaths of children whose usual place of residence was outside Queensland.
5. Yearly average rates have been calculated using the ERP data as at June 2015.
6. Low-speed vehicle run-over is a subset of the 'pedestrian' category; hence, summing categories will exceed the total.
7. The 'other' incident type category includes deaths involving motorised go-carts, horse-riding incidents and specialised industrial vehicles.

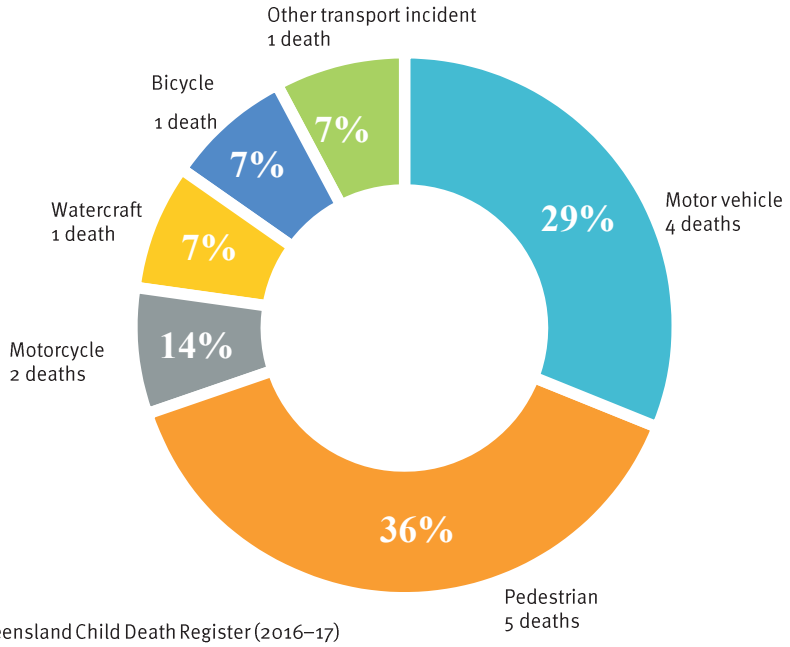
TRANSPORT-RELATED DEATHS: FINDINGS 2016–17

During 2016–17, the deaths of 14 children and young people from transport-related incidents were registered in Queensland, at a rate of 1.2 deaths per 100 000 children aged 0–17 years. This is the lowest number and rate of transport-related fatalities since reporting commenced in 2004. The number of transport-related fatalities ranges from 14 to 53 per year, with an average of 34.8 per year.[22]

Nature of transport incidents

As illustrated in Figure 3.1, the majority of transport-related fatalities during 2016–17 were pedestrian deaths (36%) followed by motor-vehicle deaths (29%). This pattern is different to that observed in previous years when the majority of transport-related fatalities were motor-vehicle deaths.

Figure 3.1: Nature of transport fatalities 2016–17



Data source: Queensland Child Death Register (2016–17)

Sex

During 2016–17, 3 female children died from transport-related incidents, compared to 11 male children.

Over the last three reporting periods, the average annual transport-related mortality rate for males was twice the rate for females (2.2 deaths per 100 000 male children aged 0–17 years, compared to 1.1 deaths per 100 000 female children). Research has established higher rates of death for males can, in part, be attributed to greater risk-taking behaviours displayed by young males—this includes risk-taking behaviours of male drivers.[23]

Age

Of the 14 transport-related fatalities during 2016–17, one was of a child under one year, 4 were of children aged 1–4 years, 2 were of children aged 5–9 years, 2 were of children aged 10–14 years and 5 were of children aged 15–17 years. In 4 out of the 5 fatalities of young people aged 15–17 years, the vehicle was operated either by the young person or another driver aged under 21 years.

Over the last 3 years, the average annual transport-related mortality rate for children aged 15–17 years was more than twice the rate for children from each other age category (4.2 deaths per 100 000 children aged 15–17 years, compared to 1.1, 2.3, 0.6 and 0.9 deaths per 100 000 children from the other age groups).

The numbers of transport-related fatalities involving young people aged 15–17 has decreased since 2004. Prior to 2014, the number of annual deaths of young people aged 15–17 ranged from 12 to 25. In the last 3 years there have been fewer than 10 deaths each year. A number of factors may have contributed to the decrease in deaths of young people in this agegroup.

22 Tables with data for 2004–16 are available online at www.qfcc.qld.gov.au
23 Australian Institute of Health and Welfare (2011). *Young Australians: Their health and wellbeing*. Cat no PHE 140, Australian Institute of Health and Welfare, Canberra.

These include:

- Changes to the provisional licence requirements, which require provisional licence holders are 17 years or older, have held a learner licence for a period of at least one year and have completed at least 100 hours of supervised driving, including 10 hours of night driving.[24]
- Changes to the rules for provisional licence holders which limit the number of peer passengers under the age of 21 to one between 11pm and 5am.[25]
- Increases in the use of ride-sharing applications such as Uber which appear to have contributed to a reduction in deaths resulting from drink driving and other transport-related deaths in other jurisdictions.[26]

Aboriginal and Torres Strait Islander status

Of the 14 transport-related fatalities during 2016–17, 3 were of Aboriginal and/or Torres Strait Islander children.

Over the last three reporting periods, the average annual transport-related mortality rate for Indigenous children was 3.5 times the rate for non-Indigenous children (4.9 deaths per 100 000 Indigenous children aged 0–17 years, compared to 1.4 deaths per 100 000 non-Indigenous children).

Geographical area of incident location (ARIA+)

Of the 14 transport-related fatalities during 2016–17, 4 were of children who resided in remote areas of Queensland, 5 were of children from regional areas and 4 were of children from metropolitan areas.

Over the last 3 years, the average annual transport-related mortality rate for children from remote areas was considerably greater than other rates (5.7 deaths per 100 000 children aged 0–17 years from remote areas, compared to 3.0 deaths per 100 000 children from regional areas and 0.6 deaths per 100 000 children from metropolitan areas).

Analysis by incident location (rather than residence) reveals 10 of the 14 transport fatalities (71%) occurred in regional or remote areas of Queensland. The higher mortality rates of children from remote and regional areas in the last 3 years and the high incidence of transport-related fatalities in these areas may be due to a combination of factors including poorer road conditions and fatigue due to driving long distances.[27]

Socio-economic status of incident location (SEIFA)

Of the 14 transport-related fatalities during 2016–17, 7 were of children residing in areas with low-to-very-low SES, 6 were of children from moderate-SES areas and one was of a child from an area of high-to-very-high SES.

Over the last 3 years, the average annual transport-related mortality rates for children from areas of low-to-very-low SES and areas of moderate SES were greater than the rate for children from areas of high-to-very-high SES (1.9 and 2.3 deaths per 100 000 children aged 0–17 years from areas of low-to-very-low or moderate SES, compared to 1.2 deaths per 100 000 children from areas of high-to-very-high SES).

Children known to the child protection system

Of the 14 transport-related fatalities during 2016–17, 2 were of children known to the Queensland child protection system within the year before their death.

24 Department of Transport and Main Roads, Queensland. 2016. "Steps from a learner to a provisional license" www.qld.gov.au/transport/licensing/getting/steps

25 Department of Transport and Main Roads, Queensland. 2016. "Young drivers: The graduated licensing system" www.tmr.qld.gov.au/Licensing/Learning-to-drive/Young-drivers

26 Greenwood, Brad and Sunil Wattal. 2017. "Show me the way to go home: An empirical investigation of ride-sharing and alcohol related motor vehicle fatalities." *MIS Quarterly 41(1):163-187*

27 Australasian College of Road Safety (2012). *Rural and Remote Road Safety: Fact Sheet.*

TRANSPORT-RELATED CHARACTERISTICS

This section provides information about specific types of transport-related incidents and an overview of charges and criminal proceedings in relation to transport-related fatalities in Queensland during 2016–17.

Motor vehicle incidents

Table 3.2 below illustrates the role of the child or young person in motor-vehicle fatalities during 2016–17. In 3 of the 4 fatalities, the child or young person was a passenger in the motor vehicle and for the remaining fatality, the young person was the driver.

Table 3.2: Motor vehicle incidents by role and age category 2016–17

Age category	Total n	Rate per 100 000
Drivers	**1**	*
15–17 years	1	*
Passengers	**3**	*
Under 1 year	0	0.0
1–4 years	1	*
5–9 years	0	0.0
10–14 years	1	*
15–17 years	1	*
Total	**4**	**0.4**

Data source: Queensland Child Death Register (2016–17)
* Rates have not been calculated for numbers less than four.
1. Rates are based on the most up-to-date denominator data available and are calculated per 100 000 children (in the sex/age category) in Queensland each year. Rates for the 2016–17 period use the ERP data as at June 2015.

Pedestrians

Five children and young people died as pedestrians during 2016–17, with 3 fatalities resulting from low-speed vehicle run-over, 1 fatality from a road or railway crossing and 1 other pedestrian type not elsewhere classified (NEC) fatality. The category 'other pedestrian type NEC' includes deaths involving bicycles, motorised go-carts, horse-riding incidents and specialised industrial vehicles. Table 3.3 provides pedestrian deaths by age group.

'Low-speed vehicle run-over' is a term used to describe incidents where a pedestrian is injured or killed by a slow-moving vehicle in a non-traffic area or whilst entering or exiting a traffic area. Most of these incidents involve children 1–4 years of age. Drivers tend to be family members, with vehicles reversing at the time of impact. The number of low-speed vehicle run-overs has remained relatively stable across the last decade, with between 2 and 4 deaths reported each year since 2005–06. In 2004–05, there were 7 deaths from low-speed vehicle run-overs.

Table 3.3: Pedestrian incidents by age category 2016–17

Age category	Total n	Rate per 100 000
Under 1 year	1	*
1–4 years	2	*
5–9 years	1	*
15–17 years	1	*
Total	**5**	**0.4**

Data source: Queensland Child Death Register (2016–17)
* Rates have not been calculated for numbers less than four.

Motorcycles and quad bikes

Two children died in motorcycle incidents during 2016–17. These fatalities occurred on a dirt access road and a highway, respectively. In both instances the young people were solely operating the motorcycles. No children or young people died in quad bike incidents during 2016–17. There have been 3 quad bike child fatalities in the last 3 years and 12 child fatalities during the 13 years since 2004.

In August 2015, the Queensland Deputy State Coroner handed down findings for an inquest into 9 quad bike deaths, including those of 4 children and young people.[28] The Deputy State Coroner made 15 recommendations, one of which specifically related to the appropriate usage of quad bikes by children and young people. In response to this, the Queensland Government released the *Statewide plan for improving quad bike safety in Queensland 2016–2019*. This plan is a key initiative to improving quad bike safety. There are three main priority areas. These are

1. Community education and awareness about quad bike safety risks
2. Improving quad bike operator skills and safetyand
3. Government leadership in promoting safety

The plan aims to increase awareness of the safety risks associated with quad bike use through a public awareness campaign. Improved standardised training packages for quad bikes and side-by-side vehicles will be developed in order to enhance operator skill and safety, and quad bike-specific helmets will be developed.[29]

Multiple fatalities

Of the 4 motor vehicle incidents where young people died in 2016–17, none involved multiple fatalities.

Highway fatalities

Of the 4 children and young people who died in motor-vehicle incidents, all died on highways (speed limit greater than or equal to 100 kilometres per hour).

Off-road fatalities

Six children died in off-road transport environments in Queensland during 2016–17. Three incidents were pedestrian incidents, one occurred on a farming property, one involved a water craft and one involved a motorcycle in an off-road environment. The deaths of children and young people occurring in off-road environments are not included in the official road toll.

Charges and criminal proceedings

Of the 14 transport-related fatalities in 2016–17, 3 resulted in driving-related charges (based on information available at the time of reporting). These charges included: dangerous operation of a motor vehicle causing death, drug driving, dangerous operation of a vehicle causing death while adversely effected by an intoxicating substance, and operate ship while unlicensed.

RISK FACTORS

The most prevalent risk factors for children and young people in transport-related fatalities in Queensland during 2016–17 were:[30]

- having a driver or operator who was aged 21 years or younger (5 cases)
- reckless use of a vehicle or dangerous driving (5 cases)
- excessive speed (3cases)
- drug and/or alcohol use (3cases).

28 Queensland Courts (2015). Office of the State Coroner Findings of Inquest: Inquest into nine (9) deaths caused by Quad Bike accidents.
29 Queensland Government (2016). *Statewide plan for improving quad bike safety in Queensland 2016-2019.* www.worksafe.qld.gov.au/ data/assets/ pdf_file/0006/114675/statewide-plan-for-improving-quad-bike-safety-in-queensland-2016-2019.pdf
30 It should be noted individual transport-related fatalities may have had multiple risk factors present.

Queensland Road Safety Action Plan 2015–2017

The Department of Transport and Main Roads has introduced a number of programs targeted at senior high school students in order to address risk-taking behaviour of young people in this age group. The programs are intended to make young people aware of the consequences of risk-taking behaviour both as drivers and passengers, as well as encouraging positive road use behaviours. The programs provide young people with an insight into the consequences of road trauma, using hospital visits, mock crash re-enactments and educational presentations. The aim is to prepare young people to be positive road users before they obtain a driver's licence.

CHAPTER 4

Drowning

This chapter provides details of child deaths from drowning.

KEY FINDINGS

- Nineteen children and young people drowned in Queensland in 2016–17 (rate of 1.7 per 100 000 children aged 0–17 years) compared to 9 in 2015–16 and 16 in 2014–15.
- Seven children drowned in swimming pools in 2016–17, 5 in bathtubs, 3 in lakes, ponds and rural dams, 2 in objects containing water, and one each at the beach and in a river or creek.
- Children aged 1–4 years made up the largest group of drowning deaths (11 deaths), a pattern which has been found in all previous reporting periods, and an indication of the particular vulnerability of this age group.
- Notably 10 of the 19 children drowned were known to the child protection system in the year prior to their death.
- Pool fencing standards were introduced in 1991 and have been incrementally strengthened over time. The numbers of private pool drowning deaths of children aged under 5 have fluctuated from year to year; however, numbers before the introduction of pool fencing requirements were generally higher than those since the introduction of standards, and especially in the last decade.
- In the five years up to the 1991 introduction of pool fencing laws, between 7 and 15 children aged under 5 drowned in private pools each year, whereas in the last five years private pool drowning deaths have been between 2 and 6 each year.
- The increase in drownings in 2016–17 highlights the importance of prevention strategies in reducing the risk to children. Children under 5 years were particularly vulnerable, with 14 drowning in 2016–17. Swimming pools (6 cases) and bathtubs (5 cases) were the most common hazards for young children.
- The circumstances surrounding young children's deaths point to a range of particular factors which place young children at increased risk of drowning in swimming pools or bathtubs. Risk factors for pool drownings include failing to have a pool fence which meets legislative requirements; not keeping the fencing in good repair; leaving, or keeping, pool gates propped open; or having objects nearby which children could climb to open the gate. Further, precautions still need to be taken even when pools are in disrepair, or when work is being done on the pool or fencing.
- Specific risk factors for bathtub drownings are lapses in adult supervision, the presence of other siblings and leaving water running in the bath, even if the bathplug is removed. The child or their siblings may access the plug, or toys may stop the bath water from draining.

DROWNING 2014–17

An expanded version of Table 4.1 containing data since 2004 is available online at www.qfcc.qld.gov.au.

Table 4.1: Summary of drowning deaths of children and young people in Queensland 2014–17

	2014–15		2015–16		2016–17		Yearly average
	Total	Rate per	Total	Rate per	Total	Rate per	Rate
Drowning							
Pool drowning deaths	5	0.4	4	0.4	7	0.6	0.5
Private pool	*5*	*0.4*	*3*	*	*7*	*0.6*	*0.4*
Public pool	*0*	*0.0*	*1*	*	*0*	*0.0*	*
Non-pool drowning deaths	11	1.0	5	0.4	12	1.1	0.8
Bathtub	*1*	*	*1*	*	*5*	*0.4*	*0.2*
Beach or ocean	*1*	*	*0*	*0.0*	*1*	*	*
Dynamic waterway	*1*	*	*2*	*	*1*	*	*0.1*
Floodwater	*1*	*	*0*	*0.0*	*0*	*0.0*	*
Object containing water	*0*	*0.0*	*0*	*0.0*	*2*	*	*
Rural water hazard (dam)	*5*	*0.4*	*0*	*0.0*	*1*	*	*0.2*
Static inland waterway (lake, pond or quarry)	*2*	*	*2*	*	*2*	*	*0.2*
Female	5	0.9	4	0.7	11	2.0	1.2
Male	11	1.9	5	0.9	8	1.4	1.4
Under 1 year	1	*	0	0.0	3	*	2.1
1–4 years	10	3.9	5	2.0	11	4.3	3.4
5–9 years	5	1.6	0	0.0	4	1.2	0.9
10–14 years	0	0.0	2	*	0	0.0	*
15–17 years	0	0.0	2	*	1	*	*
Indigenous	1	*	2	*	3	*	2.3
Non-Indigenous	15	1.5	7	0.7	16	1.5	1.2
Remote	2	*	0	0.0	2	*	2.5
Regional	8	1.9	5	1.2	9	2.2	1.8
Metropolitan	6	0.9	4	0.6	7	1.1	0.9
Low to very low	9	2.0	4	0.9	11	2.5	1.8
Moderate	4	1.8	3	*	5	2.3	1.8
High to very high	3	*	2	*	2	*	0.5
Known to the child protection system	2	*	2	*	10	12.4	5.5

Data source: Queensland Child Death Register (2014–17)

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

1. Data presented here is current in the Queensland Child Death Register as at August 2017 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 categories) in Queensland each year. Rates for the 2014–15 period use the ERP data as at June 2014 and rates for the 2015-16 and 2016-17 periods use the ERP data as atJune 2015.
3. 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 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.
4. ARIA+ and SEIFA exclude the deaths of children whose usual place of residence was outside Queensland.
5. Yearly average rates have been calculated using the ERP data as at June 2015.

DROWNING: FINDINGS 2016–17

During 2016–17, the drowning deaths of 19 children and young people were registered in Queensland, at a rate of 1.7 deaths per 100 000 children aged 0–17 years. The number of drowning deaths since reporting commenced in 2004 ranges from 7 to 19 per year, with an average of 14.6 per year.[31]

Types of drowning-related deaths

During 2016–17, 12 deaths occurred in non-pool water hazards (5 children and young people drowned in a bath tub, 3 in lakes, ponds, or rural dams, 2 in objects containing water, and one each in a river or creek and at a beach).

Seven pool drownings were recorded for the period, with all occurring in a private pool.

Four of the seven pool drownings occurred when the child was visiting another residence.

Sex

During 2016–17, there were 11 drowning deaths of female children, compared to 8 male children.

Although females made up more of the drowning deaths in 2016-17, over the last three reporting periods, the average annual mortality rate from drowning for males was 1.2 times the rate for females (1.4 deaths per 100 000 male children aged 0–17 years, compared to 1.2 deaths per 100 000 female children). Males continue to be over-represented in childhood drowning data, both within Queensland and throughout Australia.[32]

Age

During 2016–17, children aged 1–4 years made up the largest group of drowning deaths (11 deaths)—a pattern which has been found in all previous reporting periods, and an indication of the particular vulnerability of this age group.

Aboriginal and Torres Strait Islander status

Of the 19 drowning deaths during 2016–17, 3 were of Aboriginal and/or Torres Strait Islander children.

Over the last 3 years, the average annual rate of mortality from drowning for Indigenous children was 1.9 times the rate for non-Indigenous children (2.3 deaths per 100 000 Indigenous children aged 0–17 years, compared to 1.2 deaths per 100 000 non-Indigenous children).

Geographical area of usual residence (ARIA+)

Of the 19 drowning deaths during 2016–17, 2 were of children who resided in a remote area of Queensland, 9 were of children from regional areas, 7 were of children from metropolitan areas and one was of a child who resided outside Queensland.

Over the last 3 years, the average annual rate of mortality from drowning for children residing in metropolitan areas was lower than for children residing in both regional and remote areas. The mortality rate for children residing in remote areas was 2.5 deaths per 100 000 children, compared to 1.8 per 100 000 children residing in regional areas and 0.9 per 100 000 children residing in metropolitan areas).

Socio-economic status of usual residence (SEIFA)

Of the 19 drowning deaths during 2016–17, 11 were of children who resided in areas of low-to-very-low SES, 5 were of children from moderate-SES areas and 2 were of children from areas of high-to-very-high SES. One child who drowned resided outside Queensland.

Over the last 3 years, the average annual rates of mortality from drowning for children from areas of low-to-very-low SES and moderate SES were 3.6 times the rate for children from high-to-very-high SES areas (1.8 deaths per 100 000 children aged 0–17 years for children from areas of low-to-very-low SES, 1.8 deaths per 100 000 children aged 0–17 years for children from moderate-SES areas, compared to 0.5 deaths per 100 000 children from areas of high-to-very-high SES).

Children known to the child protection system

Of the 19 drowning deaths in 2016–17, 10 were of children known to the Queensland child protection system within the year before their death.

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31 Tables with data for 2004–17 are available online at www.qfcc.qld.gov.au
32 Royal Life Saving Society—Australia. *National Drowning Report* 2016.

Private swimming pools

Backyard swimming pools, which have become increasingly common, pose a considerable risk of drowning to young children. Appropriate supervision and water safety education are important elements in reducing risk. However, pool fencing with child-resistant features is a highly effective risk reduction mechanism which, through regulation, provides long-term and lasting protection.

The effectiveness of swimming pool fencing is dependent upon fencing and gates being compliant with the regulation, in good working order and used correctly (such as not propping open a pool gate).

Eleven children aged under 5 drowned in backyard swimming pools (including portable pools which met the threshold for regulated fencing) in the last 3 years. In 5 deaths the child was thought to be playing or asleep inside the house. In 4 deaths the child had either been playing in or near the pool, but was thought to be not or no longer in the pool and in 2 cases the child was playing in the yard but not in the pool.

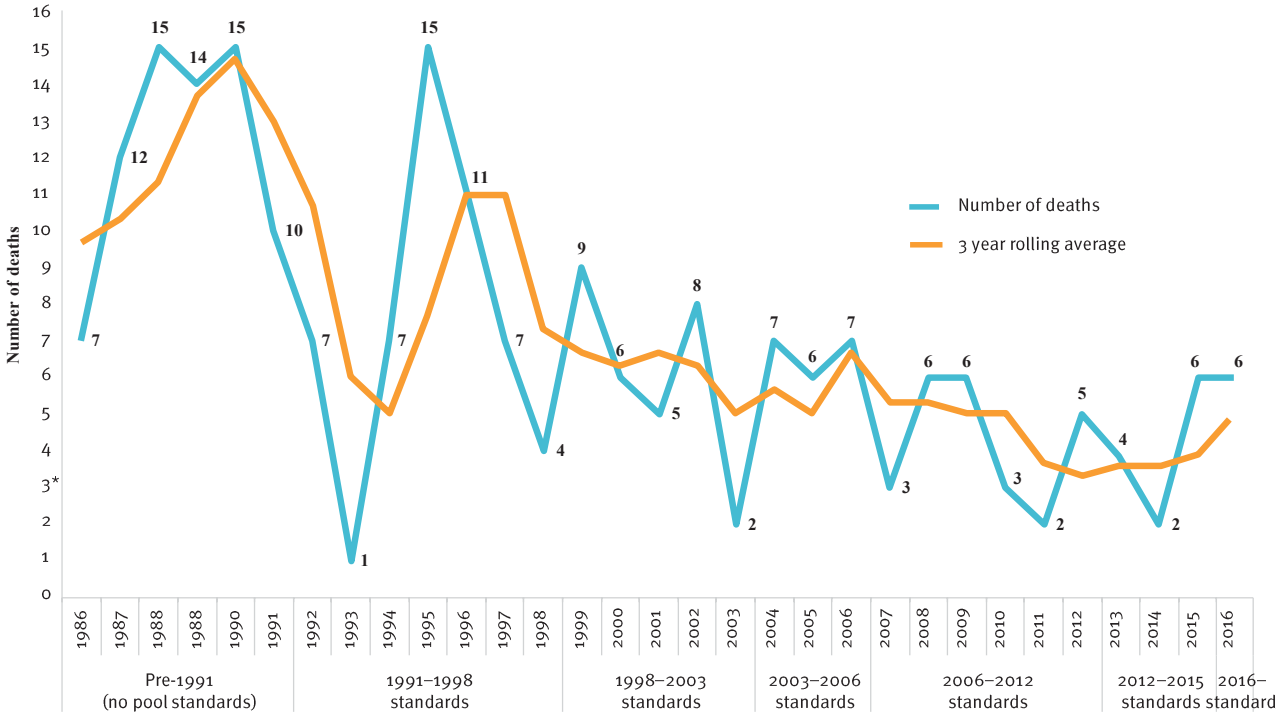
Common issues identified for the 11 drowning deaths over 3 years (more than one issue may be present in each case) included:

- the pool gate had been propped open (7 deaths)
- non-compliant fencing (e.g. gate not self-closing, fence not regulation height, gaps or defects in fence) (5 deaths)
- work was being done on the pool or fence and/or the pool was in disrepair (5 deaths)
- the child or family was visiting another residence (5 deaths).

Figure 4.1 tracks the number of drowning deaths of children aged under 5 in Queensland private pools over time against changes to fencing requirements. A number of changes in pool fencing standards have occurred—from no standards in place prior to 1991, to requirements for new pools to have fencing, later extended to existing pools; changes in requirements such as fence height; and more recently compliance requirements for registration and inspections.

The average annual number of drowning deaths fluctuated in the period to 1995, before gradually declining over the last two decades (1996–2016). Prior to 1991, the 3-year annual average number of drownings for children aged under 5 ranged between 9.7 and 14.7. The average was 5.0 by 2009, falling to 4.7 by 2016. Data presented in Figure 4.1 are by calendar year by date of death, and will therefore be different from those published in the rest of this report.

Figure 4.1: Drowning deaths of children 0–4 years in Queensland private pools by applicable pool standard 1986–2016



Data sources: Queensland Injury Surveillance Unit 2008, Injury Bulletin: Domestic pool immersion in Queensland children under five years of age. No.104; Queensland Child Death Register (2004–16)

1. The above data represents the number of deaths which occurred in each calendar year. These figures will therefore not align with the summary of drowning deaths presented in Table 4.1 of this report, which are based on date of death registration by financial year.

Pool fencing laws

Pool fencing laws introduced in November 2015 increased the obligation on pool owners to enhance the safety of pool areas. In accordance with the changes:

- compliant fencing is required of all pools and spas—including portable pools and spas capable of being filled with 300 millimetres or more of water
- the latest CPR sign must be displayed and be easily visible to people in or near the pool
- all pools must be registered on the pools safety register
- inspections of pools by local governments are mandatory for all immersion incidents involving children under the age of 5.

Supervision

In 2016–17, of the 14 drowning deaths of children aged under five, 6 were of children known to be in or on water while the remaining 8 were not known to be in or around water. A child is known to be in or around water when the child is known to be actively swimming, paddling, wading, playing, or bathing in water, or on a watercraft. A child is not known to be in or around water when the carer does not know the child is exposed to a water hazard (i.e. carer thinks the water hazard is appropriately restricted and is not aware the child has gained access to it) or the presence of the water hazard was not known. Examples include where a child is thought to be sleeping or playing safely in a restricted area but has gained access to a water hazard by climbing the fence to the pool or filling up the bathtub. A combination of factors, including ineffective barriers to water hazards, the capacity and proximity of the supervisor and continuity of supervision were identified as being relevant to drowning deaths of children under 5.

Lapses in supervision of young children in or around water hazards has been found to be a factor in drowning deaths of young children. The key elements of supervision are the:

- capacity of the supervisor
- proximity of the supervisor to the child
- continuity of supervision.

When a child is not known to be in or around water, it is still important to provide a level of supervision to ensure the child is protected from all hazards. Young children are unable to appropriately identify and negotiate risks, yet can be highly mobile. Reliance only on pool fences and gates to prevent drowning is not recommended, as breakdowns in protections can occur, such as pool gates being propped open or becoming non-compliant due to wear and tear. Accordingly, it is essential children aged under 5 years are regularly checked on by an active supervisor and there are other protections to reduce the risk of drowning (or access to other hazards) should there be a lapse in supervision.

It is important to acknowledge that not all drowning deaths are reasonably foreseeable or the result of a breakdown in the elements of supervision occurring for the child. Sometimes a child is not known to be in or around water and is being appropriately supervised by a capable supervisor, but a resourceful and inquisitive child may manage to bypass protections, unbeknown to the supervisor. These child deaths highlight the importance of having many and varied protections in place for the child, inclusive of adequate supervision.

The role of safe play areas in reducing rural drownings

Rural water hazards, such as dams and troughs, may not be considered risks due to the distance from the family home; however, children can travel significant distances (for their age) to access water hazards—some as far as one kilometre. Any water hazard should therefore be considered a potential risk regardless of its location on the property.

One of the drownings in 2016–17 was associated with a rural water hazard. There have been 28 deaths of children aged 0–17 in rural water hazards since 2004.

Drowning prevention is most effective when strategies are multi-faceted. Active supervision is the most effective strategy to prevent drowning; but to maintain this continuously is not realistic. Therefore, other strategies should be in place for when lapses in supervision occur. Establishing a safe play area around the family home can act as a critical means of preventing access to water hazards. Children can also be taught from a young age about nearby dangers and ‘no go’ areas.

CHAPTER 5

Other non-intentional injury-related deaths

This chapter provides details of child deaths from other non-intentional injury (transport and drowning deaths are included in earlier chapters).

KEY FINDINGS

- In 2016–17, 13 children and young people died in non-intentional injury-related incidents, other than a drowning or transport incident, at a rate of 1.2 deaths per 100 000 children aged 0–17 years.
- Five of the deaths were caused by accidental threats to breathing and 3 were caused by exposure to inanimate mechanical forces.
- The highest number of deaths occurred in the 10–14 year age group, with 7 deaths.
- Thirty-five children died in 23 house or dwelling fires in Queensland over the 13 year period 2004–17. A further 10 adults also lost their lives in these incidents. Young children are at particular risk in house fires with 17 of the deaths being of children aged under five years.
- The *Fire and Emergency Services (Domestic Smoke Alarms) Amendment Act 2016* came into effect in January 2017. All new and renovated dwellings are required to have inter-connected photoelectric smoke alarms in bedrooms and on each level. Smoke alarms in existing dwellings must be replaced after 10 years as stipulated in the new legislation.

OTHER NON-INTENTIONAL INJURY-RELATED DEATHS 2014–17

An expanded version of Table 5.1 containing data since 2004 is available online at www.qfcc.qld.gov.au.

Table 5.1: Summary of other non-intentional injury-related deaths of children in Queensland 2014–17

	2014–15		2015–16		2016–17		Yearly average
	Total n	Rate per 100 000	Total n	Rate per 100 000	Total n	Rate per 100 000	Rate per 100 000
All other non-intentional injury deaths							
Other non-intentional injury	9	0.8	11	1.0	13	1.2	1.0
Incident type							
Exposure to inanimate mechanical forces	0	0.0	2	*	3	*	0.1
Exposure to forces of nature	0	0.0	0	0.0	1	*	*
Exposure to smoke, fire and flames	1	*	3	*	1	*	0.1
Falls	2	*	0	0.0	0	0.0	*
Non-intentional poisoning by noxious substances	1	*	2	*	1	*	0.1
Threats to breathing	5	0.4	4	0.4	5	0.4	0.4
Contact with venomous animals and plants	0	0.0	0	0.0	1	*	*
Other not elsewhere classified	0	0.0	0	0.0	1	*	*
Sex							
Female	4	0.7	1	*	3	*	0.5
Male	5	0.9	10	1.7	10	1.7	1.4
Age category							
Under 1 year	3	*	1	*	2	*	3.2
1–4 years	3	*	5	2.0	2	*	1.3
5–9 years	1	*	0	0.0	0	0.0	*
10–14 years	0	0.0	3	*	7	2.3	1.1
15–17 years	2	*	2	*	2	*	1.1
Aboriginal and Torres Strait Islander status							
Indigenous	3	*	1	*	1	*	1.9
Non-Indigenous	6	0.6	10	1.0	12	1.2	0.9
Geographical area of usual residence (ARIA+)							
Remote	0	0.0	0	0.0	1	*	*
Regional	5	1.2	4	1.0	7	1.7	1.3
Metropolitan	4	0.6	7	1.1	5	0.8	0.8
Socio-economic status of usual residence (SEIFA)							
Low to very low	5	1.1	6	1.3	6	1.3	1.3
Moderate	2	*	1	*	3	*	0.9
High to very high	2	*	4	0.9	4	0.9	0.7
Known to the child protection system							
Known to the child protection system	3	*	5	5.9	1	*	3.6

Data source: Queensland Child Death Register (2014–17)

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

1. Data presented here is current in the Queensland Child Death Register as at August 2017 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 categories) in Queensland each year. Rates for the 2014–15 period use the ERP data as at June 2014 and rates for the 2015–16 and 2016–17 periods use the ERP data as at June 2015.
3. 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 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.
4. ARIA+ and SEIFA exclude the deaths of children whose usual place of residence was outside Queensland.
5. Yearly average rates have been calculated using the ERP data as at June 2015.

OTHER NON-INTENTIONAL INJURY-RELATED DEATHS: FINDINGS 2016–17

The child deaths discussed in this chapter are those unintentional deaths which fall outside the scope of the more common non-intentional injury deaths covered earlier in this report (transport incidents and drowning).[33]

During 2016–17, the deaths of 13 children and young people from non-intentional injury were registered in Queensland, at a rate of 1.2 deaths per 100 000 children aged 0–17 years. The number of deaths from non-intentional injury registered since reporting commenced in 2004 ranges from 4 to 21 per year, with an average of 13.5 per year.[34]

Types of non-intentional injury-related deaths

Of the 13 deaths from non-intentional injury, 5 were from threats to breathing, 3 were caused by exposure to inanimate mechanical forces, one was caused from exposure to fire smoke and flames, one death was from non-intentional poisoning by noxious substances, one was from contact with venomous animals and plants, one was caused from exposure to forces of nature, and one was other (anaphylactic reaction).

Sex

During 2016–17, 10 deaths from non-intentional injury were of male children and 3 deaths from non-intentional injury were of female children.

Over the last three reporting periods, the average annual rate of mortality from non-intentional injury for males was 2.8 times the rate for females (1.4 deaths per 100 000 male children aged 0–17 years, compared to 0.5 deaths per 100 000 female children).

Age

Of the 13 deaths from non-intentional injury during 2016–17, 2 were of children under one year, 2 were of children aged 1–4 years, 7 were of children aged 10–14 years and 2 were of children aged 15–17 years.

Over the 13 years since reporting commenced, children aged between 1–4 years old have the highest rate of mortality from non-intentional injury compared to children from all other age groups, an indication of the particular vulnerability of this age group.

Aboriginal and Torres Strait Islander status

There was one death of an Aboriginal and/or Torres Strait Islander child from non-intentional injury during 2016–17.

Geographical area of usual residence (ARIA+)

Of the 13 deaths from non-intentional injury during 2016–17, one was of a child who resided in a remote area of Queensland, 7 were of children from regional areas and 5 were of children from metropolitan areas.

Socio-economic status of usual residence (SEIFA)

Of the 13 deaths from non-intentional injury during 2016–17, 6 were of children who resided in areas of low-to-very-low SES, 3 were of children from moderate-SES areas and 4 were of children from areas of high-to-very-high SES.

Children known to the child protection system

Of the 13 deaths from non-intentional injury during 2016–17, one was of a child known to the Queensland child protection system within the year before their death.

33 See Appendix 5 for a comprehensive outline of categories of death constituting 'other non-intentional injury-related deaths'.
34 Tables with data for 2004–17 are available online at www.qfcc.qld.gov.au

Deaths of children in house fires

In a 2016 submission to the Legal Affairs and Community Safety Committee consideration of *Smoke Alarms Inquiries—Fire and Emergency Services (Domestic Smoke Alarms) Amendment Bill 2016*, the QFCC provided information in relation to the deaths of 32 children in 20 separate house fires in the 12 year period 2004–15.

In the 13 years since reporting began between January 2004 and June 2017:

- 35 children died in 23 house or dwelling fires in Queensland over the 13 year period. Ten adults also lost their lives in these incidents.
- The single worst incident was in 2011 when 8 children and 3 adults died in a house fire.
- Young children are at particular risk in housefires:
  - Over half of the deaths (18) were of children aged1-4
  - 7 children were aged 5-9 years
  - 6 children were aged 10-14 years
  - 4 children were aged 15–17 years
  - No deaths occurred of infants under oneyear.
- Other children and adults managed to escape the fires, with some suffering serious injuries.
- Smoke inhalation was the most common cause of death, indicated for 24 of the 35 deaths.

Coronial investigations are not always able to conclusively determine all related facts due to the confusion and trauma experienced by survivors and witnesses in terrifying circumstances, and the substantial destruction caused by the fire. Known or likely causes of the house fires which resulted in child deaths included heating or lighting equipment, candles, electrical faults and cooking oil. Out of the 23 house or dwelling fires, 14 were caused by non-intentional ignitions. Eight of these were caused by children playing with lighters and accidentally starting a fire, which resulted in 10 individual deaths. Evidence indicated a cigarette lighter was used in seven cases and a BBQ lighter was used in one case.

In relation to the use and operation of smoke alarms in the 23 house fire incidents in the period 2004–17:

- In 10 house fires there were no smoke alarms or no operational smoke alarms (21 child deaths), while in 8 house fires smoke alarms were in place and believed to be operational (9 child deaths). No information was available for 4 incidents (4 childdeaths).
- The greatest loss of life occurred in night-time house fires, with 11 lives lost in one fire and another 11 lost in 3 other fires (4 each in two house fires and 3 inanother).
- Importantly, in 3 night-time house fires the smoke alarms woke the occupants allowing some occupants time to escape. In a day-time house fire the smoke alarm also provided the first alert of the fire.
- One coronial investigation found evidence the ionisation-type smoke alarms did not activate.

The *Fire and Emergency Services (Domestic Smoke Alarms) Amendment Act 2016* was passed with amendment in August 2016 and came into effect in January 2017. The requirements, to be phased in over ten years, will make smoke alarms mandatory in all bedrooms. Smoke alarms will need to be to be interconnected, and either hardwired or fitted with a 10-year battery, and be of a photoelectric type.

Deaths of children in house fires started by cigarette lighters

In a November 2016 submission to the Australian Competition and Consumer Commission (ACCC), the QFCC provided information into the review of the mandatory safety standards for disposable cigarette lighters. As noted above, children playing with cigarette lighters were found to have caused seven house fires with child fatalities.

The QFCC supported adoption of the voluntary Australian standard or multiple trusted international standards around the general safety requirements for disposable cigarette lighters. This standard would:

- Clearly outline the test procedures to be applied to cigarette lighters.
- Specify the size, legibility, permanence and prominence of warning labels.
- Ensure products comply with the general safety and child resistance requirements.

CHAPTER 6

Suicide

This section provides details of child deaths from suicide.

KEY FINDINGS

- Twenty-one young people died of suspected or confirmed suicide in Queensland during 2016–17 at a rate of 1.9 deaths per 100 000 children aged 0–17 years (or 4.3 deaths per 100 000 children aged 10–17 years). The number of suicide deaths recorded over the 13 years since 2004 ranges from 15 to 26 with an average of 19.8 per year.
- Suicide was the leading external cause of death in 2016–17 (29% of external causes of death for all children). Suicide accounted for 49% of deaths by external causes among young people aged 10–17 years.
- Male suicides for young people usually outnumber female suicides. Over the most recent 3-year period, the suicide rate for males was 1.4 times the rate for females.
- Twelve of the 21 suicides were of young people aged 15–17 years. Over the most recent 3-year period, the suicide rate for young people aged 15–17 years was 5.1 times the rate for young people aged 10–14 years.
- There were 3 suicide deaths of Aboriginal and/or Torres Strait Islander young people during 2016–17. Over the most recent 3-year period, the suicide rate among Indigenous young people was 3.0 times the rate for their non-Indigenous peers.
- Young people may exhibit one or more suicidal or self-harm behaviours prior to suicide. Twelve of the 21 young people who suicided during 2016–17 were identified as having previous suicidal ideation and/ or had made an attempt to suicide. Eight young people were known to have engaged in self-harming behaviours. There was no evidence of previous self-harm or suicidal behaviour for 7 young people.
- In 4 of the 21 suicide deaths during 2016–17, the young person stated or implied their suicidal intent in person, online, via text message or letter prior to their death.
- Nine of the young people who died as a result of suicide during 2016–17 were known to the Queensland child protection system in the 12 months prior to their death.
- Twenty young people were identified to have experienced situational circumstances, risk factors, precipitating incidents or stressful life events which may have influenced suicidal behaviour.

SUICIDE 2014–17

An expanded version of Table 6.1 containing data since 2004 is available online at www.qfcc.qld.gov.au.

Table 6.1: Summary of suicide deaths of children and young people in Queensland 2014–17

	2014–15		2015–16		2016–17		Yearly average
	Total n	Rate per 100 000	Total n	Rate per 100 000	Total n	Rate per 100 000	Rate per 100 000
All suicide deaths							
Suicide[3]	26	2.3	19	1.7	21	1.9	2.0
Sex							
Female	14	5.9	7	2.9	6	2.5	3.8
Male	12	4.8	12	4.8	15	6.0	5.2
Age category							
10–17 years	26	5.4	19	3.9	21	4.3	4.5
10–14 years	*4*	*1.3*	*3*	*	*9*	*3.0*	*1.8*
15–17 years	*22*	*12.0*	*16*	*8.7*	*12*	*6.5*	*9.1*
Aboriginal and Torres Strait Islander status							
Indigenous	6	16.5	4	10.9	3	*	11.8
Non-Indigenous	20	4.5	15	3.3	18	4.0	3.9
Geographical area of usual residence (ARIA+)							
Remote	2	*	1	*	0	0.0	*
Regional	13	7.0	8	4.3	7	3.8	5.0
Metropolitan	11	3.9	10	3.5	14	5.0	4.1
Socio-economic status of usual residence (SEIFA)							
Low to very low	14	7.4	9	4.7	8	4.2	5.4
Moderate	5	5.3	4	4.4	3	*	4.4
High to very high	7	3.5	6	3.0	10	4.9	3.8
Known to the child protection system							
Known to the child protection system	15	15.5	5	5.9	9	11.2	11.5
Method of death							
Hanging	23	4.8	17	3.5	20	4.1	4.1
Gunshot wound	1	*	1	*	0	0.0	*
Poisoning	2	*	0	0.0	0	0.0	*
Other method	0	0.0	0	0.0	1	*	*
Jumping/lying in front of a moving object	0	0.0	1	*	0	0.0	*

Data source: Queensland Child Death Register (2014–17)

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

1. Data presented here is current in the Queensland Child Death Register as at August 2017 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 categories) in Queensland each year. Rates for the 2014–15 period use the ERP data as at June 2014 and rates for the 2015–16 and 2016–17 periods use the ERP data as atJune 2015.
3. Overall suicide rates are calculated per 100 000 children aged 0–17 years in Queensland.
4. All other rates, except known to the child protection population, are calculated per 100 000 children aged 10–17 years in Queensland in each year.
5. 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 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.
6. ARIA+ and SEIFA exclude the deaths of children whose usual place of residence was outside Queensland.
7. Yearly average rates have been calculated using the ERP data as at June 2015.

DEFINING AND CLASSIFYING SUICIDE

Historically, the substantial evidence required for suicide classification often resulted in deaths which would ordinarily, in clinical or research situations, be categorised as suicides not meeting the threshold for a legal classification. Consequently, cases where suicide was suspected but intent was unclear (that is, the deceased did not leave a suicide note and did not state their intent before death) were often coded as accidents. This resulted in childhood and adolescent suicide being under-reported in official statistics, with a large proportion recorded as accidental deaths.[35]

In the Queensland Child Death Register, all suspected suicide cases are assessed and categorised using a suicide classification model.[36]

In the 2016–17 reporting period, 7 deaths were classified as confirmed suicides and 14 deaths were categorised as probable suicides. Two deaths were classified as possible suicides and have not been included in this analysis.[37]

Coronial findings

At the time of reporting, coronial findings had been finalised for 6 of the 21 suicides from 2016–17. Coroners made clear statements that the cause of death was suicide in 3 of these deaths. In the remaining 3 deaths, hanging was confirmed as the method of death and there was no indication of an alternative cause of death.

SUICIDE: FINDINGS 2016–17

During 2016–17, 21 confirmed or suspected suicide deaths of young people were registered in Queensland, at a rate of 1.9 deaths per 100 000 children aged 0–17 years. The number of suicide deaths registered since reporting commenced in 2004 ranges from 15 to 26 per year, with an average of 19.8 per year.[38]

Sex

During 2016–17, there were 15 suicide deaths of male young people, compared to 6 females.

Over the last three reporting periods, the average annual suicide rate for males was 1.4 times the rate for females (5.2 deaths per 100 000 male children aged 10–17 years, compared to 3.8 deaths per 100 000 females aged 10–17 years). Male suicide rates in adult populations have even greater disparity than female suicide rates, with an 'all ages' suicide rate for males being three times that for females.[39]

Age

Of the 21 suicide deaths during 2016–17, 9 were of young people aged 10–14 years and 12 were of young people aged 15–17 years. Suicide was the leading external cause of death for young people from both age categories in Queensland during 2016–17.

Over the last three reporting periods, the average annual suicide rate for young people aged 15–17 years was 5.1 times the rate for young people aged 10–14 years (9.1 deaths per 100 000 children aged 15–17 years, compared to 1.8 deaths per 100 000 children aged 10–14 years). This indicates a greater risk of suicide for older children. Of the suicide deaths of young people aged under 15 during the last three reporting periods, just over half were of children aged 14 years. The remaining deaths were of children aged 13 years.

Aboriginal and Torres Strait Islander status

Of the 21 suicide deaths during 2016–17, 3 were of Aboriginal and/or Torres Strait Islander young people.

Over the last three reporting periods, the average annual suicide rate for Indigenous young people was 3 times the rate for non-Indigenous young people (11.8 deaths per 100 000 Indigenous children aged 10–17 years, compared to 3.9 deaths per 100 000 non-Indigenous children aged 10–17 years).

Indigenous young people have been over-represented in suicide deaths since reporting commenced in 2004. The Commission for Children and Young People and Child Guardian's (CCYPCG) 2011 analysis of suicide deaths in the Queensland Child Death Register found, compared to non-Indigenous young people who suicided, Indigenous young people were more likely to suicide at a younger age, and were less likely to have made a previous suicide attempt.[40]

35 Since 2013, the ABS publication *Causes of Death* includes an appendix presenting suicide deaths of children aged under 15.
36 See Appendix 6 for further details regarding the suicide classification model.
37 Two deaths were classified as possible suicides and have not been counted here as they occurred in circumstances where there is a substantial possibility the death may have been the result of another cause.
38 Tables with data for 2004–17 are available online at www.qfcc.qld.gov.au
39 Australian Institute of Suicide Research and Prevention (2013). *Suicide in Queensland, 2008-2010: Mortality Rates and Related Data.*
40 CCYPCG (2011). *Reducing youth suicide in Queensland final report.*

Geographical area of usual residence (ARIA+)

Of the 21 suicide deaths during 2016–17, 7 were of young people from regional areas of Queensland and 14 were of young people from metropolitan areas. No deaths occurred for young people who resided in remote areas.

Socio-economic status of usual residence (SEIFA)

Of the 21 suicide deaths during 2016–17, 8 were of young people who resided in areas of low-to-very-low SES, 3 were of young people from moderate-SES areas and 10 were of young people from areas of high-to-very-high SES.

Research has found the risk of suicidal behaviour is increased for individuals from a socially disadvantaged background, characterised by low SES and low income.[41]

Children known to the child protection system

Of the 21 suicide deaths during 2016–17, 9 were of young people known to the Queensland child protection system within the year before their death.[42] Two young people were in out-of-home care at the time of their death. An increased risk of suicide has been identified among children and young people known to child protection agencies.[43] Children known to these agencies may often be living in circumstances which are characterised by substance misuse, mental health problems, lack of attachment to significant others, behavioural and disciplinary problems or a history of abuse.

CIRCUMSTANCES OF DEATH

Situational circumstances and risk factors

This section outlines the factors which may have influenced suicidal behaviour in the 21 young people who suicided in Queensland during 2016–17. This overview is based on information available to QFCC and may therefore under-represent the actual number of circumstances and risk factors for some of the children and young people. As indicated in table 6.2, situational circumstances or risk factors were identified for 20 of the 21 young people who suicided in 2016–17.

Suicidal behaviours in children and young people are often not the result of a single cause, but are multi-faceted and frequently occur at the end point of adverse life sequences in which interacting risk factors combine, resulting in feelings of hopelessness and a desire to 'make it all go away'.[44] It is widely understood, and confirmed by analysis of data in the Queensland Child Death Register, a number of common risk factors and adverse life circumstances may contribute to suicidal behaviour in children and young people.

41 Australian Institute of Health and Welfare (2008). *Injury among young Australians*, Bulletin 60.
42 For the purpose of this report, a child is deemed to have been known to the child protection system if, within one year before the child's death, the DCCSDS became aware of child protection concerns, alleged harm or alleged risk of harm to the child or took action under the Child Protection Act in relation to the child.
43 CCYPCG (2014). *Child deaths—prevalence of youth suicide in Queensland*, Trends and Issues Paper Number 19.
44 CCYPCG (2009). *Reducing youth suicide in Queensland discussion paper.*

Table 6.2: Summary of situational circumstances and risk factors for young people who suicided in 2016–17

Types of situational circumstance or risk factor	Total n
Situational circumstances or risk factors identified for young person	**20**
Known or suspected mental health issue or behavioural problem	12
Alcohol, drug or substance use	8
History of alleged childhood abuse	8
Previous self-harm or suicidal behaviour	14
Intent stated or implied	4
Contagion (suicide or attempted suicide of a family member or friend)	1
Precipitating incident	13
Stressful life event	16
No situational circumstances or risk factors identified for young person	**1**
Total	**21**

Data source: Queensland Child Death Register (2016–17)

1. 'Situational circumstances or risk factors' will not sum accurately where more than one factor is identified under each heading.
2. Young people were recorded as having no situational circumstances or risk factors identifiable where the QFCC did not have information to indicate otherwise. This is not an absolute finding in regards to the young person's situation.

Mental health issues and behavioural problems

As indicated in table 6.3, 12 of the 21 young people who suicided during 2016–17 had, or were suspected to have had, a mental health issue or behavioural problem before their death. The most common mental health issues or behavioural problems identified were Attention Deficit Hyperactivity Disorder (ADHD) and depression. Five of the 12 young people were identified to have multiple mental health and/or behavioural issues (co-morbid conditions). Six young people had a parent or parents or an intimate partner with an identified history of mental health issues.

Table 6.3: Mental health issues and behavioural problems for young people who suicided in 2016–17

Mental health issues and/or behavioural problems	Total n
Known mental health issues or behavioural problems	**9**
Known to have accessed mental health provider	8
Currently or previously prescribed medication for mental health issue or behavioural problem	8
Suspected mental health issues or behavioural problems	**7**
No mental health issues or behavioural problems identified	**9**
Total	**21**

Data source: Queensland Child Death Register (2016–17)

1. 'Known mental health issues' will not sum accurately where young people had both accessed mental health support and were prescribed or previously prescribed medication.
2. Totals may not sum accurately as young people could have a known and a suspected mental health issue.
3. 'Suspected mental health issue' refers to information from family members or friends who believed the young person to be experiencing a mental health issue.
4. Young people were recorded as not having a mental health issue where the QFCC did not have information to indicate otherwise. This is not an absolute finding in regards to the young person's mental health.

Alcohol, drug and substance use

Eight of the 21 young people who suicided during 2016–17 were reported as having a history of alcohol, drug or substance use,[45] with alcohol and cannabis the most frequently cited substance used. Ice or methamphetamine abuse and volatile substance misuse was also identified. Four young people had family members known to engage in alcohol, drug or substance use. Parental ice or methamphetamine abuse was identified for one young person.

45 Previous or current use of alcohol or drugs identified by friends, family members or in toxicology findings.

History of childhood abuse

Information available indicated 8 of the 21 young people who suicided in 2016–17 had a history of childhood abuse. Of the 9 young people known to the child protection system, 6 were also identified as having a history of alleged childhood abuse.

A history of domestic and family violence within the young person's family was identified for 3 young people, and one young person was identified as having experienced domestic violence from a partner.

Previous self-harm and suicidal behaviour

Twelve of the 21 young people who suicided during 2016–17 were recorded as having experienced suicidal ideation.[46] Eight young people had previously attempted suicide, with one young person attempting suicide on more than one occasion. All but one of these young people had also experienced suicidal ideation. Eight young people had previously engaged in self-harming behaviour, such as cutting.[47] Three of the young people had family members known to have expressed suicidal ideation or engaged in suicidal acts. There was no evidence of previous self-harm or suicidal behaviour for 7 young people.

Intent stated or implied (orally or written)

In 4 of the 21 suicides during 2016–17, young people stated or implied their intent to a family member, friend, boyfriend or girlfriend or online prior to their suicide. Intent was stated or implied in person (3 death), via mobile phone text message (one death) and during a phone call (one death).[48] Suicide notes, which are a form of stated intent, were left by 4 young people.

Contagion

Contagion refers to the process by which a prior suicide or attempted suicide of a family member or friend facilitates or influences suicidal behaviour in another person. Contagion was identified as a potential factor for one of the 21 young people who suicided during 2016–17.

46 'Suicidal ideation' refers to the explicit communication of having thoughts of suicide.
47 Each young person with identified self-harm or suicidal behaviour may have exhibited more than one type of behaviour. Therefore, numbers will not sum accurately.
48 Each young person may have stated or implied their intent using more than one communication method. Therefore, numbers may not sum accurately.

PRECIPITATING INCIDENTS AND STRESSFUL LIFE EVENTS

Precipitating incidents

Precipitating incidents were identified in 13 of the 21 suicide deaths of young people in Queensland during 2016–17. Precipitating incidents refer to events or stressors which occur prior to a suicide and which appear to have influenced the decision for a person to end their life. Most precipitating incidents will occur in the hours, days or week prior to death. Bereavement can be considered a precipitating incident, with an arbitrary time frame of up to 6 months between the death of the family member or friend and the suicide of the young person. Table 6.4 shows the types of precipitating incidents which occurred among young people who suicided in 2016–17.

Table 6.4: Types of precipitating incidents for young people who suicided in 2016–17

Types of precipitating incidents	Total n
Precipitating incidents identified for young person	**13**
Argument with family member, intimate partner or friend	3
Relationship breakdown	3
Conflict with person other than family member, intimate partner or friend	2
Bullying	2
Transition of education	2
Alleged offending or detention	2
Bereaved by suicide	1
Bereaved by death (other than suicide)	1
Discipline problems with teachers or school	1
Alleged victim of a criminal offence	1
Transition of care	1
Academic or achievement related stress	1
Sexual or gender identity issues	1
Other precipitating incidents	4
No precipitating incident/s identified for young person	**8**
Total	**21**

Data source: Queensland Child Death Register (2016–17)

1. Each young person may have experienced more than one precipitating incident prior to their death. Therefore, 'precipitating incident' numbers may not sumaccurately.
2. Young people were recorded as not having an identifiable precipitating incident where the QFCC did not have information to indicate otherwise. This is not an absolute finding in regards to the young person's situation.

Stressful life events

Stressful life events (life stressors) were identified in 16 of the 21 suicide deaths of young people in Queensland during 2016–17. Life stressors are events or experiences which produce significant strain on an individual; they can occur at any stage over the course of a person's lifetime and vary in severity and duration. Life stressors differ from precipitating incidents as they are more likely to occur in the background over a period of time with strain accumulating over time. Table 6.5 shows the types of life stressors which occurred among children and young people who suicided in 2016–17.

Table 6.5: Types of stressful life events for young people who suicided in 2016–17

Types of stressful life events	Total n
Life stressors identified for the young person	**16**
Parental separation or divorce	13
Alleged harm notified to child safety system	8
Transition of education	5
Family mental health issues	5
Poor intra-familial relationships	5
Alleged offending or detention	4
Family alcohol or substance misuse	4
Domestic or intimate partner violence	4
Transition of residence	3
Alleged victim of criminal offence	2
Bullying	2
Disciplinary problems with teachers or school	2
Transition of care	2
Bereaved by death (other than suicide)	1
Argument with family member, intimate partner or friend	1
Unstable accommodation or homelessness	1
Pregnancy	1
Unemployment	1
Other stressful life events	6
No life stressors identified for the young person	**5**
Total	**21**

Data source: Queensland Child Death Register (2016–17)

1. Each young person may have experienced more than one life stressor prior to their death. Therefore, 'life stressor' numbers may not sum accurately.
2. Young people were recorded as not having an identifiable life stressor where the QFCC did not have information to indicate otherwise. This is not an absolute finding in regards to the young person's situation.

CHAPTER 7

Fatal assault and neglect

This chapter provides details of child deaths from assault and neglect.

KEY FINDINGS

- Five children died as a result of suspected or confirmed assault and neglect in Queensland during 2016–17 at a rate of 0.4 deaths per 100 000 children aged 0–17 years. The number of child deaths from assault and neglect recorded over the 13 years since 2004 ranges from 4 to 14 with an average of 8.3 per year.
- Four children were alleged to have been killed by a family member during 2016–17 and one child was alleged to have been killed by a non-family member.
- Over the last three reporting periods, 25 of the 29 fatal assault and neglect cases were classified as intra-familial (86%).
- Of the 4 children alleged to have been killed by a family member, the deaths of 2 of these children were identified as domestic homicide, and the deaths of 2 were classified as fatal child abuse.
- None of the children who died from assault or neglect during 2016–17 were Aboriginal or Torres Strait Islander. Over the last three reporting periods, the rate of fatal assault and neglect for Indigenous children is 5.7 times the rate for non-Indigenous children. This is greater than the historical level of over- representation, due to a single incident involving multiple fatalities from a prior year.
- Four of the children who died as a result of assault or neglect during 2016–17 were known to the child protection system in the 12 months prior to their death.

FATAL ASSAULT AND NEGLECT 2014–17

An expanded version of Table 7.1 containing data since 2004 is available online at www.qfcc.qld.gov.au.

Table 7.1: Summary of deaths from assault and neglect of children and young people in Queensland 2014–17

	2014–15		2015–16		2016–17		Yearly average
	Total n	Rate per 100 000	Total n	Rate per 100 000	Total n	Rate per 100 000	Rate per 100 000
All assault and neglect deaths							
Fatal assault and neglect	15	1.3	9	0.8	5	0.4	0.9
Sex							
Female	4	0.7	6	1.1	3	*	0.8
Male	11	1.9	3	*	2	*	0.9
Age category							
Under 1 year	2	*	1	*	0	0.0	*
1–4 years	5	2.0	1	*	3	*	1.2
5–9 years	5	1.6	2	*	1	*	0.8
10–14 years	3	*	3	*	0	0.0	0.7
15–17 years	0	0.0	2	*	1	*	*
Aboriginal and Torres Strait Islander status							
Indigenous	9	10.4	0	0.0	0	0.0	3.4
Non-Indigenous	6	0.6	9	0.9	5	0.5	0.6
Geographical area of usual residence (ARIA+)							
Remote	0	0.0	2	*	0	0.0	*
Regional	12	2.9	1	*	1	*	1.1
Metropolitan	3	*	6	0.9	4	0.6	0.7
Socio-economic status of usual residence (SEIFA)							
Low to very low	13	2.9	2	*	2	*	1.3
Moderate	0	0.0	2	*	2	*	0.6
High to very high	2	*	5	1.1	1	*	0.6
Known to the child protection system							
Known to the child protection system	2	*	4	4.7	4	5.0	4.0
Category of fatal assault and neglect							
Intra-familial	14	1.3	7	0.6	4	0.4	0.7
Neonaticide	*1*	*	*0*	*0.0*	*0*	*	*
Fatal child abuse	*4*	*0.4*	*0*	*0.0*	*2*	*	*0.2*
Domestic homicide	*9*	*0.8*	*6*	*0.5*	*2*	*	*0.5*
Other intra-familial assault	*0*	*0.0*	*1*	*	*0*	*0.0*	*
Extra-familial	1	*	2	*	1	*	0.1
Intimate partner homicide	*0*	*0.0*	*0*	*0.0*	*1*	*	*
Peer homicide	*0*	*0.0*	*1*	*	*0*	*0.0*	*
Acquaintance homicide	*1*	*	*1*	*	*0*	*0.0*	*

Data source: Queensland Child Death Register (2014–17)

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

1. Data presented here is current in the Queensland Child Death Register as at August 2017 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 categories) in Queensland each year. Rates for 2014–15 use ERP data as at June 2014. The 2015–16 and 2016–17 periods use the ERP data as at June 2015.
3. ARIA+ and SEIFA exclude the deaths of children whose usual place of residence was outside Queensland.
4. 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 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. Yearly average rates have been calculated using the ERP data as at June 2015.

DEFINING FATAL ASSAULT AND NEGLECT

Deaths categorised as being caused by fatal assault and neglect include suspicious deaths where information available to the QFCC indicates a homicide investigation was initiated, or where an alleged perpetrator was charged, or the alleged perpetrator is known but deceased.

'Fatal assault' is defined in this report as a death where a child dies at the hands of another person who has inflicted harm on them through some means of force or physical aggression.[49] 'Fatal neglect' is defined as a death where a child who is dependent on a caregiver for the basic necessities of life dies owing to the failure of the caregiver to meet the child's ongoing basic needs.

The definitions are intended to be child focused insofar as the perpetrator's intention is not relevant—the definition includes instances of violence or neglect leading to the child's death even though the perpetrator may not have intended such an outcome—as well as instances where the perpetrator intended to kill the child.[50]

It is important to note that assault and neglect are not necessarily exclusive categories. For example, a child's death may be the culmination of a series of violent and neglectful acts perpetrated against them. Where more than one type of fatal assault and neglect was identified for the child at the time of death, a primary type of fatal assault or neglect in relation to the cause of death is identified for the child for reporting purposes.

The appendicies (Abbreviations and definitions) provide definitions for the various categories of fatal assault and neglect, which are listed in Table 7.1.

Coronial findings and criminal proceedings

At the time of reporting, there were coronial findings for one of the 5 child deaths due to fatal assault and neglect in 2016–17. Criminal proceedings or investigations were underway for all 5 of the deaths. For 2 deaths that occurred in the same incident, the alleged perpetrator had apparently suicided in conjunction with the deaths.

Screening criteria have been used to establish the level of confirmation of fatal assault and neglect which applies to relevant child deaths.[51] Of the 5 fatal assault and neglect deaths, 3 were assessed as confirmed and 2 were assessed as possible. The level of confirmation is subject to ongoing police and coronial investigations and is dependent upon information available to QFCC at the time of reporting.

FATAL ASSAULT AND NEGLECT: FINDINGS 2016–17

Five children died as a result of fatal assault and neglect in 2016–17, a rate of 0.4 deaths per 100 000 children aged 0–17 years. The number of child deaths from assault and neglect since reporting commenced in 2004 ranges from 4 to 14 per year, with an average of 8.3 per year.[52]

Four children in 2016–17 were alleged to have been killed by a family member (intra-familial) and one child was alleged to have been killed by a non-family member (extra-familial). Over the last three reporting periods, 25 of the 29 fatal assault and neglect cases were classified as intra-familial (86%).

Of the 4 children alleged to have been killed by a family member during 2016–17, 2 were determined to have been killed in instances of domestic homicide and 2 in instances of fatal child abuse. Of the 4 children alleged to have been killed by a family member, all were killed by a parent or carer.

The case of the one child alleged to have been killed by a non-family member during 2016–17 was classified as intimate partner homicide.

Sex

During 2016–17, there were 3 deaths of female children from assault and neglect, compared to 2 male children. Over the last three reporting periods, 16 of the 29 children who died from assault or neglect were males (55%).

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49 Deaths where a person has been charged with driving offences resulting in the death of a child are currently excluded from the definition of fatal assault and neglect (with the exception of murder charges). These cases are counted in Chapter 3, Transport.

50 These definitions have been adapted from Lawrence, R. (2004). 'Understanding fatal assault of children: a typology and explanatory theory', *Children & Youth Services Review*, 26, 837–852

51 See Appendix 7 for further details regarding the fatal assault and neglect screening criteria.

52 Tables with data for 2004–17 are available online at www.qfcc.qld.gov.au

Age

Of the 5 children who died from fatal assault and neglect in 2016–17, 3 were aged 1–4, one was aged 5–9, and one was 15–17. Over the 13-year reporting period, infants under the age of 1 are over represented in the rates of fatal assault and neglect. The rate of fatal assault for infants is 4.1 per 100 000 children in this age group. This is compared to rates of 1.0 in children aged 1–4, 0.3 in children aged 5–9, 0.4 in children aged 10–14 and 0.8 in children aged 15–17. The fact rates of fatal assault and neglect in infants under one year are 4.1 times that of children aged 1–4 (which is the age group with the second highest rate) reflects the higher degree of vulnerability of children in this age category.

Aboriginal and Torres Strait Islander status

Of the 5 child deaths from assault and neglect during 2016–17, none were of Aboriginal and/or Torres Strait Islander children.

Over-representation of Indigenous children can be observed in the 13 years since reporting commenced. However over-representation for the current 3-year period is substantially greater than the historical level due to a single incident involving multiple fatalities in 2014–15.

Geographic area of usual residence (ARIA+)

Of the 5 child deaths from assault and neglect during 2016–17, one was of a child from a regional area and 4 were of children from metropolitan areas.

Socio-economic status of usual residence (SEIFA)

Of the 5 child deaths from assault and neglect during 2016–17, 2 were of children who resided in areas of low-to-very-low SES, 2 were of children from moderate-SES areas and one was of a child from an area of high-to-very-high SES.

Children known to the child protection system

Of the 5 child deaths from assault and neglect during 2016–17, 4 were of children known to the Queensland child protection system within the year before their death.

VULNERABILITY CHARACTERISTICS

Vulnerability characteristics in relation to the deceased child, their family and the alleged perpetrator are presented in Table 7.2.

Table 7.2: Types of vulnerability characteristics for fatal assault and neglect 2016–17

Vulnerability characteristics	Total n
Of the child	
Mental health issues of the child	0
History of alcohol or drug use of the child	0
Behaviour or school engagement issues of the child	0
Criminal history of child	0
History of self-harm of the child	0
History of physical/emotional abuse or neglect of the child (unknown to the child protection system)	0
History of sexual abuse of the child (unknown to the child protection system)	0
Intellectual or physical disability or developmental delay of the child	1
A known serious medical condition of the child	0
Of the child's family	
The child was known to the Queensland child protection system within one year of their death	4
The child was in out-of-home care at the time of their death	0
At least one of the child's parents or carers had history of mental health issues	1
At least one of the child's parents or carers had a history alcohol or drug abuse	0
The child's family had a domestic violence history	3
At least one of the child's parents or carers had a criminal history	0
At least one of the child's parents or carers had an intellectual or physical disability	0
At least one of the child's parents or carers had a pre-existing medical condition	0
A sibling is known to have died in the same incident as the child	2
A sibling is known to have previously died from a similar category of death to the child	0
Of the alleged perpetrator/s	
Alleged perpetrator/s had a mental health issue	1
Alleged perpetrator/s used drugs and/or alcohol immediately prior to the incident	0
Alleged perpetrator/s had a domestic violence history	3
Alleged perpetrator/s had a criminal history	0
Alleged perpetrator/s had an intellectual or physical disability	0
Alleged perpetrator/s had a pre-existing medical condition	0

Data source: Queensland Child Death Register (2016–17)

1. Vulnerability characteristic findings are based on information available to the QFCC when analysis was conducted. The absence of evidence of vulnerability characteristics in the information relied upon does not mean vulnerability characteristics were not present.
2. A history of a particular vulnerability characteristic refers to any known history of that characteristic and does not mean the behaviours were active at the time of the death incident.
3. The presence of a mental health issue does not indicate the perpetrator meets the threshold for any consideration of presence of state of mind in any criminal charges or court matters relating to the death incident.

CHAPTER 8

Sudden unexpected deaths in infancy

This chapter provides details of sudden unexpected infant deaths.

KEY FINDINGS

- Sudden unexpected death in infancy (SUDI) is a category of deaths where an infant (aged under one year) dies suddenly usually during sleep and with no immediately obvious cause. Deaths from SUDI are recorded as 'cause pending' until an official coroner's investigations or post-mortem examinations provide an official cause of death.
- There were 30 SUDI cases in 2016–17, a rate of 47.9 deaths per 100 000 infants. The number and rate of SUDI deaths have fluctuated over the last 13 years; ranging between 29 and 55 deaths each year.
- Aboriginal and/or Torres Strait Islander infants are over-represented in SUDI deaths. Over the last 3 years, Indigenous infants died suddenly and unexpectedly at 2.3 times the rate of non-Indigenous infants.
- Encouragingly the numbers of Aboriginal and/or Torres Strait Islander SUDI deaths in the last two years have been lower than the numbers in most earlier periods since 2004 (4 deaths in 2015–16 and 3 in 2016–17).
- Children known to the child protection system had SUDI rates over three times those for all children over the last 3 years.
- Six of the 12 deaths with an official cause of death were attributed to SIDS and undetermined causes. Official causes of death were still pending for 18 deaths.
- Six of the SUDI deaths were found to have an explained cause of death. Four children died as a result of infant illnesses or conditions unrecognised prior to their deaths and 2 died as a result of sleep accidents.
- In 2015–16, when all but 2 SUDI deaths had recorded causes of death, the rate of death for SIDS and undetermined causes was 24.0 per 100 000 infants (15% of infant deaths from all causes), representing the third highest cause of death after perinatal conditions and congenital anomalies.
- Compared to other explained causes, SIDS and undetermined causes are a much more common contributor to infant deaths in the post-neonatal period (28 days to 11 months), accounting for 24% of all deaths in this age group in 2015–16 (14 of 59 post-neonatal infant deaths).
- Findings of Queensland Paediatric Quality Council's expert panel reviews of SUDI cases, presented in this chapter, revealed the following themes:
  - for SUDI, there is rarely a single cause in isolation
  - the SUDI infant's family environment is complex and vulnerable
  - for SUDI families, safe sleeping messages have not been acted on
- Growing evidence indicates the Pepi-Pod® Program, currently being rolled out as a portable sleep space with safe sleep education in Indigenous communities, improves the safety of infants in high risk sleep environments. Consideration could be given to extending the program into other settings in which vulnerable families and their babies are displaced from their homes or have complex needs, including: young mothers' programs; domestic violence and homeless shelters; drug and alcohol support services; and as part of emergency responses in cyclone, flood and fire-affected locations. There would also be value in developing studies which would map the impact of targeted programs for vulnerable families on infant mortality patterns.

SUDDEN UNEXPECTED DEATHS IN INFANCY 2014–17

An expanded version of Table 8.1 containing data since 2004 is available online at www.qfcc.qld.gov.au.

Table 8.1: Summary of SUDI in Queensland 2014–17

	2014–15		2015–16		2016–17		Yearly average
	Total n	Rate per 100 000	Total n	Rate per 100 000	Total n	Rate per 100 000	Rate per 100 000
All sudden unexpected deaths in infancy (SUDI)							
SUDI	39	61.7	29	46.3	30	47.9	52.2
Sex							
Female	15	49.0	17	55.8	17	55.8	53.6
Male	24	73.7	12	37.3	13	40.4	50.8
Aboriginal and Torres Strait Islander status							
Indigenous	11	205.2	4	72.5	3	*	108.7
Non-Indigenous	28	48.4	25	43.8	27	47.3	46.7
Geographical area of usual residence (ARIA+)							
Remote	2	*	1	*	0	0.0	*
Regional	19	88.1	12	56.5	14	65.9	70.6
Metropolitan	18	46.8	16	41.8	15	39.2	42.6
Socio-economic status of usual residence (SEIFA)							
Low to very low	24	94.4	19	75.6	17	67.6	79.5
Moderate	7	56.9	0	0.0	6	49.2	35.5
High to very high	8	31.5	10	39.6	6	23.7	31.7
Known to the child protection system							
Known to the child protection system	9	9.3	11	13.1	7	8.7	10.7
Unexplained SUDI							
SIDS and undetermined	22	34.8	15	24.0	6	9.6	22.9
SIDS	*17*	*26.9*	*9*	*14.4*	*5*	*8.0*	*16.5*
Undetermined causes	*5*	*7.9*	*6*	*9.6*	*1*	*	*6.4*
Cause of death pending	3	*	2	*	18	28.7	12.2
Explained SUDI							
Explained SUDI	14	22.2	12	19.2	6	9.6	17.0
Unrecognised infant illness	*13*	*20.6*	*11*	*17.6*	*4*	*6.4*	*14.9*
Sleep accident	*1*	*	*1*	*	*2*	*	*2.1*

Data source: Queensland Child Death Register (2014–17)

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

1. Data presented here is current in the Queensland Child Death Register as at August 2017 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/ children known to child protection/ ARIA+ region/SEIFA region categories) in Queensland each year. Rates for 2014–15 use ERP data as at June 2014. The 2015–16 and 2016–17 periods use the ERP data as at June 2015.
3. ARIA+ and SEIFA exclude the deaths of children whose usual place of residence was outside Queensland.
4. 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 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. Rates of SUDI for 'Known to the child protection system' are calculated per 100 000 children aged 0–17 years in Queensland, known to the child protection system instead of per 100 000 infants under the age of one year known to the child protection system.
6. Yearly average rates have been calculated using the ERP data as at June 2015.

THE CLASSIFICATION OF SUDDEN UNEXPECTED DEATHS IN INFANCY

Sudden unexpected death in infancy is a research classification and does not correspond with any single medical definition or categorisation. Rather, the aim of this grouping is to report on the deaths of apparently well infants who would be expected to thrive, yet, for reasons often unknown, die suddenly and unexpectedly. Identifying deaths in this way assists in the identification of possible risk factors for and associations with sudden infant death and, most significantly, those factors which may be preventable or amenable to change.

The Police Report of Death to a Coroner (Form 1), which includes a summary of the circumstances surrounding the death as initially reported,[53] is used to identify SUDI deaths. The circumstances of the death must meet all of the following criteria to be included in the SUDI grouping:

- child less than one year of age
- sudden in nature
- unexpected, with no previously known condition which was likely to cause death
- no immediately obvious cause of death.

The SUDI grouping includes deaths found to be associated with infections or anatomical/developmental abnormalities not recognised before death, sleep accidents such as inhalation of gastric contents, and deaths that initially present as sudden and unexpected but are revealed by investigations to be the result of non-accidental injury. It also includes deaths due to SIDS and infant deaths where a cause could not be determined.[54]

Death certification

A high proportion of SUDI cases (18 of 30 in 2016–17) are pending death certification at time of reporting. Paediatric autopsies are amongst the most complex forms of autopsies undertaken, and the complexity contributes to the length of time required to undertake and report on autopsies. Following the development of a new definition of SIDS in 2004 (termed the San Diego definition), all cases of SUDI optimally require the performance of a complete autopsy (including toxicology, microbiology, radiology, vitreous chemistry and metabolic screening studies).[55]

There is also an additional focus on establishing there is no evidence of unexplained trauma, abuse or unintentional injury before a classification of SIDS can be assigned. This frequently involves more extensive gross and microscopic examination during autopsy than in cases of explained infant and child deaths.

SUDDEN UNEXPECTED DEATHS IN INFANCY: FINDINGS 2016–17

During 2016–17, there were 30 SUDI cases in Queensland, at a rate of 47.9 deaths per 100 000 infants. The number and rate of SUDI deaths have fluctuated over the last 13 reporting periods; however, the 2016–17 number of deaths is the second lowest recorded since reporting began in 2004. The number of SUDI cases since reporting commenced in 2004 ranges from 29 to 55 per year, with an average of 43 per year.[56]

Sex

During 2016–17, there were 17 SUDI deaths of female infants, compared to 13 male infants. There is minimal difference between the 3-year average SUDI mortality rates for females and males (53.6 deaths per 100 000 female infants, compared to 50.8 deaths per 100 000 male infants). In the 13 years since reporting commenced, male children are slightly over-represented in SUDI cases.

53 In Queensland, section 8 of the *Coroners Act 2003* requires all violent or unnatural/unusual deaths be reported to a coroner. All unexpected infant deaths fall within that description. All cases of SUDI require a comprehensive investigation, which should include a full autopsy, examination of the death scene and review of clinical history.

54 Cases of SUDI that were explained at post-mortem are also counted and discussed in the chapter appropriate to their cause of death. Deaths found at autopsy to be caused by previously unrecognised illnesses or congenital anomalies are counted in Chapter 2, *Deaths from diseases and morbid conditions*. Deaths found at autopsy to be caused by accidental suffocation in bed are counted in Chapter 5, *Other non-intentional injury-related death*.

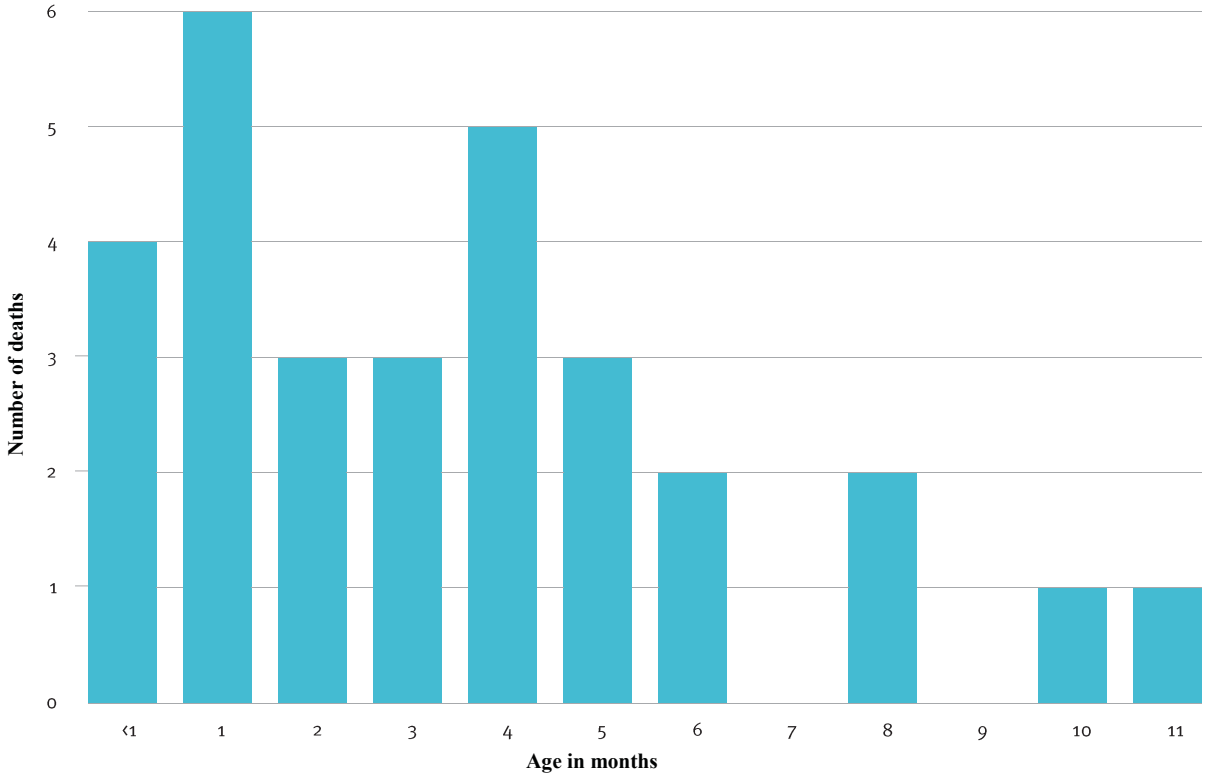
55 Krous, HF, Beckwith, B, Byard, R, Rognum, TO, Bajanowski, T, Corey, T, Cutz, E, Hanzlick, R, Keens, TG and Mitchell, EA (2004). 'Sudden infant death syndrome and unclassified sudden infant deaths: A definitional and diagnostic approach', *Paediatrics*, 114(1), pp 234–238.

56 Tables with data for 2004–17 are available online at www.qfcc.qld.gov.au

Age

Figure 8.1 shows SUDI by age at death during 2016–17. Infants' age ranged from 1 day to 11months. The majority (80%) of sudden unexpected deaths occurred among infants aged under 6 months (24 of the 30 deaths).

Figure 8.1: SUDI by age at death 2016–17



Data source: Queensland Child Death Register (2016–17)

Aboriginal and Torres Strait Islander status

Of the 30 SUDI deaths during 2016–17, 3 were of Aboriginal and/or Torres Strait Islander infants. This is the lowest number of Indigenous SUDI deaths since reporting commenced in 2004. Over the past 13 years the number of Indigenous SUDI deaths has ranged from 3 to 18 each year, with an average of 10 per year.

Over the last 3 years, the average annual SUDI rate of mortality for Indigenous infants was 2.3 times the rate for non-Indigenous infants (108.7 deaths per 100 000 Indigenous infants, compared to 46.7 deaths per 100 000 non-Indigenous infants).

Geographical area of usual residence (ARIA+)

Of the 30 SUDI deaths during 2016–17, 14 were of infants from regional areas and 15 were of infants from metropolitan areas. There were no deaths of infants who resided in remote areas of Queensland. One infant death is excluded from regional analysis as their usual place of residence was outside Queensland.

Socio-economic status of usual residence (SEIFA)

Of the 30 SUDI deaths during 2016–17, 17 were of infants who resided in Queensland areas of low-to-very-low SES, 6 were of infants from moderate-SES areas and 6 were of infants from areas of high-to-very-high SES.

Over the last 3 years, the average annual SUDI rate of mortality for infants from areas of low-to-very-low SES was approximately 2.4 times the rate for children from areas of moderate and high-to-very-high SES (79.5 deaths per 100 000 infants from areas of low-to-very-low SES, compared to 35.5 deaths per 100 000 infants from areas of moderate SES and 31.7 deaths per 100 000 infants from areas of high-to-very-high SES).

Children known to the child protection system

Of the 30 SUDI deaths during 2016–17, 7 were of infants known to the Queensland child protection system within the year before their death. Children known to the child protection system had a SUDI rate over three times that for all Queensland children over the last 3 years (rates per 100 000 aged 0–17 years of 10.7 and 2.9 respectively).

CAUSE OF DEATH 2015–16

Predominantly, deaths from SUDI are recorded as 'cause pending' until the outcomes of post-mortem examinations or coroner's investigations are concluded. At the time of reporting only 12 of the 30 SUDI cases in 2016–17 had an official cause of death. To present more detailed information on cases for which an official cause is available, the following sections provide data from the period 2015–16, when all but 2 SUDI deaths had a cause-of-death finding.

Cases of SUDI are grouped broadly into two categories:

- **Unexplained SUDI**—those infant deaths for which a cause could not be determined (including SIDS and undetermined causes and SUDI deaths pending a cause of death).
- **Explained SUDI**—infant deaths for which a cause was not immediately obvious; but for which post-mortem examinations were able to identify a specific reason (including unrecognised infant illnesses, sleep accidents and non-accidental injury).

In 2015–16, 29 deaths were SUDI cases. Following post-mortem examinations, 12 deaths were found to have an explained cause (41%). The remaining 17 deaths were unexplained SUDI cases: For 15 deaths, the official cause was SIDS or undetermined (52%), and for 2 deaths the cause had not been ascertained (7%).

Unexplained sudden unexpected deaths in infancy

Unexplained SUDI cases includes deaths for which post-mortem examinations and coronial investigations indicate the causes to be SIDS or undetermined causes, as well as deaths which were pending the outcome of post-mortem examinations and coronial investigations.

Sudden Infant Death Syndrome and undetermined causes

The definition of Sudden Infant Death Syndrome (SIDS) applied in this report and currently accepted by most experts within Australia[57] is as follows:

> *The sudden, unexpected death of an infant under one year of age, with onset of the fatal episode apparently occurring during sleep, that remains unexplained after a thorough investigation including performance of a complete autopsy and review of the circumstances of death and the clinical history.*

Cases of SUDI are classified as having undetermined causes if:

- natural disease processes are detected and are not considered sufficient to cause death but preclude a diagnosis of SIDS
- there are signs of significant stress
- non-accidental, but non-lethal, injuries are present
- toxicology testing detects non-prescribed but non-lethal drugs, or
- a full autopsy has not been performed and a cause is not otherwise identified.

Further classification of the 17 unexplained SUDI cases in 2015–16 identified that 9 deaths resulted from SIDS and 6 from undetermined causes. Two deaths which were pending outcomes of post-mortem examinations and coronial investigations.

The rate of death for SIDS and undetermined causes in 2015–16 was 24.0 per 100 000 infants (15% of infant deaths from all causes), representing the third highest cause of death after perinatal conditions and congenital anomalies. As noted in Chapter 2, compared to other explained causes, SIDS and undetermined causes are a much more common contributor to infant deaths in the post-neonatal period (28 days to 11 months). In 2015–16, SIDS and undetermined causes were the leading causes of infant death in the post-neonatal period (1–11 months). In 2015–16, SIDS and undetermined causes, along with congenital anomalies, were the leading causes of death in the post-neonatal period (14 deaths each of 59 post-neonatal infant deaths).

Analysis of longer-term trends in SUDI deaths is problematic because of changes in classifications and, more importantly, changes to the pathological investigations carried out on SUDI deaths. SUDI deaths now require a full autopsy be carried out, and this has enabled improved identification of underlying illness and other explained causes of death. Notwithstanding these caveats, SIDS deaths recorded prior to 2000 may provide a reasonable match to deaths in the SUDI research category. ABS data[58] indicates in 1982–86

57 Krous H et al, (2004) 'Sudden infant death syndrome and unclassified sudden infant deaths: a definitional and diagnostic approach', *Paediatrics*, vol 114, pp 234–8.

58 ABS (1998), *Causes of Infant and Child Deaths, Australia, 1982–96*, Cat. 4398.0

there were on average 66 SIDS deaths in Queensland each year, dropping to an average of 47 in 1992–96. Reductions in SIDS numbers in the late 1980s, both nationally and internationally, are attributed to public health campaigns such as Back-to-Sleep,[59] as well as increased awareness of the importance of a safe sleep environment.

There were approximately 40 SUDI cases each year between 2004 and 2007; 50 cases each year from 2008 to 2012, and fewer than 40 cases each year in the last few years.

RISK FACTORS FOR SUDI DEATHS

A number of factors have been associated with an increased risk of unexplained SUDI deaths. These can be classified according to whether they are associated with the infant, the sleep environment or the family or household:

Infant factors: prematurity and low birth weight, multiple gestation (twins, triplets), neonatal health problems, male sex and recent history of minor viral respiratory infections and/or gastrointestinal illness.

Sleep environment factors: sleeping on soft surfaces and loose bedding, prone (on stomach) sleeping position and side sleeping position, some forms of shared sleeping and overwrapping or overheating.

Family factors: cigarette smoking during pregnancy and after birth, young maternal age (≤ 20 years), single marital status, high parity (number of births by mother) and short intervals between pregnancies, poor
or delayed prenatal care, high-risk lifestyles, including alcohol and illicit drug abuse and low SES (social disadvantage and poverty).

Safe sleeping programs specifically emphasise ways to minimise risk factors, and include some of the following prevention messages:[60]

- Sleep infants on their back from birth
- Ensure the infant's head and face remain uncovered
- Keep baby smoke free before and after birth
- Ensure infants have their own safe sleep environment. This means ensuring the cot meets the Australian safety standards and contains a firm mattress which is the appropriate size for the cot, and the environment is free from object such as pillows, soft toys, and doonas.
- Sleep infants in the parents' bedroom for the first 6–12 months
- Breastfeed infants.

59 Red Nose Saving Little Lives. 2017. "Why back to sleep is the safest position for your baby." www.rednose.com.au/article/why-back-to-sleep-is-the-safest-position-for-your-baby.
60 Red Nose Saving Little Lives. 2015. "Guidelines for new parents to reduce risk of SIDS." www.rednose.com.au/news/guidelines-for-new-parents-to-reduce-risk-of-sids.

Infant sleep position

Table 8.2 shows the position when placed for sleep and when found, for the 17 infants whose deaths were classified as unexplained SUDI.

Table 8.2: Unexplained SUDI by sleep position and position when found 2015–16

Sleep position	SIDS n	Undetermined n	Cause of death pending n	Total n
Position when placed to sleep				
Back	2	2	1	5
Stomach	2	0	1	3
Side	0	1	0	1
Unknown	3	3	0	6
Other	2	0	0	2
Total	**9**	**6**	**2**	**17**
Position when found				
Back	2	1	1	4
Stomach	4	1	0	5
Side	0	2	0	2
Unknown	2	2	0	4
Other	1	0	1	2
Total	**9**	**6**	**2**	**17**

Data source: Queensland Child Death Register (2016–17)

SHARED SLEEPING WITH OTHER RISK FACTORS

Eleven of the 17 infants whose deaths were classified as unexplained SUDI were sharing a sleep surface with one or more people at the time of death (5 SIDS, 4 undetermined, and 2 cause pending).

Sharing a sleep surface with a baby increases the risk of SIDS and fatal sleep accidents in some circumstances.[61] Some studies have found there is an increased risk of SIDS only when mothers who smoke share a bed with their infant, although such findings are insufficient to enable complete reassurance bed sharing is safe for non-smokers. Risks are also associated with shared sleeping if infants are sharing a sleep surface with a caregiver who is under the influence of alcohol or drugs which cause sedation, if the caregiver is excessively tired or there are multiple people in the bed with the infant.

61 Blair, PS, Fleming, PJ, Smith, IJ, Platt, MW, Young, J, Nadin, P, Berry, PJ, Golding, J and the CESDI SUDI research group (1999). 'Babies sleeping with parents: case-control study of factors influencing the risk of the sudden infant death syndrome', *BMJ*, vol 319, pp 1457–61.

PEPI-POD® PORTABLE SLEEP SPACES

The Pepi-Pod® Program (the program) provides a way to ensure infants have their own safe sleeping environment, if safe sleep principles are followed, while at the same time allowing infants to co-sleep with their parents if this is the cultural or family preference or circumstance. The Pepi-Pod® Program originated in New-Zealand as a sister program to the Maori wahakura and was part of the Safe Sleeping public health initiative to address rates of SUDI deaths. Its first significant use was as part of the emergency response to the Christchurch earthquake.

The program has been introduced in Queensland with a specific focus on regional and remote Aboriginal and/or Torres Strait Islander communities in collaboration with government and nongovernment services (n=14 services as of September 2017). The program comprises three essential elements: a portable infant sleep space, safe sleep education and a family commitment to using the Pepi-Pod® as intended and spreading safe sleep messages within their priority social networks. All Queensland families recruited have had identified risk factors for SUDI; approximately 75% of families had ≥2 known risk factors. Pepi-Pod® Program acceptability has been supported by parent responses which relate to three key themes: safety, convenience and portability.

Preliminary findings suggest the use of the Pepi-Pod® reduces the interaction between parental smoking and direct bed-sharing for a vulnerable infant by over 50%. Safe sleeping awareness has been raised within families and in community networks. Health service feedback relating to program implementation in Queensland has indicated the program is feasible, accessible, and flexible and has built local workforce capacity with integration into current service models. The Program has also played a part in a community emergency response in Queensland during tropical Cyclone Ita.[62,63] Further studies are needed to map infant mortality patterns in areas which have health services which have implemented the Pepi-Pod® Program.

A New Zealand study[64] indicates SUDI mortality rates in New Zealand decreased by 29% since 2009, after a decade long plateau in rates. While the study does not attribute the change directly to the program, it notes there have been no other significant changes in health services or campaigns, and no changes in immunisation or smoking rates during pregnancy which may explain the decrease.

Given the growing evidence the Pepi-Pod® Program improves the safety of infants in high risk sleep environments, consideration could be given to extending the program into other settings in which vulnerable families and their babies are displaced from their homes or have complex needs, including: young mothers' programs; domestic violence and homeless shelters; drug and alcohol support services; and as part of emergency responses in cyclone, flood and fire-affected locations. There would also be value in developing studies which would map the impact of targeted programs for vulnerable families on infant mortality patterns.

62 Young J, Watson K, Craigie L, Cowan S, Kearny L (2017) *Uniting cultural practices and safe sleep environments for vulnerable Indigenous Australian infants.* Australian Nursing and Midwifery Journal. April 24(9):37

63 Young J, Craigie L, Watson K, Kearny L, Cowan S, Barnes M (2015) *Safe Sleep, Every Sleep: Reducing Infant Deaths in Indigenous Communities.* Australian College of Midwives 19th Biennial Conference: Super Midwives Making a Difference. RACV Royal Pines Resort, Gold Coast. 5-8th October 2015. (Published Abstract) Women and Birth 28(Supplement 1): S31-32

64 Mitchell E, Cowan S, Tipene-Leach D (2016). *The recent fall in postperinatal mortality in New Zealand and the Safe Sleep programme.* Acta Pædiatrica ISSN0803-5253

Explained sudden unexpected deaths in infancy

In 2015–16, 12 of the 29 SUDI deaths were classified as having an explained cause of death following post-mortem examination. Eleven infants died as a result of illnesses unrecognised prior to their deaths. One infant died as a result of a sleep accident. These 12 deaths are included in this chapter (as sudden and unexpected); however, they are also included in the chapters relating to the specific causes of death. Table 8.3 shows the breakdown of explained SUDI by cause of death.

Table 8.3: Explained SUDI by cause of death 2015–16

Cause of death	Total n
Unrecognised infant illness	**11**
Bacterial pneumonia, not elsewhere classified (J15)	3
Benign neoplasm of other and unspecified intrathoracic organs (D15)	1
Cardiac arrest (I46)	3
Congenital malformations of great arteries (Q25)	1
Other benign neoplasms of connective and other soft tissue (D21)	1
Streptococcal sepsis (A40)	1
Viral pneumonia, not elsewhere classified (J12)	1
Other non-intentional injury/sleep accident	**1**
Total	**12**

Data source: Queensland Child Death Register (2016–17)
1. ICD-10 underlying cause of death code included in parentheses.

The QFCC supports research into the causes and prevention of child deaths by providing detailed child death data to researchers under sections 26 and 28 of the *Family and Child Commission Act 2014*. The QFCC was pleased to collaborate with the Queensland Paediatric Quality Council (QPQC) and provide data for the Infant Mortality Subcommittee[65] of the QPQC to conduct a detailed review of SUDI deaths 2013-2015. The following case study presents their preliminary findings.

CASE STUDY: THEMES FROM AN EXPERT PANEL REVIEW OF SUDI CASES IN 2013[66]

Author: Queensland Paediatric Quality Council Infant Mortality Sub-Committee

Queensland's infant mortality has been persistently higher than the national average. Since 2003 the state-national gap differences have been as high as 21%. "Sudden Unexpected Death in Infancy" (SUDI) accounts for half of the deaths of infants in the post-neonatal period (28 days to less than one year old) (QFCC, 2016). Most SUDI occur in the setting of an unsafe sleeping environment. Some of these deaths may be preventable, and careful review of each SUDI death can reveal modifiable risk factors, which if addressed, may reduce some of the excess mortality.

Methodology

The Infant Mortality Subcommittee (IMSC), of the Queensland Paediatric Quality Council (QPQC), conducted a multidisciplinary expert panel review of case notes of infants who died in Queensland from January 1 2013 through December 31, 2013. The eligible population included all post-neonatal infants whose death had been referred to the Coroner for investigation as it had been sudden and unexpected. Selected neonates (age at death 0-27 days) were also included in the review if they had been discharged from the hospital setting and subsequently died suddenly and unexpectedly.

The IMSC requested all data and records from multiple sources in order to fully understand not only each infant's death, birth, and life events, but also the mother's pregnancy and health and the relationships and social structures that existed between the infant, mother and other significant carers. Information collected included relevant medical records for the infant and mother, infant emergency and hospital presentations, perinatal data records, police death scene investigation forms, forensic autopsy reports, Coronial findings and other relevant documentation. Although not all records were available, a core group of records was obtained for each infant. Members were allocated cases for review (two reviewers per infant) and the case was discussed at a monthly review meeting with all members contributing to the final findings. A detailed review tool was completed for each review.

65 The IMSC was convened in 2015 by the Queensland Paediatric Quality Council (Queensland Health) to examine Queensland's persistently higher infant death rates. IMSC members have expertise ranging from critical care, neonatology, forensic paediatrics, forensic pathology, university research in the area of infant deaths, community child health and non-government service provision. More information on the IMSC can be found here www.childrens.health.qld.gov.au/chq/health-professionals/QPQC

66 Queensland Paediatric Quality Council Infant Mortality Sub-Committee, 2017, 'Themes from an expert panel review of SUDI cases in 2013', *Annual Report: Deaths of children and young people 2016–17 Queensland*, QFCC.

Findings

A total of 100 infant deaths were reviewed. Nine of the infants died whilst neonates (0-27 days of age), and 91 infants died in the post-neonatal period. The age at death ranged from 3 to 341 days of age (Median, 74 days).

Nearly half the deaths met the definition of SUDI (47 cases), a category of death where an infant (aged under one year) dies suddenly with no immediately obvious cause (QFCC 2016, p 57). The circumstances of death must meet all of the following criteria to be included in the SUDI grouping: child less than one year of age; sudden in nature; unexpected, with no previously known condition that was likely to cause death; no immediately obvious cause of death (p.59)

In addition to these 47 SUDIs, were a further 5 infants who died from inflicted injury. The coronial investigation has not yet been finalised for these. These deaths did not meet the definition of SUDI; the injuries were immediately obvious at the time of sudden death for four of the infants, and for one infant the death was not sudden.

Theme: For SUDI, there is rarely a single cause of death in isolation

After a SUDI occurs, a single unequivocal cause of death was rarely identified by the IMSC. For most infants, the forensic post mortem report documented multiple accompanying factors of relevance to the death, several of which may have contributed to the death, in addition to a single "final" cause of death (which was usually not changed as a result of the broader coronial investigation). It is this single final cause of death which is coded and reported nationally. In the 2013 SUDI cohort, only a minority of deaths were unequivocally "explained" by the findings at post mortem. For the remaining "unexplained SUDI", the Krous et al. 2004 definition of SUDI, including "Sudden Infant Death Syndrome" (SIDS), in use throughout Australia since 2004, was used as the reference.

Frequently the committee identified genuine lack of certainty of cause of death, at variance to the certified cause of death. Examples included many deaths which did not meet the criteria for SIDS; or where "alternative diagnoses of natural or unnatural conditions were equivocal" (Krous et al, 2004); or where multiple different factors existed any of which might have caused death; or where doubt existed as to whether a single factor provided sufficient cause. The committee re-categorised such deaths, mostly to "Unclassified Sudden Infant Death: (USID) This decision was taken regardless of whether a single explained cause of death had been stated or whether the death was certified as due to SIDS.

The intent in this re-categorisation is to more precisely adhere to the accepted international classification, and to clearly demonstrate the multiple and modifiable risk factors, rather than leaving these hidden beneath a more conventional but debatable, or even incorrect, diagnostic label.

From the original "Explained SUDI" group of 19 deaths:

- 2 deaths were re-categorised to SIDS ; and
- 5 were re-categorised to USID (most commonly because the pathology described at post mortem was insufficient to have caused death, and one or more alternative diagnoses was possible but e quivocal); and
- 12 deaths remained as explained deaths, of which 3 were due to asphyxiation in an unsafe sleep or other environment.

From the original "Unexplained SUDI = SIDS" group of 21 deaths:

- 4 deaths were re-categorised to "explained" (all due to asphyxiation in an unsafe sleep environment); and
- 11 were re-categorised to USID (including several deaths in which a full, internal post mortem examination was not completed thereby disallowing the definition of SIDS, and other cases where one or more than one alternative diagnosis was possible but equivocal); and
- 6 deaths remained as SIDS

From the original "Unexplained SUDI = USID" group of 7 deaths:

- one death was re-categorised to "explained" (due to asphyxiation in an unsafe sleep environment); and
- one was re-categorised to SIDS; and
- 5 deaths remained as USID.

The impact of this re-categorisation was as follows. Deaths categorised as Explained SUDI reduced from 19 to 17 infants. Of the final 17, 8 deaths were due to asphyxiation (five of these newly categorised as such) and 9 due to natural cause. Deaths categorised as SIDS reduced from 21 to 9. Deaths categorised as USID increased from 7 to 21.

Theme: The SUDI infant's family environment is complex and vulnerable

The remainder of this review will examine 38 infants which the committee categorised as either unexplained SUDI (SIDS=9 and USID=21) or as explained deaths that were coded as asphyxiation (n=8). These 38 cases shared multiple risk factors, many of which were modifiable. Eighteen (47.4%) infants were male and 20 (52.6%) were female. Indigenous status was identified for all cases with five (13.2%) identified as Aboriginal, two (5.3%) Torres Strait islander and three (7.9%) as both Aboriginal and Torres Strait Islander.

One of the key themes to emerge from the reviews was the importance of the infant/carer dyad. The infant, being totally dependent on a responsive carer, cannot be reviewed without consideration of the primary carer and family circumstances. The mother was the main caregiver for 36 (94.7%) of the infants. In the period prior to the infant's death (day or evening of) 11.4% of primary carers had taken prescribed drugs, 8.3% disclosed they had consumed alcohol and for 2.9% there was documentation of illicit drug use. However detailed record review indicated that 14 mothers (38%) had a history of illicit drug use prior to the infant's death and 5 of these mothers had hepatitis C. There was a history of family violence reported in 36.8% of cases with 35.1% having a history of police involvement with the parents. Just under half the infants' families (45.9%) were already known to the Department of Communities, Child Safety and Disability Services. In three cases (8.1%) a previous infant of the mother had died in unexplained circumstances.

Protective factors were also examined. The majority of infants (67.2%) had been breastfed at some time in their lives, and 45.9% were reported to be either fully or partially breastfed at the time of their death. Reviewers found recorded evidence of safe sleeping advice being discussed with the mother in 15 cases (42.9%). Around half of the families had recorded access to primary health care for their infant (51.4%), however for a large number of infants, information regarding primary health care use and/or safe sleeping advice could not be ascertained from the records examined (37.1%). The IMSC has noted from this finding the importance of obtaining and reviewing primary health care records for both the infants and mothers in any future infant death reviews.

Complicating the review of the infant and carer dyad, was the paucity of documentation about important risk factors. Even when documented, this was often only recorded in either the mother or the infant's records; rarely in both. This may have meant that the maternal health care providers and infant postnatal health care providers were unaware of each other's concerns. This presents a barrier to identifying escalating concerns in real time in order to flag the need for intervention prior to an infant's death.

Theme: For SUDI families, safe sleeping messages have not been acted on.

As documented in previous QFCC reports, there was a very high prevalence of unsafe sleeping practices relating to environment and /or infant care in the SUDI group. Supine (placed on the back) is the recommended safe sleeping position for infants aged ≤ 12 months, however only one third (12, 32.4%) of the infants were placed to sleep in this position. Over 40% (16, 42.1%) were placed to sleep in positions not considered safe for infant sleeping (e.g. prone, side-lying, propped up). In a further 24% of cases the position in which infant was put to sleep was not documented in enough detail in the records available to be classified by the reviewers. The position of the infant when found was better documented (86.5%). Infants were found prone (on their stomachs) (12, 32.4%), side-lying (7, 18.9%) and in other positions (8.1%, such as in a sling or mother's arms). Only 10 (27%) infants were found lying on their back. Thirteen infants (35.1%) were found in a different position from how they were placed to sleep. Concerningly, the position when placed to sleep or when found was inadequately described in 29.7% of the infant records.

The majority of the infants reviewed (72%) routinely slept on a surface not specifically designed for infant sleeping and 55.5% of these commonly shared that sleep surface with one or more adults or siblings. The most common sleep surface was an adult bed or adult mattress on the floor (50%). Many of the infants were placed to sleep with pillows or on soft bedding (22, 59.4%) and smoking in the house was reported to occur for 67.6% of infants. With so many reported unsafe sleeping practices it is not surprising that in every SUDI case, there was at least one unsafe sleep factor and most (32, 86.4%) infants had two or more of these well-known unsafe sleeping risk factors reported. One of particular note was smoking in the house which was reported in 92% of infants who were sharing a sleep surface at the time of their death.

Discussion

This review of 2013 SUDI deaths highlights the complex interplay of multiple factors that leads to SUDI. This review has also raised concerns around the certification of infant deaths, with a number not conforming to the internationally accepted Krous et al. (2004) definition of explained SUDI, SIDS and USID. This can impact on the accuracy of subsequent cause of death coding. Coding cause of death to an international standard enables the comparability of statistics over time and between jurisdictions (both within Australia and internationally) and enables the effectiveness of public health measures to be monitored.

Even when death is correctly certified, by channelling the complex set of factors which are active in the infant's death event down to one underlying cause, we reduce the ability to fully understand the importance and interplay of these factors. As such, this review also demonstrated the benefit of a multidisciplinary team approach to SUDI death reviews, in which a range of information sources are used to identify the contributory risk factors, that go beyond a single underlying cause of death.

The IMSC reviewed infant deaths with a particular focus on preventability and avoidability, especially looking for modifiable risk factors which can be identified and then reduced or eliminated by existing interventions. The major finding from this review is the ongoing contribution of unsafe sleeping practices to SUDI, particularly in the presence of other known risk factors such as smoking and drug use. This is especially worrying given the range of safe sleeping education initiatives, and the evidence that uptake of these recommendations by infant caregivers is associated with a reduction in many SUDI deaths.

The review also highlighted many of the infants were living in socially and physically challenging environments, and this may mean the universal public health and community messages about safe sleeping are not leading to change where it is needed most. There is evidence of the effectiveness of more targeted and practical intervention strategies working in conjunction with these universal messages to reduce infant deaths (Mitchell et al 2016, Cowan et al 2013). An example of such a program in the Queensland context is the Pepi-Pod® Program which aims to reduce SUDI through practical, culturally appropriate engagement and education for families with a high risk of infant death. The program includes the provision of an actual portable sleep pod for young infant's age 0-4 months (Young et al 2017) which reduces the interaction between sleep environments and infant vulnerabilities which place them at an increased risk of asphyxiation. Ongoing review of SUDI deaths will provide valuable information on how such programs may be targeted effectively to those most at risk.

Conclusion

A detailed review of SUDI deaths in Queensland has revealed modifiable risk factors and opportunities for early intervention, which could save infant lives. In order to identify these factors, timely and detailed case death reviews are essential, utilising multiple sources of information, and harnessing the critical analysis skills of content experts from a wide range of speciality disciplines. Findings and recommendations from these detailed reviews complement the broader death reporting by QFCC and together provide a more complete picture of opportunities to further reduce infant mortality in Queensland.

References

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CHAPTER 9

Child death prevention activities

Sections 26 and 28 of the *Family and Child Commission Act 2014* set out the functions of the QFCC to help reduce the likelihood of child deaths. These functions include to:

- allow genuine researchers to access information in the register to undertake research to help reduce the likelihood of child deaths
- conduct research, alone or in cooperation with other entities
- identify areas for further research
- make recommendations, arising from keeping the register and conducting research, about laws, policies, practices and services.

During 2016–17 the QFCC has continued to concentrate its efforts on maintaining the accuracy and comprehensiveness of the child death information in the register and meeting the legislated requirement to report annually. Collecting, analysing and publishing information on the causes of child deaths is an important step in preventing child deaths and serious injuries.

The QFCC responds to researcher requests for child death data, contributes to death and injury prevention initiatives and maintains involvement in relevant advisory bodies.

During 2016–17 the QFCC has also used its social media platforms, especially Talking Families and Keep Kids Safe, to distribute prevention messages to the community. For example, social media was used to share a video animation outlining key prevention messages in relation to swimming safety in backyard pools.

RESEARCHER ACCESS TO CHILD DEATH DATA

The QFCC, through its strategy of providing access to data from the Queensland Child Death Register, supported a range of researchers and stakeholders during the reporting period in the development and implementation of programs, policies, initiatives and research programs which require a solid and contemporary evidence base. The overarching aim of this strategy is to promote the information collected in the Queensland Child Death Register to stakeholders (at both the state and national levels), identify opportunities to engage with stakeholders and share the child death dataset and key findings to inform ongoing prevention efforts.

The Queensland Child Death Register may be accessed at no cost by organisations or individuals conducting genuine research.[67] Stakeholders wishing to access the register to support their research, policy or program initiatives can email their request to child_death_prevention@qfcc.qld.gov.au.

During 2016–17, the QFCC responded to 17 requests for access to the child death register from external stakeholders. Table 9.1 provides an overview of the type of data requested in 2016–17 and the purpose for which it was used. Examples of the projects provided with information include the following:

- Victorian *Inquest into the drowning death of a child* was provided with information on Queensland trends in pool drownings and changes in pool fencing laws. The inquest recommendations have led to new pool fencing laws being introduced in Victoria.
- Low-speed vehicle run-overs data were provided to RACQ and were used in an RACQ education campaign *Driveway run overs can turn holidays into tragedies* which was released in April 2017.
- A Lady Cilento Hospital researcher was provided with suicide and other non-intentional injury data. This data was used in an opinion piece by T Gillen, *Approaches to teen suicide: What nurses can do to understand and prevent youth suicide*, published in Nursing Review.
- The Royal Life Saving Society of Australia was provided with data on child drowning to support national reporting and a number of research projects:
  - Royal Life Saving national drowning report 2016.
  - Reducing drowning deaths in children aged 0-14 years.
  - Drowning fatalities in childhood – The role of pre-existing medical conditions, Franklin R, Pearn J & Peden A (2017) Archives of Disease in Childhood.
  - The hidden tragedy of rivers: A decade of unintentional fatal drowning in Australia, Peden A, Franklin R & Leggat P (2016) PLoS ONE.
  - Alcohol and its contributory role in fatal drowning in Australian rivers, 2002-2012, Peden A, Franklin R, Leggat P (2017) Accident Analysis and Prevention.
- United Synergies was provided with suicide data to inform a proposal for 'inCare' suicide prevention.
- Suicide postvention in schools was supported through providing Suspected Suicide Notifications to the Department of Education and Training. Detailed research data are also provided to inform practice in schools and provide further evidence for the need to pay particular attention to known risk factors for mental health concerns and suicide.
- Information on ways children who had drowned had accessed a swimming pool was provided to support discussion of the National Standards Committee (private swimming pools).
- Queensland data on child deaths was collated with data from all Australian jurisdictions to inform the National Children's Commissioner Megan Mitchell's investigation of issues faced by young parents and their children. The findings of the young parent project will form part of the 2017 *Children's Rights Report*.
- Queensland Injury Surveillance Unit was provided with data to inform their exploratory review of sudden unexpected deaths in infancy (SUDI) to explore whether a chin-to-chest position may have been associated with SUDI deaths.
- Data was provided to the University of the Sunshine Coast for their ongoing study examining SUDI records in order to better understand risk factors and identify ways to better support vulnerable, marginalised, difficult-to-engage groups through risk-reduction education.

67 Genuine research is defined as research relating to childhood mortality or morbidity with a view to increasing knowledge of incidence, causes and risk factors relating to same. Genuine research includes policy and program initiatives to reduce child death or injury.

Table 9.1: Purpose of data request by type of data requested 2016–17

Type of data requested	Purpose of data request			
	Research	Public education/ reporting	Policy/program	Total
Sudden unexpected deaths in infancy (SUDI)	1	1	0	2
Drowning	1	3	1	5
Transport	0	1	0	1
Suicide	1	1	2	4
Product-related injury	1	0	0	1
All deaths	1	0	0	1
Interstate residents	0	2	0	2
Known to the child safety system	0	1	0	1
Total	**5**	**9**	**3**	**17**

Data source: QFCC Register of child death data requests (2016–17)

RESEARCH FINDINGS SUPPORTED THROUGH CHILD DEATH DATA

Data provided from QFCC's child death register has supported research in a number of fields of child death and injury prevention, leading to the following published findings:

- *Sudden unexplained early neonatal death or collapse: a national surveillance study*, Lutz T, Elliott E & Jeffery H (2016) Pediatric Research.
- *Paediatric horse-related trauma*, Theodore J, Theodore S, Stockton K & Kimble R (2017) Journal of Paediatrics and Child Health.
- *Unintentional insecticide poisoning by age: an analysis of Queensland Poisons Information Centre calls*, English K, Jagals P, Ware R, Wylie C & Sly P (2016) Australian and New Zealand Journal of Public Health.
- *Factors associated with suicide in Queensland children and adolescents: Analyses of Queensland Child Death Register*, Soole R, Kõlves K & De Leo D (2014) Crisis: The Journal of Crisis Intervention and Suicide Prevention.

POLICY SUBMISSIONS

QFCC used information in the Queensland child death register to support submissions as follows:

- A submission to the Implementation Plan Advisory Group (IPAG) Consultation 2017 regarding the next Implementation Plan for the National Aboriginal and Torres Strait Islander Health Plan 2013-2023 recommended the Pepi-Pods program, currently being rolled out in Queensland Aboriginal and Torres Strait Islander communities, be considered as part of a national campaign to reduce SUDI deaths.
- Submissions were made to Australian Competition and Consumer Commission (ACCC) reviews of mandatory safety standards and the QFCC made recommendations regarding standards for:
  - children's toys
  - baby bath aids
  - swimming and flotation aids
  - disposable cigarette lighters
- QFCC also recommended to the ACCC that mandatory safety standards be introduced for baby slings.

RESEARCH PARTNERSHIPS

The QFCC has several partnerships to progress child death prevention initiatives. These are:

- Research on childhood suicides – QFCC will provide data to the University of Queensland Centre for Clinical Research. This study is examining the characteristics and risk factors present in childhood suicides.
- Reviewing and classifying SUDI autopsies – QFCC will provide data to the University of the Sunshine Coast. This project will involve expert review of SUDI autopsies in order to inform the investigation and certification of infant deaths.

ADVISORY BODIES

The QFCC participated on a number of advisory bodies including:

- Australian and New Zealand Child Death Review and Prevention Group (ANZCDR&PG)
  ANZCDR&PG aims to identify, address and potentially decrease the number of infant, child and youth deaths by sharing information on issues in the review and reporting of child deaths. The group is working towards achieving national standardised reporting.
- Consumer Product Injury Research Advisory Group
  This group provides an evidence base to support product safety policy decisions which may include: recommending new mandatory standards or Australian Standards be developed; recommending certain unsafe products be banned; developing consumer or business education campaigns; and supporting research opportunities. This group also provides advice to relevant government, private and community agencies; media; and the larger community on product safety issues either proactively or as requested.
- Queensland Suicide Prevention Reference Group
  This group supports the implementation of the Queensland Suicide Prevention Action Plan 2015–17 and provides leadership, oversight and coordination of suicide prevention and risk-reduction activities undertaken across the state.
- Queensland Advisory Group on Suicide Information and Data
  This group provides expertise on systemic issues and data and other relevant evidence.
- Queensland Government Births and Deaths Working Group
  The Queensland Government Births and Deaths Working Group is a forum for discussing statistical and other issues around Queensland births and deaths registrations and assists in improving the quality and reliability of Queensland population statistics.

APPENDIX 1

Methodology

This supplementary information provides an overview of the methodology employed in the production of the *Annual Report: Deaths of children and young people, Queensland, 2016–17*. It also explains the process of maintaining the Queensland Child Death Register and the methods used for the analysis of trends and patterns in the data.

QUEENSLAND CHILD DEATH REGISTER

Under Part 3 (sections 25–29) of the *Family and Child Commission Act 2014*, the QFCC has the responsibility to maintain a register of all deaths of children and young people under the age of 18 years that are registered in Queensland. The information in the register is required to be classified according to cause of death, demographic information and other relevant factors. The Queensland Child Death Register contains information in relation to all child deaths registered in Queensland from 1 January 2004. *The Family and Child Commission Act 2014* also outlines functions of the QFCC to help reduce the likelihood of child deaths, including to conduct research, make recommendations about laws, policies, practices and services and provide access to data contained in the Queensland Child Death Register to persons undertaking research to help reduce the likelihood of child deaths. Under the *Family and Child Commission Act 2014*, the Principal Commissioner must prepare an annual report in relation to child deaths in Queensland.

To support the establishment and maintenance of the register, the Registry of Births, Deaths and Marriages and the Office of the State Coroner both advise the Commissioner of a child's death and provide available relevant particulars.

Data comparability and accuracy

The *Annual Report: Deaths of children and young people in Queensland, 2016–17* brings together information from a number of key sources and presents it in a way which facilitates consideration and interpretation of the risk factors associated with the deaths of children and young people in Queensland. The report also allows comparisons to be made between different population subgroups, such as Aboriginal and/or Torres Strait Islander children and children known to the child protection system.

Caution must be exercised; however, when making comparisons and interpreting rates due to the small number of deaths analysed. An increase or decrease of one or two deaths across the course of a year may have a significant impact on the rates when small numbers are involved.

As the register relies on administrative data sources, a small margin of error is possible. There are no mechanisms available to formally verify the complete accuracy of the datasets provided to the QFCC.

Registry of Births, Deaths and Marriages

The information contained in the Queensland Child Death Register is based on death registration data from the Queensland Registry of Births, Deaths and Marriages. The *Births, Deaths and Marriages Registration Act 2003* provides the registrar must give notice of the registration of all child deaths to the Principal Commissioner.[68] The data provided include:

- death registration number
- child's name
- child's date and place of birth
- child's usual place of residence
- child's age
- child's sex
- child's occupation, if any
- child's Aboriginal or Torres Strait Islander status
- duration of the last illness, if any, had by the child
- date and place of death
- cause of death
- mode of dying.[69]

To the extent practicable, this information is provided within 30 days after the death is registered. Where the death is a natural death (due to diseases or morbid conditions), and a Cause of Death Certificate is issued by a medical practitioner, only death registration data (as outlined above) is available for analysis. In coronial cases, additional information on the death is available.

Office of the State Coroner

In cases of reportable child deaths, coronial information is also available. Section 8 of the *Coroners Act 2003* defines a reportable death as a death where the:

- identity of the person is unknown
- death was violent or unnatural
- death occurred in suspicious circumstances
- death was health care-related
- Cause of Death Certificate was not issued, or is not likely to be issued
- death occurred in care
- death occurred in custody, or
- death occurred in the course of, or as a result of, police operations.

A death in care occurs when the person who has died:

- had a disability (as defined under the *Disability Services Act 2006*) and was living in a residential service provided by a government or non-government service provider or hostel
- had a disability, such as an intellectual disability, or an acquired brain injury or a psychiatric disability; and lived in a private hostel (not an aged-care hostel)
- was being detained in, taken to or undergoing treatment in a mental health service
- was a child in foster care or under the guardianship of the Department of Communities, Child Safety and Disability Services (DCCSDS).[70]

68 Section 48A (details of stillborn children are not included in the information given to the QFCC).
69 Section 48B of the *Births, Deaths and Marriages Act 2003* enables the registrar to enter into an arrangement with QFCC to provide additional data. Aboriginal and Torres Strait Islander status, date of birth and mode of dying are provided by administrative arrangement only.
70 Section 9 of the *Coroners Act 2003*.

A death in custody is defined as a death of someone in custody (including someone in detention under the *Youth Justice Act 1992*), escaping from custody or trying to avoid custody.[71]

To help the QFCC fulfil its child death review functions, the *Coroners Act 2003* imposed an obligation on the State Coroner to notify the Principal Commissioner of all reportable child deaths. The information provided by the State Coroner includes:

- the Police Report of Death to a Coroner (Form 1), which includes a narrative giving a summary of the circumstances surrounding the death
- autopsy and toxicology reports
- the coroner's findings and comments.[72]

For the major categories of reportable deaths, which include deaths from external causes and sudden unexpected deaths in infancy (SUDI), coronial information is reviewed with a view to identifying key risk factors.

Of the 421 deaths of children and young people registered in 2016–17, 31% were reportable under the *Coroners Act 2003* (131 deaths). At the time of reporting, coronial findings had been finalised for 24% (32 deaths) of reportable deaths. Autopsy reports, where autopsies were performed, were provided in 29 of the 32 finalised cases and in 17 of the 99 cases where coronial findings are still outstanding.

Access to other data sources

The QFCC shares data with the following agencies:

- Registry of Births, Deaths and Marriages[73]
- Office of the State Coroner[74]
- DCCSDS (including records relating to child safety)
- Queensland Police Service
- Queensland Ambulance Service
- Department of Justice and Attorney-General (including records relating to Workplace Health and Safety Queensland)
- Department of Housing and Public Works
- Australian Bureau of Statistics
- Queensland Health
- Department of Education and Training.

Confidentiality

Accompanying the QFCC's privileged access to information is a duty of confidentiality specified in the *Family and Child Commission Act 2014*. Section 36 (Confidentiality of Information) of the Act states:

> *If a person gains confidential information through involvement in the administration of this Act, the person must not –*
>
> *(a) make a record of the information or intentionally disclose the information to anyone, other than under subsection (3),[75] or*
>
> *(b) recklessly disclose the information to anyone.*

71 Section 10 of the *Coroners Act 2003*.
72 Section 45 of the *Coroners Act 2003* provides the Coroner must give written copies of his/her findings relating to child deaths to the Principal Commissioner. Coroners' findings are the findings of coronial investigations and should confirm the identity of the person; how, when and where the person died; and what caused the death. Section 46 provides, in the case of a child death, the Coroner must give written copies of his/her comments to the Principal Commissioner. Coroners' comments may arise from an inquest that relates to public health or safety, or relates to the administration of justice or ways to prevent future deaths.
73 The agreement between the Registry of Births, Deaths and Marriages and the QFCC was developed in accordance with the provisions of section 48B of the *Births, Deaths and Marriages Act 2003*.
74 The agreement between the Office of the State Coroner and the QFCC was developed in accordance with the provisions of section 54A of the *Coroners Act 2003*.
75 Subsection 3 permitted a person to make a record of, or disclose, confidential information for this Act to discharge a function under another law, for a proceeding in a court or tribunal or if authorised under a regulation or another law.

Coding cause of death

The QFCC used the *International statistical classification of diseases and related health problems, tenth revision* (ICD-10) to code underlying and multiple causes of death. ICD-10 was developed by the World Health Organization (WHO) and is designed to promote international comparability in the collection, processing, classification and presentation of morbidity and mortality statistics.

What is the underlying cause of death?

The concept of the underlying cause of death is central to mortality coding and comparable international mortality reporting. The WHO has defined the underlying cause of death as the:

- disease or injury which initiated the chain of morbid events leading directly to death
- circumstances of the incident or violence which produced the fatal injury.

Stated simply, the underlying cause of death is the condition, event or circumstances without the occurrence of which the person would not have died.

Qualified mortality coders

QFCC staff trained in ICD-10 mortality coding are responsible for the coding of all external cause deaths.

In addition, the QFCC has entered into a formal arrangement with the Australian Bureau of Statistics (ABS) for the provision of mortality coding services. Qualified ABS mortality coders review all available information for natural cause deaths and code the underlying and multiple causes of death according to ICD-10 cause of death coding regulations. ABS also undertakes quality assurance of external cause deaths coded by the QFCC.

Classification of external-cause deaths

The QFCC recognised that ICD-10 carries certain inherent limitations, particularly in regard to recognising contextual subtleties of cases, and in adequately capturing deaths due to:

- drowning in dams
- low-speed vehicle run-overs that occur in driveways
- four-wheel motorcycle (quad bike) incidents
- SUDI.

To help overcome the limitations of ICD-10, the QFCC primarily classifies deaths according to their circumstances. Based on the information contained in the Police Report of Death to a Coroner (Form 1), such classification enables the QFCC to discuss deaths occurring in similar circumstances, even where an official cause of death has not yet been established, or where the ICD-10 code does not accurately reflect the circumstances of death.[76]

All reportable deaths are classified as being caused by transport incidents, drowning, other non-intentional injury, suicide or fatal assault and neglect. SUDI are also grouped together for the purpose of analysis.

As outlined above, discrepancies may exist between research categories and ICD-10 figures. The QFCC primarily reports by the broad external cause classifications described above. ICD-10 coding is still used to report on deaths from diseases and morbid conditions. Full details of ICD-10 coding for external-cause deaths can be found in section 1.3.

76 Where cases have not received an official cause of death as established at autopsy or coronial investigation, they cannot be coded according to ICD-10.

Geographical distribution (ARIA+)

The latest version of the Accessibility/Remoteness Index of Australia Plus (ARIA+) is used to code geographical remoteness.[77]

ARIA+ is a standard distance-based measure of remoteness developed by the National Centre for the Social Applications of Geographic Information Systems (GISCA) and the former Australian Department of Health and Aged Care (now Department of Health).

It interprets remoteness based on access to a range of services; the remoteness of a location is measured in terms of distance travelled by road to reach a centre that provides services.[78]

All child deaths are classified according to the ARIA+ index. The analysis of geographic distribution in the Child Death Annual Report refers to the child's usual place of residence, which may differ from the place of death or the incident location. However, because of the importance of incident location in the prevention of transport-related deaths, the geographical distribution of all deaths falling within this category has also been reported according to the place of incident.

For the purposes of analysis in the Annual Report, the following general categories of remoteness are reported:

- Metropolitan: includes major cities of Queensland[79]
- Regional: includes inner and outer regional Queensland[80]
- Remote: includes remote and very remote Queensland.[81]

Socio-economic status (SEIFA)

Of the Socio-economic Indexes for Areas (SEIFS) developed by the ABS, the Index of Advantage / Disadvantage has been used in the child death report. This index aims to rank geographical areas to reflect both advantage and disadvantage at the same time, effectively measuring a net effect of social and economic conditions.[82]

Variables associated with advantage include the proportion of families with high incomes, the proportion of people with a university degree or higher and the proportion of people with skilled occupations.

Variables associated with disadvantage include the proportion of families with low incomes, the proportion of persons with relatively low levels of education and the proportion of people in low-skilled occupations.

To determine the level of advantage and disadvantage, the child's usual place of residence was used for coding the geographic area. For this reason, measures of socio-economic status (SES) used in the Annual Report are measures of the status of the areas in which children and young people reside, not the SES of each individual child or their family.

Aboriginal and Torres Strait Islander status

Historically, the identification of Indigenous status on death registration forms was often incomplete or inaccurate, leading to an undercount of the actual numbers of deaths of Aboriginal and/or Torres Strait Islander people. The identification of the deaths of Indigenous people has improved considerably in recent years; however, the extent of any continued under-reporting is not known and it is likely some undercount of the number of deaths registered as Aboriginal and/or Torres Strait Islander continues.

The child death register records Aboriginal and/or Torres Strait Islander status as noted in the death registration data, on Form 1 and in other official records. There are instances of inconsistent reporting of Aboriginal and/or Torres Strait Islander status across official records. For instance, several cases have been recorded where a child has been identified as Indigenous by the reporting police officer in completing the Form 1; but the death registration form, often completed by funeral directors on behalf of family members, did not identify the child as Indigenous. In cases where there has been inconsistent reporting of Aboriginal and/or Torres Strait Islander status across official records, a guideline is used by the QFCC to determine which status will be recorded within the register.

77 Although base populations for all years are based on the latest version of ARIA+, deaths registered prior to 2012 — 13 were classified according to earlier ARIA+ boundaries.
78 ARIA+ is a purely geographic measure of remoteness, which excludes any consideration of socio-economic status, rurality and population size factors (other than the use of natural breaks in the population distribution of urban centres to define the service centre categories).
79 Relatively unrestricted accessibility to a wide range of goods and services and opportunities for social interaction.
80 Significantly restricted accessibility of goods, services and opportunities for social interaction.
81 Very restricted accessibility of goods, services and opportunities for social interaction.
82 Although base populations for all years are based on the latest version of SEIFA, deaths registered prior to 2012 — 13 were classified according to earlier SEIFA boundaries.

Children known to the child protection system

The deaths of children known to the child protection system have been analysed as a separate cohort, as the Queensland child protection system has legislative responsibilities in relation to these deaths. In accordance with chapter 7A of the *Child Protection Act 1999*, the deaths of all children known to the Queensland child protection system are subject to an internal review by the DCCSDS and an independent review by an external Child Death Case Review Panel. These reviews are undertaken to facilitate learning, improve service delivery and promoteaccountability.[83]

A child is deemed to have been known to the Queensland child protection system, if within one year before the child's death:

- DCCSDS was notified of concerns of alleged harm or risk of harm, or
- DCCSDS was notified of concerns before the birth of a child and reasonably suspected the child might be in need of protection after their birth, or
- DCCSDS took action under the *Child Protection Act 1999*, or
- the child was in the custody or guardianship ofDCCSDS.[84]

Prior to 1 July 2014, a review was required if the child was known to the department within the 3 years before their death. The timeframe was reduced to one year, following recommendations made in the *Queensland Child Protection Commission of Inquiry Final Report—Taking Responsibility: A Road Map for Queensland Child Protection*. This change was made to focus the reviews on recent service delivery (that is, on policies and procedures that are likely to still be in place) and to enhance opportunities for in-depth exploration of the various decisions and issues.[85] The scope of these reviews was also expanded to include children who have suffered serious physical injuries.[86]

ANALYSIS AND REPORTING

Analysis period

The Queensland Child Death Register is analysed according to date of registration of the death (rather than date of death). This is in accordance with national datasets managed by the ABS and the Australian Institute of Health and Welfare (AIHW), as well as child death datasets managed by other Australian states and territories.

Reporting period

The Annual Report examines the deaths of 421 children and young people aged from birth to 17 years, registered between 1 July 2016 and 30 June 2017.

Place of residence

The Queensland Child Death Register records the deaths of children which occur within Queensland, regardless of the child's usual place of residence. Deaths of interstate and international residents that occur within Queensland are therefore recorded (visitors, holidaymakers and children who die while accessing specialist and emergency medical care). Deaths of Queensland residents that occur within other jurisdictions are not recorded.

Differences from previously published data

Information in the Queensland Child Death Register now comprises 13 years of data, and data from the last 3 years only is displayed in the first table for Chapters 1–8 of the Annual Report. Copies of the tables containing data since 2004 are available online at www.qfcc.qld.gov.au.

As indicated elsewhere, information on child deaths can be received at a much later date than the original registration data, following processes of child death reviews, autopsies and coroners' reports. A critical element of the register's comprehensiveness and research value is the inclusion of new information relating to individual child deaths as it is received. However, it should be noted the information on deaths in previous periods may therefore differ from those presented in earlier published Annual Reports.

83 Section 245(3) of the *Child Protection Act1999*.
84 Section 246A of the *Child Protection Act1999*.
85 Child Death Case Review Committee (2012) *Submission to the Child Protection Commission of Inquiry*; Department of Communities, Child Safety and Disability Services (2012) *Submission to the Child Protection Commission of Inquiry*.
86 Section 246 of the *Child Protection Act1999*.

Population data used in calculations of child death rates

Child death rates are calculated per 100 000 children (for each sex/age category/Indigenous status/child protection status/ARIA+ region/SEIFA region) in Queensland. The Annual Report uses the most up-to-date estimated resident population (ERP) data to calculate these rates. Rates are not calculated for numbers less than four deaths because of the unreliability of such calculations.

Rates for each reporting period use the ERP data as at the end of the previous financial year. For example, rates for the 2014–15 period use the ERP data as at 30 June 2014. However, the ERP data as at 2016 was not available to calculate rates for the current reporting period (2016–17). Therefore the ERP as at 30 June 2015 is used.

The ERP data for previous years is updated on an annual basis, which allows death rates for the previous reporting periods to be recalculated. Tables with counts and rates of child deaths for the 13 reporting periods from 2004 — 05 are available online at www.qfcc.qld.gov.au. The rates provided in the 13-year data tables may differ from rates provided in previous reporting periods, due to the use of updated ERP.

The ERP as at 30 June 2015 is provided in Table 1.

Table 1: Queensland and Aboriginal and Torres Strait Islander populations by age category as at 30 June 2015

Age group	Total number of	Number of Aboriginal and Torres Strait Islander children
Under 1 year	62 620	5 520
1–4 years	255 613	20 674
5–9 years	321 117	24 820
10–14 years	304 642	23 417
15–17 years	183 286	13 330
Total 0–17 years	**1 127 278**	**87 761**

Data source: Queensland Treasury (2017)

Infant mortality rates

Chapter 2 presents infant mortality rates, defined as the number of deaths of infants aged under one year per 1000 live births. In the 2015 calendar year, there were 61 745 live births in Queensland, including 5 207 Indigenous live births.[87]

87 Source: Australian Bureau of Statistics (2015), *Births, Australia, 2015,* 'Table 1.3: Births, Summary Statistics for Queensland – 2004 to 2015', time series spreadsheet, cat. no. 3301.0.

Rates for ARIA+ and SEIFA classifications

Queensland Treasury provided Queensland population data for ARIA+ and SEIFA classifications (based on census populations at 30 June 2011),[88] to enable the calculation of child death rates by ARIA+ and SEIFA. Tables 2 and 3 provide ERP as at 30 June 2015, for the ARIA+ and SEIFA classifications used in the Annual Report.

Table 2: Queensland child population by ARIA+ as at 30 June 2015

ARIA+ classification	
Remote	52 439
Regional	413 167
Metropolitan	661 672
Total	

Data source: Queensland Treasury (2017)

Table 3: Queensland child population by SEIFA as at 30 June 2015

SEIFA classification	
Low to very low SES	446 349
Moderate SES	217 965
High to very high SES	462 964
Total	

Data source: Queensland Treasury (2017)

Rates of death for children known to the child protection system

Rates of death for children known to the child protection system are calculated using, as the denominator, the number of distinct children known to the Queensland child protection system in the one-year period before the relevant financial year.

The denominator data represents the number of distinct children (aged 0–17 years) who have had any of the following forms of contact with the DCCSDS in the preceding financial year:

- Child Concern Report
- Child Protection Notification
- Investigation and Assessment Order
- Ongoing intervention
- Child Protection Order, or
- Placement in care.

This data were provided to the QFCC by the DCCSDS. Table 4 lists the denominator data provided by the department for the last five reporting periods.

88 Queensland Treasury (2017). *Population Estimates by Indigenous Status, 2015 edition* (Queensland Government Statistician's Office derived).

Table 4: Children known to the Queensland child protection system

Reporting period	Number of distinct children known to the child protection system	Percentage change from previous year
2012–13	165 572	+2%
2013–14	167 434	+1%
2014–15	96 788	. .
2015–16	84 262	-13%
2016–17	80 510	-4%

Data source: DCCSDS (2017)

. . Percentage change has not been calculated due to the break in series (see note 1).

1. For 2013–14 and all earlier periods, denominator data are based on the distinct number of children known to the DCCSDS in the 3-year period prior to their death. For 2014–15 onwards, this was changed to the distinct number of children known to the DCCSDS in the one-year period prior to their death.

Prior to the 2014–15 reporting period, a review was required if a deceased child was known to the Queensland child protection system within the 3 years before their death. The denominator used to calculate rates of death for children known to the child protection system was therefore the number of distinct children known to the Queensland child protection system in the 3-year period before the relevant financial year. This change has reduced the number of children known to the child protection system and the number of child protection deaths.

APPENDIX 2

Abbreviations and definitions

ABS	Australian Bureau of Statistics.
Acquaintance homicide	A child killed by an adult (over 18 years) known to—but not intimately connected with or in a friendship with—the victim. Perpetrators may include neighbours, family friends, teachers or a person who had interacted with the child in an online context. This differs from domestic homicide, where there is an unambiguous familial association, and stranger homicide, where there is no prior association whatsoever between the perpetrator and victim.
AIHW	Australian Institute of Health and Welfare.
ANZCDR&PG	Australian and New Zealand Child Death Review and Prevention Group.
ARIA+	Accessibility/Remoteness Index of Australia Plus. An index of remoteness derived from measures of road distance between populated localities and service centres. These road distance measures are then used to generate a remoteness score for any location in Australia.
Autopsy	Also 'post-mortem'. A detailed physical examination of a person's body after death. An autopsy can be external only, external with full internal or external with partial internal.
Bystander	Pedestrian incident in which a child who has not entered or attempted to enter a roadway or other area where vehicles are usually driven, is struck by a vehicle that has left the designated roadway or area. For example, a child playing in the front yard of a home is struck by a vehicle that has left the roadway when the driver lost control.
Cause of death pending	Used to categorise deaths that do not have an immediately obvious cause (such as a transport incident), and where official cause of death information has not yet been received to enable classification.
CCYPCG	The Commission for Children and Young People and Child Guardian (Qld). The CCYPCG ceased operations on the 30 June 2014 following the repeal of the *Commission for Children and Young People and Child Guardian Act 2000*. Prior to the establishment of the QFCC on 1 July 2014, the CCYPCG was responsible for maintaining the Queensland Child Death Register.
Chaotic social circumstances	For the purpose of the Annual Report, a child is considered to have been living in chaotic social circumstances if their familial environment was characterised by persistent disruption, instability and exposure to risk relevant to one or more of the following: parental abuse or neglect, domestic violence, mental health problems, itinerancy, poverty.
Child	A person aged from birth up to, but not including, 18 years.
Child known to the child protection system	A child is deemed to have been known to the child protection system if, within one year before the child's death: • DCCSDS was notified of concerns of alleged harm or risk of harm, or if • DCCSDS was notified of concerns before the birth of a child and reasonably suspected the child might be in need of protection after their birth, or if • DCCSDS took action under the Child Protection Act 1999, or if • the child was in the custody or guardianship of DCCSDS.[89] Prior to the 2014–15 reporting period, a three-year timeframe was applicable based on the review period defined in the *Child Protection Act 1999*. The denominator used to calculate rates of death for children known to the child protection system for the 2016–17 reporting period is based on the distinct number of children and young people known to the department in the 2014–15 financial year who were subject to a child concern report, notification, investigation and assessment, ongoing intervention, child protection orders or placement in care.
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.
CPR	Cardiopulmonary resuscitation.
DCCSDS	Department of Communities, Child Safety and Disability Services (Qld). Government agency responsible for administering the *Child Protection Act 1999*.
Death in care	A death as defined under section 9 of the *Coroners Act 2003*. This occurs when a person who had died: • had a disability and was living in a residential service provided by a government or non-government service provider or hostel • had a disability and lived in a private hostel (not aged-care) • was being detained in, taken to, or undergoing treatment in a mental health service • was a child in foster care or placed at a residential facility under the guardianship of the DCCSDS.

89 Section 246A of the Ch*ild Protection Act 1999*.

Death in custody	A death as defined under section 10 of the *Coroners Act 2003*. This includes the death of someone in custody (including someone in detention under the *Youth Justice Act 1992*), escaping from custody or trying to avoid custody.
Death incident location	The address at which the set of circumstances leading to death occurred. This may be the same as, or different from, the place of death.
Diseases and morbid conditions	A cause of death category used for those cases where the official cause of death has been given an ICD-10 Underlying Cause of Death which corresponds to Chapters 1–17 of the ICD Codebook. Diseases and morbid conditions cannot be assigned as a category of death until an official cause of death has been received and coded. All reportable deaths suspected to be the result of a disease or morbid condition (including SIDS or undetermined causes) are assigned a category of death of 'Unknown—cause of death pending', until the official cause of death has been received and coded.
Domestic homicide	Homicide committed by someone in the child's familial network or foster carer where there is a clear intent to cause life threatening injury on the part of the perpetrator. Such events are usually characterised by evidence of a breakdown in the parental relationship and/or acute mental illness in one or both parents. It is characterised by an obvious critical event or angry impulse in which the perpetrator acts overtly (and usually suddenly) to end the life of one or more family members. Children of any age may be victims. It is common in cases of domestic homicide for a perpetrator to suicide subsequent to their killing of one or more family members. This subtype of domestic homicide is often referred to as murder-suicide. Parents, step-parents, foster parents and extended family members can be involved in these incidents.
Drowning	Deaths that occur as a direct or indirect result of immersion in some form of liquid.
ERP	Estimated resident population.
External causes of death	Pertaining to environmental events and circumstances that cause injury, poisoning and other adverse effects. Broadly, external-cause deaths are generally more amenable to prevention than many deaths from disease and morbid conditions.
Fatal assault	Death of a child at the hands of another person who has inflicted harm to them through some means of force or physical aggression.
Fatal child abuse	Describes deaths from physical abuse perpetrated by a parent or caregiver against a child who is reliant upon them for care and protection where the intent was to harm the child (e.g. over-use of force or excessive disciplinary behaviours). It may be characterised by a history of chronic and escalating abuse or by an isolated incident. It also includes cases where the child is permanently injured from physical harm but dies at a later stage from medical issues initiated by the physical harm incident (late effects of abuse). Victims are predominantly infants, toddlers and preschool-aged children.
Fatal neglect	Defined as where a child, dependent on a caregiver for the basic necessities of life, dies owing to the failure of the caregiver to meet the child's ongoing basic needs. This may involve acts or omissions on the part of a caregiver that are either deliberate or extraordinarily irresponsible or reckless. It is most likely to involve younger children who are wholly reliant upon their primary caregivers.
Floodwater	A body of water that has escaped its usual boundaries (including overflows of drainage systems), water that exceeds the capacity of the structure normally holding it (including creeks and rivers), or water that temporarily covers land not normally covered by water (flash flooding).
ICD-10	International statistical classification of diseases and related health problems, tenth revision.
Indigenous	Refers to people who identify as being Aboriginal and/or Torres Strait Islander.
Intimate partner homicide	Homicide committed by intimate partners or former intimate partners. Intimate refers to a romantic or coupled relationship characterised by a level of mutual trust, dependence or commitment between the child and the perpetrator. It does not include friendship-only relationships. There is no age threshold for this category.
Low-speed vehicle run-over	An incident where a pedestrian is injured or killed by a slow-moving vehicle travelling forwards or reversing. The incident can occur in a non-traffic area (e.g. residential driveway) or as a vehicle is merging into or out of a traffic area (e.g. school pick-up zone).
Neonatal death	A neonatal death is the death of an infant within 0–27 days of birth who, after delivery, breathed or showed any other evidence of life, such as a heartbeat. This is the definition used by the Australian Bureau of Statistics in all cause-of-death publications.
Neonaticide	The killing of an infant within 24 hours of birth. It is to be differentiated from infanticide, which is commonly defined as the killing of an infant under the age of one year by a parent. Neonaticide is typically characterised by an attempt to conceal birth by disposing of the foetal remains but can also include intentional harm to the infant (regardless of the presence of mind of the offender at the time). This definition does not limit neonaticide to acts or omissions involving mothers, as fathers and stepfathers may also be involved.
Neoplasms (cancers and tumours)	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 that is 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.

Notifiable condition	A condition made notifiable to state health authorities if there is potential for its control.
Other non-intentional injury-related deaths	Other non-intentional injury-related deaths include those resulting from a fall, electrocution, poisoning, suffocation, strangulation and choking, fire, and other non-intentional injury-related deaths that are not discussed in chapter 3 (Transport) or chapter 4 (Drowning) of the Annual Report. The complete list is included in Appendix 5.
Peer homicide	Lethal confrontations that occur between peers. Peers are classified as young people (under 18 years) who are of a similar age and/or developmental level, or two people of any age who are friends and therefore of the same social standing and peer network.
Peer passengers	Refers to the laws regarding restrictions on the number of passengers that a P1-type provisional licence holder under 25 years may carry in a vehicle. During the period between 11pm on a day and 5am on the next day, the P1-type provisional driver must not drive on a road in a vehicle carrying more than one passenger under the age of 21 years who is not an immediate family member.
Perinatal condition	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.
Perinatal period	The perinatal period refers to infants of at least 20 weeks gestation or at least 400 grams birth weight, and all neonates (all live born babies up to 28 completed days of life after birth, regardless of gestational age or birth weight). This is based on the ABS definition of the perinatal period. The ABS has adopted the legal requirement for registration of a perinatal death as the statistical standard as it meets the requirements of major users in Australia. This definition differs from the World Health Organization's recommended definition of perinatal deaths, which includes infants and foetuses weighing at least 500 grams or having a gestational age of 22 weeks or a body length of 25 centimetres crown–heel.
Place of death	The address at which the child was officially declared deceased.
Place of usual residence	This is the address nominated by the child's family as the child's primary residential address upon registering the death with the Registry of Births, Deaths and Marriages.
Police Report of Death to a Coroner (Form 1)	A form completed by the police in accordance with section 7 of the *Coroners Act 2003*—Duty to Report Deaths.
Post-neonatal death	A post-neonatal death is the death of an infant 28 or more days, but less than 12 months, after birth. This is the definition used by the ABS in all cause-of-death publications.
Postvention	Defined by the American Association of Suicide Prevention as the provision of crisis intervention, support and assistance for those affected by a completed suicide.
Precipitating incident	An event that occurred in the months preceding a young person's suicide which may be considered to have contributed to the young person's decision to take their own life.
Principal Commissioner	Principal Commissioner of the Queensland Family and Child Commission.
QFCC	Queensland Family and Child Commission enacted by the *Family and Child Commission Act 2014* on 1 July 2014.
Quad bike	Previously referred to as all-terrain vehicles (ATVs), these are four-wheeled motorcycles primarily used for agricultural purposes.
Registrar	Registrar of the Registry of Births, Deaths and Marriages (Qld).
Registry	Registry of Births, Deaths and Marriages (Qld).
Reportable death	A death as defined under sections 8, 9 and 10 of the *Coroners Act 2003*. This includes any death where the: • identity of the person is unknown • death was violent or unnatural • death occurred in suspicious circumstances • death was health care-related • Cause of Death Certificate was not issued and is not likely to be issued • death occurred in care • death occurred in custody, or • death occurred in the course of, or as a result of, police operations.
Rural water hazard	Sources of water used in agricultural activities, such as dams, irrigation channels, livestock dips and troughs.
SEIFA	Socio-Economic Indexes for Areas 2011. Developed by the ABS using data derived from the 2011 Census of Population and Housing, SEIFA 2011 provides a range of measures to rank areas based on their relative social and economic wellbeing.
SES	Socio-economic status.

Sex	The biological distinction between male and female, as separate and distinct from a person's gender or sexual identity. Indeterminate sex is recorded where medical practitioners are unable to ascertain an infant's sex due to extreme prematurity or non-viable gestation.
SIDS	Sudden infant death syndrome.
Speeding/excessive speed	May be a contributing factor when police have indicated that speed was definitely or likely a factor in the death incident or there is other evidence which can confirm the speed at which the vehicle was travelling to be above the speed limit for the place ofincident.
Stillborn/stillbirth	A stillborn child is a child who has shown no sign of respiration or heartbeat, or other sign of life, after completely leaving the child's mother and who has been gestated for 20 weeks or more, or weighs 400 grams or more.
Stranger homicide	A child death that occurs at the hands of an adult person (over 18 years) who is unknown to the child.
Stressful life event	An event that occurred over the course of the child's life, with the stressor first occurring more than six months before death. These types of events are often considered to be more chronic and longstanding in nature than a precipitating incident.
Sudden cardiac death	An unexplained or presumed arrhythmic sudden death, occurring in a short time period (generally within one hour of symptom onset), in a child or young person with no previously known cardiac disease.
SUDI	Sudden unexpected death in infancy. This is a research classification and does not correspond with any single medical definition or categorisation. The aim of the grouping is to report on the deaths of apparently normal infants who would be expected to thrive yet, for reasons often not known or immediately apparent, do not survive. The QFCC adopted the following working criteria for the inclusion of cases in the SUDI grouping: the death was of an infant less than one year of age, the death was sudden in nature, the death was unexpected, the infant had no known condition likely to cause death, and the infant had no immediately obvious cause of death.
Suicidal act	Involves self-inflicted injury that is accompanied by the intention of the individual to die from the result of the action taken.
Suicidal contagion	The process by which a prior suicide or attempted suicide facilitates or influences suicidal behaviour in another person.
Suicidal ideation	The explicit communication of having thoughts of suicide.
Suicidal intent	Suicidal intent may be communicated directly or implied to a significant person in a child or young person's life such as a family member/carer, friend, health professional or educator. Notification of suicidal intent may occur in person, be verbalised via telephone or be written or expressed using online technology (SMS text messaging, online messenger and email, or through social media platforms).
Suicide	Death resulting from a voluntary and deliberate act against oneself, where death is a reasonably expected outcome of such act. This includes those cases where it can be established the person intended to die and those where intent is unclear, or the person may not have the capacity of reason to intend death, such as children under 15 years or persons with a serious mental illness.
Suicide attempt	A suicidal act causing injury but not leading to death.
Toxicology	The analysis of drugs, alcohol and poisons in the body fluids at autopsy.
Transport deaths	Death incidents involving a vehicle of some description. Vehicles include, but are not limited to: • motor vehicles and motorcycles • quad bikes, tractors and other ruralplant • bicycles, skateboards, scooters and other small-wheel devices • watercraft andaircraft • horses and other animals used fortransportation.
WHO	World Health Organization.

Cause of death by ICD-10 Mortality Coding Classification

Table 5 provides a summary of the ICD-10 categories for child deaths from diseases and morbid conditions registered during 2016–17. Table 6 provides the ICD-10 categories for child deaths from external causes.

The numbers in Table 5 are equal to the numbers of deaths from diseases and morbid conditions presented in the Annual Report. Deaths are categorised as such only when an official cause of death has been assigned by Queensland Health or the Coroner, which provides the necessary information to determine the ICD-10 code.

The numbers in Table 6 will not necessarily equal the numbers of external-cause deaths presented in the Annual Report. In some cases, the general nature of the death can be identified (e.g. transport-related death), however there is insufficient information to determine the underlying cause of death. An ICD-10 code cannot be assigned for these cases until an official cause of death has been determined. As such, these cases have not been included in Table 6.

Table 5: Deaths from diseases and morbid conditions 2016–17

Cause of death	Under 1 year n	1–4 years n	5–9 years n	10–14 years n	15–17 years n	Total n
Explained diseases and morbid conditions	**236**	**28**	**14**	**16**	**13**	**307**
Certain infectious and parasitic diseases (A00–B99)	3	2	1	0	0	6
Neoplasms (C00–D48)	3	7	4	10	5	29
Endocrine, nutritional and metabolic diseases (E00–E90)	3	3	0	2	0	8
Diseases of the nervous system (G00–G99)	3	2	2	3	3	13
Diseases of the circulatory system (I00–I99)	0	0	2	0	1	3
Diseases of the respiratory system (J00–J99)	5	1	2	0	2	10
Diseases of the digestive system (K00–K93)	0	1	0	0	0	1
Pregnancy, childbirth and the pueperium (O00–O99)	0	0	0	0	1	1
Certain conditions originating in the perinatal period (P00–P96)	148	3	0	0	0	151
Congenital malformations, deformations and chromosomal abnormalities (Q00–Q99)	71	9	3	1	1	85
SIDS and undetermined causes (infants)	**6**	**0**	**0**	**0**	**0**	**6**
Sudden infant death syndrome (R95)	5	0	0	0	0	5
Other ill-defined and unspecified causes of mortality (R99)	1	0	0	0	0	1
Undetermined >1 year	**0**	**1**	**1**	**0**	**0**	**2**
Other ill-defined and unspecified causes of mortality (R99)	0	1	1	0	0	2
Total	**242**	**29**	**15**	**16**	**13**	**315**

Table 6: Deaths from external causes 2016–17

Cause of death	Under 1 year n	1–4 years n	5–9 years n	10–14 years n	15–17 years n	Total n
Suicide total	**0**	**0**	**0**	**9**	**12**	**21**
Intentional self-harm (X60–X84)	0	0	0	9	12	21
Transport total	**1**	**4**	**2**	**2**	**5**	**14**
Pedestrian injured in transport accident (V01–V09)	1	2	1	0	1	5
Pedal cyclist injured in transport accident (V10–V19)	0	0	0	0	1	1
Motorcycle rider injured in transport accident (V20–V29)	0	0	0	1	1	2
Car occupant injured in transport accident (V40–V49)	0	0	0	1	2	3
Occupant of pick-up truck or van injured in transport accident (V50–V59)	0	1	0	0	0	1
Other land transport accidents (V80–V89)	0	1	0	0	0	1
Water transport accidents (V90–V94)	0	0	1	0	0	1
Fatal assault and neglect total	**0**	**3**	**1**	**0**	**1**	**5**
Assault (X85–Y09)	0	1	0	0	1	2
Event of undetermined intent (Y10–Y34)	0	2	1	0	0	3
Other non-intentional injury-related death total	**2**	**2**	**0**	**7**	**2**	**13**
Exposure to inanimate mechanical forces (W20–W49)	0	0	0	2	1	3
Other accidental threats to breathing (W75–W84)	2	1	0	2	0	5
Exposure to smoke, fire and flames (X00–X09)	0	0	0	1	0	1
Contact with venomous animals and plants (X20–X29)	0	0	0	1	0	1
Exposure to forces of nature (X30–X39)	0	1	0	0	0	1
Accidental poisoning by and exposure to noxious substances (X40–X49)	0	0	0	1	0	1
Accidental exposure to other and unspecified factors (X58–X59)	0	0	0	0	1	1
Drowning total	**3**	**11**	**4**	**0**	**1**	**19**
Accidental drowning and submersion (W65–W74)	3	11	4	0	1	19
Total	**6**	**20**	**7**	**18**	**21**	**72**

APPENDIX

Notifiable diseases

Table 7: Schedule of Notifiable Conditions (Public Health Regulation 2005)

Acquired immunodeficiency syndrome (AIDS)	Cruetzfeldt-Jakob disease
Acute flaccid paralysis	Cryptosporidiosis
Acute rheumatic fever	Dengue fever
Acute viral hepatitis	Diphtheria
Adverse event following immunisation	Donovanosis
Anthrax	Food-borne or waterborne illness in 2 or more cases
Arbovirus (mosquito borne) infections • alphavirus infections including: – Barmah Forest – getah – Ross River – sindbis • bunyavirus infections including: – gan – mapputta – termeil – trubanaman • flavivirus infections including: – alfuy – Edge Hill – kokobera – West Nile/kunjin – Stratford • Other unspecified arbovirus infections NB: dengue fever, yellow fever, Japanese encephalitis and Murray Valley encephalitis are listed separately	Food-borne or waterborne illness in food handler
	Gonococcal infection
	Haemolytic uraemic syndrome (HUS)
	Haemophilus influenzae type b infection (invasive)
	Hendra virus infection (*Equine morbillivirus)*
	Hepatitis A
	Hepatitis B (acute)
	Hepatitis B (chronic)
	Hepatitis B (not otherwise specified)
	Hepatitis C
	Hepatitis D
	Hepatitis E
	Hepatitis (other)
	Human immunodeficiency virus infection (HIV)
	Influenza
Australian bat lyssavirus infection	Invasive group A streptococcal infection
Australian bat lyssavirus, potential exposure	Japanese encephalitis
Avian influenza	Lead exposure (notifiable) (blood level of 5 µg/dL (0.24 µmol/L) or more)
Botulism	Legionellosis
Brucellosis	Leprosy (Hansen's disease)
Campylobacteriosis	Leptospirosis
Chancroid	Listeriosis
Chikungunya	Lyssavirus (unspecified)
Chlamydia trachomatis infection	Malaria
Cholera	Measles
Ciguatera intoxication	Melioidosis
Coronaviruses • Middle East respiratory syndrome coronavirus (MERS-CoV) • Severe acute respiratory syndrome (SARS)	Meningococcal infection (invasive)
	Mumps
	Murray Valley encephalitis
Non-tuberculous mycobacterial diseases	Shigellosis

Paratyphoid	Smallpox
Pertussis	Syphilis (including congenital syphilis)
Plague	Tetanus
Pneumococcal disease (invasive)	Tuberculosis
Poliomyelitis infection	Tularaemia
Psittacosis (Ornithosis)	Typhoid
Q fever	Varicella—zoster virus infection (chickenpox, shingles and unspecified)
Rabies	Viral haemorrhagic fevers (Crimean-Congo, Ebola, Lassa fever and Marburg viruses)
Rotavirus	Yellow fever
Rubella (including congenital rubella)	Yersiniosis
Salmonellosis	Zika virus
Shiga toxin and vero toxin producing *Escherichia coli* infection (SLTEC/VTEC)	

Inclusions within the other non-intentional injury category

Causes of death included in other non-intentional injury-related death category:

- falls
- exposure to inanimate mechanical forces, examples include:
  - struck by object
  - caught or crushed between objects
  - contact with machinery
  - foreign body entering through, eye, orifice or skin
- exposure to animate mechanical forces, examples include:
  - struck by other person
  - struck or bitten by mammal
  - contact with marine animal
- threats to breathing, examples include:
  - non-intentional suffocation or strangulation
  - threat to breathing due to cave-in, falling earth and other substances
  - inhalation of gastric contents
- exposure to electrical current, radiation and extreme ambient air temperature/pressure
- exposure to smoke, fire and flames
- exposure to heat and hot substances
- contact with venomous animals and plants
- exposure to forces of nature, examples include:
  - lightning
  - exposure to sunlight
  - excessive natural cold
- accidental poisoning by noxious substances, examples include:
  - inhalation of volatile substances
  - non-intentional overdose
  - unintended consumption
- complications of medical and surgical care.

APPENDIX 6

Suicide classification model

The suicide classification model is used to classify all cases of suspected suicide into one of three levels of certainty[90]. In classifying these deaths, the QFCC considers a number of factors, including whether intent was stated previously, the presence of a suicide note, witnesses to the event, previous suicide attempts and any significant precipitating factors or life stressors.

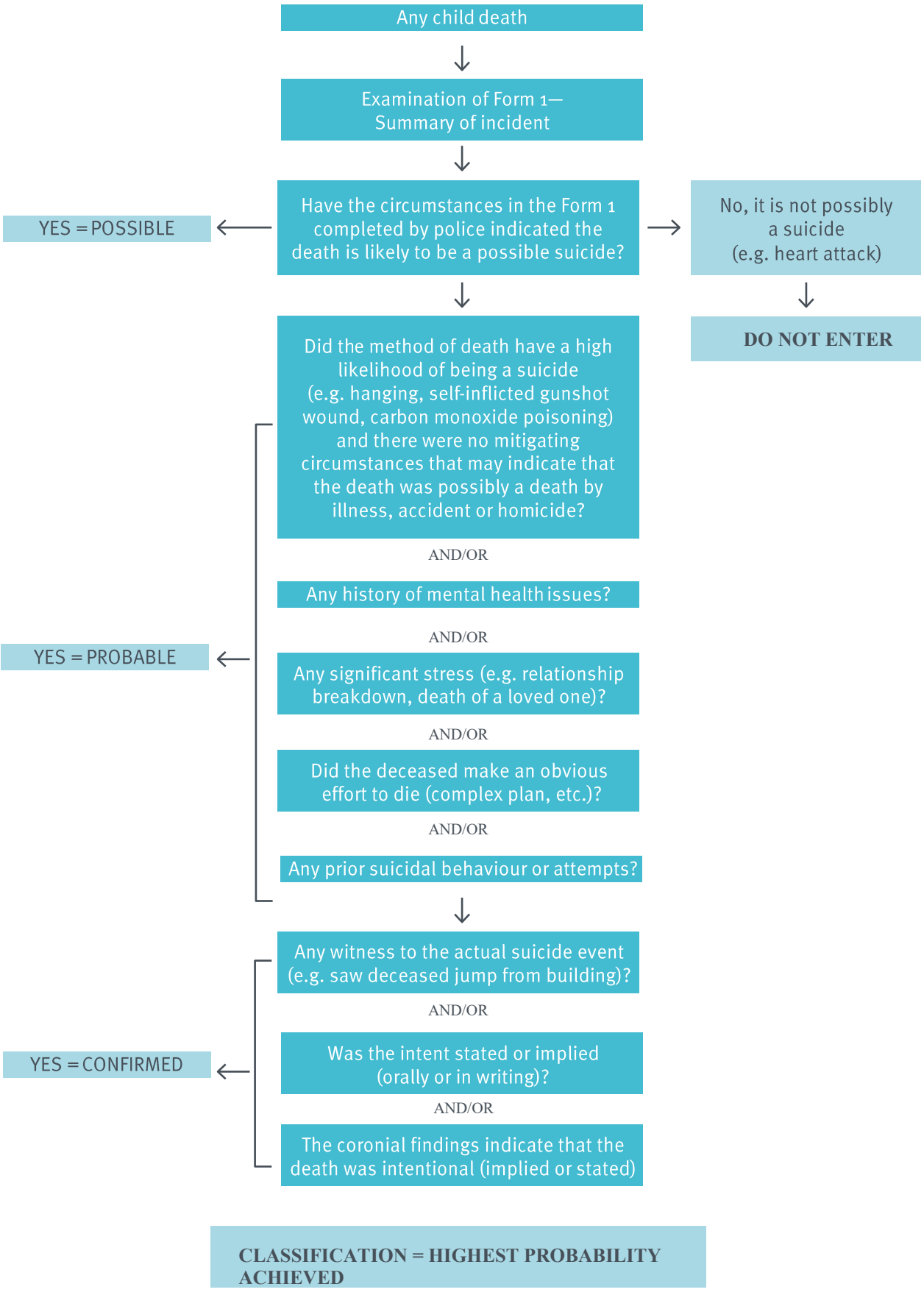
Information used to classify suicide certainty is based on data available to the QFCC at the time of reporting. Information is gathered from numerous records, including the Police Report of Death to a Coroner (Form 1), autopsy and coronial findings, toxicology reports, child protection system records and, for finalised cases, police briefs of evidence to the coroner (which can include witness statements, supplementary Form 1s, additional police reports and suicide notes).

Levels of classification are as follows:

- **Confirmed:** The available information refers to at least one significant factor that constitutes a virtually certain level of suicide classification, or coronial investigations have found that the death was a suicide.
- **Probable:** The available information is not sufficient for a judgement of confirmed, but is consistent more with death by suicide than with death by any other means. Risk factors for suicide have been identified and/or the method and circumstances surrounding the death are such that intent may be inferred.
- **Possible/undetermined:** The police have indicated (on the Form 1) that the case is a suspected suicide or the QFCC identified the possibility of a suicide but, because of a lack of information on the circumstances of the death, there is a substantial possibility that the death may be the result of another cause, or is of undetermined intent.

90 The QFCC classification model is an amended version of the Australian Institute of Suicide Research and Prevention's (AISRAP) suicide classification flow chart.

Figure 1. Suicide classification model



APPENDIX 7

Fatal assault and neglect screening criteria

The QFCC uses the fatal assault and neglect screening criteria to classify all cases of suspected fatal assault and neglect into one of three levels of certainty. In classifying these deaths, the QFCC considers a number of factors. Information is gathered from numerous records, including the Police Report of Death to a Coroner (Form 1), autopsy and toxicology reports, child protection system records and, for finalised cases, police briefs of evidence to the coroner (which can include witness statements, supplementary Form 1s and additional police reports). Additional information from criminal proceedings and sentencing is also reviewed.

Information used to confirm fatal assault and neglect deaths is based on data available to the QFCC at the time of reporting.

Levels of confirmation are as follows:

Confirmed

- A perpetrator has been charged for a criminal offence relating to the death of the child and, regardless of the outcome, the facts establish the death was the result of inflicted harm or neglect, and/or
- coronial findings indicate (either expressly or impliedly) that the death was a result of inflicted harm or neglect, and/or
- a perpetrator has suicided in conjunction with the death of the child and has expressly or impliedly stated that they were responsible for the child's death.

Probable

- The evidence available to the QFCC indicated that there was a high likelihood that the death was a consequence of inflicted injury or neglect (i.e. but for the inflicted injury or neglect the child probably would not have died), and/or
- there is medical evidence to suggest the death was a consequence of inflicted injury or neglect, and/or
- a perpetrator has suicided in conjunction with the apparent non-accidental death of the child.

Possible

- The initial evidence available to the QFCC indicated that the child may have experienced inflicted harm or neglect which may have contributed to or caused the death (i.e. these deaths demonstrated the presence of risk factors at the time of the incident that could potentially have played some role in relation to the child's death, without establishing a probable likelihood of this having occurred).