Counting lives, changing patterns

Findings from the Queensland Child Death Register 2004–2019

Queensland
Family & Child
Commission

Queensland
Government

About this report

This report has been prepared under Part 3 of the *Family and Child Commission Act 2014*. It analyses information about children and young people in Queensland who died between 1 January 2004 and 31 December 2019 and whose deaths have been registered with the Registry of Births, Deaths and Marriages.

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This report pays tribute to all children who have lost their lives in Queensland, particularly those whose deaths form the basis of this report. The Queensland Family and Child Commission is committed to learning from these tragedies and understanding ways these types of deaths may be prevented in the future.

In particular, this report acknowledges the disproportionate rate of death for First Nations children in Queensland and seeks to inform strategies to target the underlying causes of this over-representation. This is a task requiring continued, co-ordinated effort across all sectors and cannot be achieved without genuine partnership with Aboriginal and Torres Strait Islander peoples.

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Acknowledgements

The Queensland Family and Child Commission (QFCC) acknowledges the tragic deaths of the children and young people who died in Queensland between 2004 and 2019, and whose stories form the basis of this report. We recognise the grief and loss of their family, friends and the broader community.

In preparing this report, the QFCC seeks to learn from the circumstances of each child's death. This will help to drive research, policy and initiatives to reduce and prevent future child death and injury.

The QFCC acknowledges the unique and diverse cultures of Australia's First Nations peoples, and throughout this document we have used the terms Aboriginal and Torres Strait Islander and Indigenous to collectively describe distinct groups of people. The QFCC respects the beliefs of the Aboriginal and Torres Strait Islander peoples and advises there is information in this report about Aboriginal and Torres Strait Islander people who are deceased.

The QFCC thanks the government and non-government agencies and individuals who contributed their expertise to the review. In particular, we express appreciation to Associate Professor Julie McEniery and Diane Cruice of the Queensland Paediatric Quality Council and Dr Ruth Barker of the Queensland Injury Surveillance Unit for their feedback on the findings of the review.

Our gratitude also goes to the staff of the Queensland Government Statistician's Office and the Department of Child Safety, Youth and Women, who provided data, advice and assisted with the preparation of the statistical information contained within the report. We also acknowledge and appreciate the work of staff from across the QFCC who contributed to the data analysis, research and drafting processes, along with officers from the QFCC's Child Death Prevention team, who maintain the Queensland Child Death Register.

Foreword

The loss of a child is a tragedy with far-reaching and long-lasting impacts for family, friends and the greater community.

In some cases, sadly, the death of a child arises from natural causes which simply cannot be prevented. In many other cases, changes can be made that will reduce risk or even prevent a death occurring. As a society, we must do everything possible to learn from the circumstances of these children's deaths, so we can improve the health and wellbeing of all children.

The Queensland Child Death Register brings together information about the deaths of Queensland children and young people (aged 0–17 years). It captures valuable data about Queensland children who have died, including where they lived, the families in which they were raised, their cultural background, any vulnerabilities they may have experienced, and the circumstances and causes of their deaths. It gathers as much information as possible about their story.

The Queensland Child Death Register, currently maintained by the Queensland Family and Child Commission (QFCC), has stored critical information about these children for more than 16 years.[1] Between 1 January 2004 and 31 December 2019, 7,175 Queensland children and young people lost their lives. By hearing the stories of each of these children, we can start to see similarities and shared experiences. We can also see patterns emerge around risk factors and opportunities for prevention that are specific to particular causes of death.

The QFCC has analysed data from this 16-year period and used this information to identify opportunities for future research and for policy and program development that can help prevent child death and injury. It is my hope that, while the children about whom this data is collected are no longer with us, we can learn from their lives, and from their deaths, how to help keep other Queensland children safe and well.

There has been a significant reduction in the overall rate of child deaths in Queensland over the 16-year period between 2004 and 2019. Deaths from natural causes, transport incidents, unexplained infant deaths, other non-intentional injuries, drowning and fatal assault and neglect have all decreased, to varying degrees, over this period. I am concerned, however, that the rate of suicide, particularly for young people aged 15–17 years, has increased.

Not all children face the same risk of death in childhood as others. For example, Aboriginal and Torres Strait Islander children and children known to the child protection system are heavily over-represented in rates of child death.

Children from rural and remote areas and children from low socio-economic areas also die from external causes at higher rates than children from metropolitan areas and areas with less social disadvantage.

As a society, each of us must make efforts to address the underlying social issues that place children from particular backgrounds at greater risk of childhood injury and death.

In undertaking the review, the QFCC has identified several areas of focus for further research, including:

- exploring reasons behind the significant changes in the rate of death from Sudden Infant Death Syndrome over time
- continuing to monitor the circumstances in which children under 5 years of age drown in swimming pools and reinforce the importance of age-appropriate adult supervision
- exploring how experiencing multiple vulnerabilities may impact the risk of death from particular causes
- better understanding how to influence the disparity between Indigenous and non-Indigenous infant and child mortality rates
- further exploring the impacts of geographic isolation and socio-economic disadvantage on deaths from particular causes
- examining why the rate of suicide in Queensland young people aged 15–17 years has increased, despite continued initiatives to raise awareness of mental health and youth suicide in the community.

I will continue to work with QFCC stakeholders to progress this critical work. The independent Child Death Review Board, which commenced operations on 1 July 2020, will play an integral part in ongoing system improvements for child death prevention.

The trends identified in this report will bring improvements that will help save children's lives. I hope this is one consolation for the families and communities who knew the children behind these statistics. As a society we owe it to the children mentioned in these pages to make sure they are not forgotten.

Cheryl Vardon
Principal Commissioner
Queensland Family and Child Commission

1 Between 2004 and 2013, the Queensland Child Death Register was maintained by the former Commission for Children and Young People and Child Guardian. The Queensland Family and Child Commission assumed responsibility for maintaining the register in 2014.

Executive summary

The Queensland Family and Child Commission is responsible for maintaining the Queensland Child Death Register (the register), which records information about the deaths of all children and young people under 18 years of age in Queensland. The register captures information about a child's demographics, cause and circumstances of death, involvement with the child protection system and other government services and, where known, certain characteristics or vulnerabilities of the child and their family that may have influenced the level of risk for the child.

The register commenced operation in 2004. During the 16 years between 1 January 2004 and 31 December 2019, 7,175 children and young people lost their lives in Queensland. In analysing these deaths collectively, this report identifies and explores trends and commonalities across different cohorts of children, geographical areas and causes of death. Wherever it has been possible to determine the significance of these trends—that is, to confirm whether increases or decreases over time are greater than what would be expected to occur by chance—the details of this have been reported. This collective data is an invaluable resource to inform future research, policy development and activities designed to prevent death and injury.

Of the 7,175 children who died between 2004 and 2019:

- 5,209 children and young people died of natural causes (diseases and morbid conditions)
- 1,440 children and young people died as a result of external causes (that is, deaths from injury, poisoning or other adverse events), comprising:
  - transport incidents (530 deaths)
  - drowning (235 deaths)
  - other non-intentional injury (218 deaths)
  - suicide (331 deaths)
  - fatal assault and neglect (126 deaths)
- 484 children died from unexplained causes including:
  - infant deaths from Sudden Infant Death Syndrome (SIDS) and undetermined causes (443 deaths)
  - children aged 1–17 years whose cause of death could not be determined (41 deaths)
- a further 42 children died of causes that had not yet been determined at the time of reporting.

There has been a statistically significant decline in the annual rate of child deaths over the 16-year period. Between 2004 and 2019, child mortality in Queensland decreased by 3 per cent per year, on average.

There has been a decrease in deaths from natural causes (2.9 per cent per year, on average), other non-intentional injuries (6.1 per cent per year, on average), transport (an average of 7.9 per cent per year) and drowning (2.8 per cent per year, on average). The rate of death from fatal assault and neglect declined by an average of 3.9 per cent per year.

There has also been a decrease in the annual rate of unexplained infant deaths (those from SIDS and other undetermined causes) of 13.2 per cent per year, on average, between 2011 and 2019.

Of concern, the rate of suicide for Queensland children and young people has increased by 2.6 per cent per year on average over the 16-year period—from 1.7 per 100,000 in 2004–2008 to 2.1 per 100,000 in 2015–2019.

The increase in suicide deaths is especially significant for the 15–17 year age group. The annual suicide rate among 15–17-year-olds increased by an average of 3.5 per cent per year. Over the same period, the five-year rolling rate increased from 7.4 per 100,000 in 2004–2008 to 10.3 per 100,000 in 2015–2019. This is despite an increased focus on suicide awareness and a variety of prevention initiatives. It is a concerning trend calling for continued investigation by suicide researchers.

This report confirms that a child's risk of death, particularly as a result of injury, varies significantly over the course of childhood. Likewise, there are periods of childhood where children are more, or less, susceptible to particular causes of death due to factors such as age, vulnerability and developmental stage.

For example, infants under the age of 1 year are more likely to die as a result of natural causes, unexplained deaths (such as SIDS) and sleep-related incidents. They are also at risk of fatal assault and neglect due to their vulnerability and complete dependency on adults for their survival.

The risk of death from external causes including drowning, other non-intentional injury and transport incidents increases from early childhood as mobility and curiosity develop, exposing children to more hazards.

Deaths from suicide and transport incidents escalate in adolescence as risk-taking behaviours, alcohol and substance use, wider peer circles, social and peer pressures and less supervision become factors.

The mortality risk for a child is also dependent on a range of demographic and social factors. For example, whether a child is male or female impacts upon their overall risk of death in childhood. Male children died at 1.2 times the rate of female children[2] and were more likely to die as a result of transport incidents, drowning, suicide and other non-intentional injury.

There are differences in the rates and cause of child death across different parts of the state. By analysing the geographical and socio-economic distribution of deaths, this report shows that children who usually resided in Outback Queensland (encompassing many remote and disadvantaged areas) had a much higher rate of death than children living in other areas of the state, particularly for external causes of death such as transport incidents and drowning.

There are several unique environmental, cultural and social factors that contribute to differing rates of childhood mortality across geographical and socio-economic areas and these are considered further in the report.

A variety of factors may combine to influence a child's health and wellbeing. The register collects data on a range of vulnerability characteristics and social circumstances that may have been present for a child or their family. These include:

- alcohol and substance use
- behavioural or school engagement issues
- domestic and family violence
- housing, homelessness and transience
- illness, disability and developmental delay
- allegations of maltreatment
- mental health issues
- alleged offending behaviour or a history of detention
- self-harm and suicidal behaviour.

The report highlights the frequency with which vulnerability characteristics were identified for the children and young people who died.[3] It offers an opportunity to explore factors that can interact to increase the risk of adverse experiences—including death.

Aboriginal and Torres Strait Islander children and young people in Queensland are disproportionately represented in child mortality statistics, dying at around twice the rate of non-Indigenous children. Indigenous children were 1.7 times more likely to die from natural causes, 2.5 times more likely to die as a result of external causes and 2.3 times more likely to die from unexplained causes.[4]

This report acknowledges the complex historical, social, economic and geographical factors that may combine to create higher rates of disadvantage and vulnerability for Aboriginal and Torres Strait Islander children and young people. It highlights the need to continue efforts to reduce disparities between mortality rates for Indigenous and non-Indigenous children.

Encouragingly, however, the rate of Aboriginal and Torres Strait Islander child death has decreased significantly over time, by an average of 2.3 per cent per year. Infant mortality, a key marker of population health, has also declined for both Aboriginal and Torres Strait Islander and non-Indigenous children (an annual average decrease of 4.7 and 2.6 per cent per year, respectively).

Between 2004 and 2019, 934 children and young people who died were known to the child protection system (just over 13% of all child deaths). These children's deaths were subject to a review by the lead agency responsible for child protection in Queensland (currently the Department of Child Safety, Youth and Women (Child Safety)). These reviews examine Child Safety's involvement with the child and their family.[5]

The rate at which children known to the child protection system die of external and unexplained causes is significantly higher than it is for Queensland children in general. Deaths from transport incidents, drowning, other non-intentional injury, suicide and fatal assault and neglect occurred at 4.2 times the rate of all Queensland children, while unexplained deaths occurred at 3.1 times the general rate.[6] This is likely due to the higher rates of vulnerability characteristics, disadvantage and social instability experienced by children known to Child Safety—all of which increase the risk of adverse childhood outcomes including abuse, neglect, injury and death.

This report contains a number of findings that require further, in-depth investigation. The QFCC will use the findings of this report to inform its future priorities and pursue opportunities to collaborate with researchers and other interested stakeholders to progress these.

2 During the most recent five-year period, 2015–2019.
3 Information about vulnerability characteristics is only available for reportable child deaths investigated by a coroner. As such, information about vulnerability characteristics is only presented for children who died of external or unexplained causes, and has only been routinely collected since 2013.
4 During the most recent five-year period, 2015–2019.
5 The Department of Child Safety, Youth and Women (Child Safety) is currently the lead agency with responsibility for children requiring a child protection response in Queensland. In the context of this report, children known to the child protection system are those children involved with Child Safety prior to their death. This involvement encompasses a broad spectrum of actions, from receiving a report of a child protection concern through to placing a child in out-of-home care. See Chapter 5 for further details.
6 During the most recent five-year period, 2015–2019.

Introduction

The Queensland Family and Child Commission (QFCC) was established in 2014 to promote the safety, wellbeing and best interests of children and young people; promote and advocate for the responsibilities of families to protect and care for children; and improve the child and family support system.[7]

It works with government and non-government partners to make system improvements to keep Queensland children safe and well. One of the ways it does this is by reviewing information about the circumstances in which children and young people have died and identifying opportunities to improve systems in order to prevent such deaths in the future.

The Queensland Child Death Register

Under the QFCC's legislation, the Principal Commissioner is required to maintain a register of all child deaths that occur in Queensland, using information provided by the Registry of Births, Deaths and Marriages and the Coroners Court of Queensland.[8] The QFCC uses the information contained in the this register to make recommendations about laws, policies, practices and services to help reduce the likelihood of child deaths.[9]

The Queensland Child Death Register (the register) draws together information from a variety of sources about children's lives, and the circumstances in which they have died, aiming to develop a comprehensive picture of the risk and protective factors present for these children.[10] Considering these deaths collectively allows us to identify trends and patterns, which can be used to inform public policy.

Particularly for deaths occurring as a result of injury (rather than deaths from natural causes), this can help to identify factors that may have prevented the death, such as improving product safety or reducing high-risk behaviour. This information can be used to advocate for relevant regulation, policy change or educational campaigns.

All states and territories in Australia have child death review mechanisms, and the QFCC meets with representatives of these agencies annually to share findings and work towards consistency in data collection, classification and reporting.

The Queensland Child Death Register has been in operation since 2004.[11] Now holding more than 16 years of child death data, the register is a rich source of information about trends and patterns in child mortality in Queensland over time.

The basis of the register is death registration information provided by the Registry of Births, Deaths and Marriages. This provides key demographic and cause of death information for every case.

For deaths investigated by a coroner, the Coroners Court of Queensland provides the QFCC with copies of police reports, autopsy and toxicology reports, and coroners' findings and comments.

Reportable deaths

Some child deaths are considered 'reportable' deaths. These are sudden and unexpected deaths, or those resulting from violence or external forces (that is, not natural causes).[12] In these cases, police attend and provide a report to a coroner, who is then responsible for determining how the person died.

For children who were known to the child protection system in the year prior to their death, the QFCC receives information about Child Safety's involvement with the child and their family. The QFCC has agreements in place with a range of other agencies to exchange information relating to particular types of death, such as drowning, suicide or workplace deaths. Major contributors to the register are shown in **Figure A**.

7 The child and family support system is the network of services that operate to support families and keep children safe and well. It includes universal services such as hospitals and schools; secondary services that provide parenting support or help with issues experienced by families (for example, substance misuse, mental health or domestic and family violence services); and tertiary child protection services. The term 'child protection system' is used throughout this report to describe children's involvement with the tertiary level of the child and family support system.
8 *Family and Child Commission Act 2014*, s. 25.
9 ibid., s. 26.
10 Risk factors are characteristics or circumstances that are associated with an increased chance of adverse outcomes, including injury and death. Protective factors may act to lessen these risks. See Chapter 4 for further details.
11 The register was developed in response to the recommendations of the former Crime and Misconduct Commission, following an investigation of the foster care system in Queensland. Between 2004 and 2013, the Queensland Child Death Register was maintained by the Commission for Children and Young People and Child Guardian.
12 Under s. 8(3) of the *Coroners Act 2003*, a death is reportable if: (a) the identity of the person is unknown (b) the death was violent or otherwise unnatural (c) the death happened in suspicious circumstances (d) the death was healthcare related (e) a cause of death certificate was not issued and is unlikely to be issued (f) the death occurred in care (g) the death occurred in custody (h) the death occurred in the course of police operations.

Figure A: Information sources contributing to the Queensland Child Death Register

Additional data is available for reportable deaths. For these deaths, the QFCC records within the register:

- demographic information
- the causes and circumstances of death
- any criminal charges arising from the death
- each child's family circumstances, including engagement with agencies and services
- risk and protective factors relevant to the child's cause of death
- risk and protective factors present in the child's life more generally, such as mental health issues, domestic and family violence or homelessness.[13]

This provides the QFCC with a thorough understanding of trends and patterns in child mortality in Queensland, and insight into the lives and circumstances of death for those who die from external and unexplained causes in particular.

This report provides a high-level overview of broad trends and patterns in child mortality in Queensland over the 16-year period based on data from the register. It identifies a number of areas requiring further action, which the QFCC intends to pursue, including in collaboration with stakeholders.

13 For non-reportable (natural cause) deaths, only death registration information from the Registry of Births, Deaths and Marriages is available.

Chapter 1—Child deaths in Queensland, 2004–2019

1.1 Trends in child mortality over time

Between 1 January 2004 and 31 December 2019, a total of 7,175 children and young people tragically lost their lives in Queensland. However, while there has been some year on year variability, there has been a gradual decline in the number of child deaths in Queensland over this 16-year period. The number of child deaths per year peaked at 524 in 2009, falling to a low of 360 in 2018.

There has also been a decrease in the *rate* of death. The actual rate of death fluctuated from one year to the next, but there has been a clear decline in the rate of child death over the 16-year period (see **Figure 1.1**).

Raw numbers or mortality rates?

The use of rates allows more accurate comparison of the number of deaths between populations.

For example, the number of deaths that occur in a major city might be 10 times the number that occur in a remote town. However, taking into account the size of the population in each of these areas reveals that children in remote areas die at a much higher rate than those in metropolitan areas.

In effect, rates help us determine the risk of death for particular populations, in particular areas, or from particular causes.

Three and five-year rolling averages have been used throughout this report to smooth out the fluctuations in rates from year to year that occur by chance, and better allow identification of any emerging trends, particularly when reporting on small numbers. See **Appendix 1** for details of rates calculations used in this report.

The three-year rolling rate of child death in Queensland fell from 48.2 per 100,000 (2004–2006) to 33.1 per 100,000 (2017–2019). Over the 16-year period, the annual rate of death decreased by an average of 3 per cent per year. This represents a statistically significant decrease (that is, more than could be expected to occur by chance) in the rate of child deaths.[14]

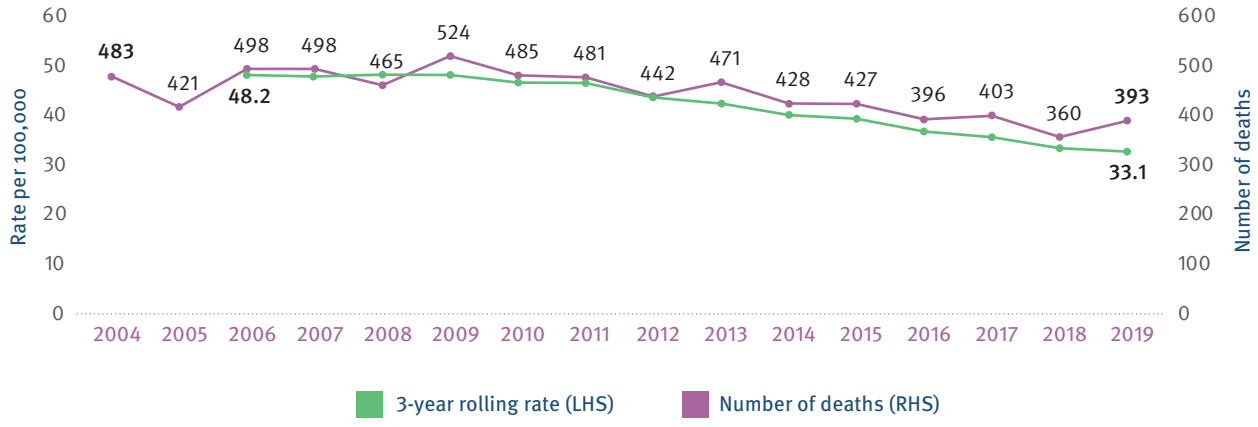

Figure 1.1: Number and rate of child deaths in Queensland, 2004–2019
Note: Rates calculated per 100,000 children aged 0–17 years, averaged over three-year periods.

14 $p < 0.001$.

1.2 Reporting and determining causes of child death in Queensland

1.2.1 Reportable and non-reportable deaths

When a child dies, there are certain circumstances under which the death must be investigated by a coroner. These circumstances are outlined in the *Coroners Act 2003*, but essentially state that if a death is sudden or unexpected, a coroner must investigate.[15]

These types of deaths are known as 'reportable' deaths. Reportable deaths are predominantly deaths due to external causes (such as injury or poisoning) or cases in which a specific cause of death is unable to be determined (for example Sudden Infant Death Syndrome). However, a small proportion of reportable deaths are due to natural causes that occur suddenly and unexpectedly. The coroner is responsible for determining the identity of the deceased, and the circumstances, time, place and cause of death.[16]

Deaths from external causes

'External cause' deaths are those caused by environmental events and circumstances that cause injury, poisoning and other adverse events.

The QFCC classifies external cause deaths into five major categories:

- transport incidents
- drowning
- other non-intentional injury (including fire)
- suicide
- fatal assault and neglect.

These deaths are most readily able to be prevented by changing behaviours and environmental factors, and they are a major focus of this report.

The remaining, 'non-reportable' deaths are those that are not sudden and unexpected. Non-reportable deaths are natural deaths caused by diseases and morbid conditions (see below).

Examples include the deaths of infants shortly after birth due to congenital anomalies or perinatal conditions, deaths as a result of terminal illnesses, or deaths that occur as a result of a chronic illness such as cystic fibrosis. In these cases, doctors who have knowledge of a child's medical conditions and general health may issue a cause of death certificate. When a doctor issues a cause of death certificate, a coronial investigation (including conducting an autopsy or preparing toxicology reports) is not required.[17]

Diseases and morbid conditions (natural causes of death)

The Australian Institute of Health and Welfare defines disease as 'a physical or mental disturbance involving symptoms (such as pain or feeling unwell), dysfunction or tissue damage, especially if these symptoms and signs form a recognisable clinical pattern'.[18]

Morbid conditions are a broader concept referring to ill-health in general, both at an individual and population level.

Deaths due to diseases and morbid conditions can be best thought of as 'natural cause' deaths. This is the term used throughout the remainder of this report.

The majority of deaths occurring between 2004 and 2019 were non-reportable deaths, as shown in **Figure 1.2**.

Figure 1.2: Proportion of child deaths reported to a coroner, 2004–2019

15 Under s. 8(3) of the *Coroners Act 2003*, a death is reportable if: (a) the identity of the person is unknown (b) the death was violent or otherwise unnatural (c) the death happened in suspicious circumstances (d) the death was healthcare related (e) a cause of death certificate was not issued and is unlikely to be issued (f) the death occurred in care (g) the death occurred in custody (h) the death occurred in the course of police operations.

16 ibid., s. 45(2).

17 In a small number of cases, deaths due to natural causes for which a death certificate is issued are still investigated by a coroner. This would occur where the death meets other criteria for inclusion as a reportable death (for example, if the death occurred in care or custody).

18 Australian Institute of Health and Welfare 2020, *Australia's Health 2020: Data insights*, Australian Institute of Health and Welfare, Canberra, viewed 7 August 2020, https://www.aihw.gov.au/getmedia/be95235d-fd4d-4824-9ade-34b7491dd66f/aihw-aus-231.pdf.aspx?inline=true

1.2.2 Natural and external cause deaths

An alternate means of breaking down the causes of child death is to consider deaths from natural causes together (regardless of whether they were reportable or non-reportable deaths). These can be compared with external cause deaths and deaths from unexplained causes (that is, deaths from SIDS and other undetermined causes).

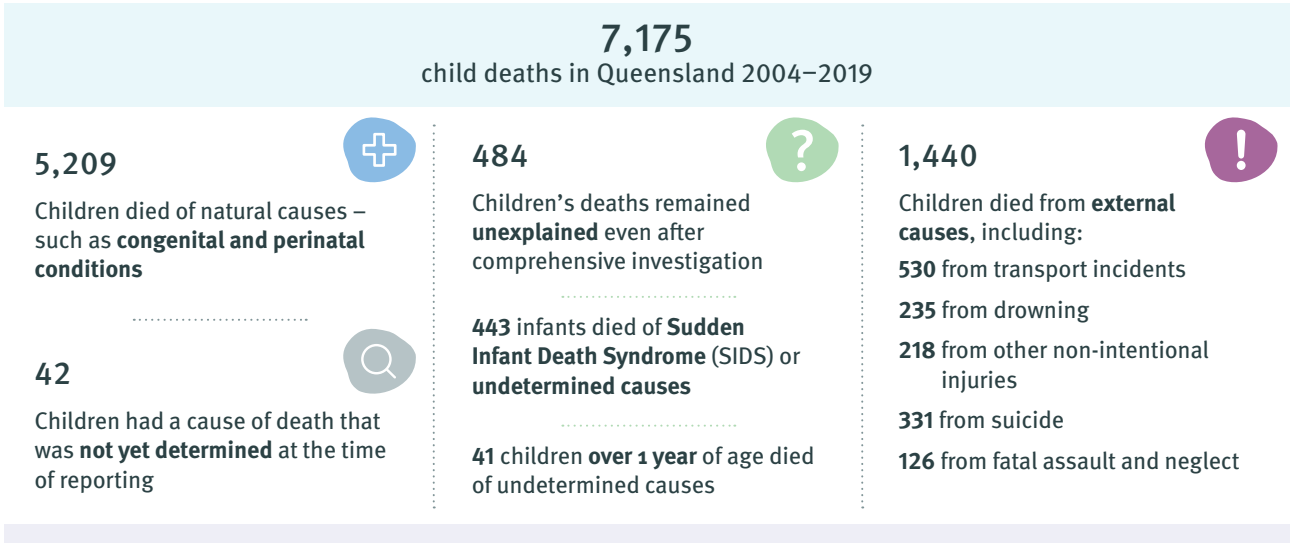

Figure 1.3: Child deaths by major cause grouping, 2004–2019

This method allows causes of death with similar risk factors to be analysed together, regardless of whether they were investigated by a coroner or not. The major cause groupings outlined in **Figure 1.3** will be used as the basis of analysis in this report.

1.3 Causes of death, 2004–2019

1.3.1 Deaths from natural causes (diseases and morbid conditions)

Between 2004 and 2019, 5,209 children and young people died as a result of natural causes (diseases and morbid conditions). The rate of death from natural causes decreased significantly over time, by an average of 2.9 per cent per year.[19]

Defining the specific disease process leading to death is complex. This report has used the high-level medical groupings published by the World Health Organization to classify natural cause deaths.[20]

The majority of child deaths from natural causes each year are from three major categories of disease: perinatal conditions, congenital anomalies and neoplasms (cancers), as shown in **Figure 1.4**. Together, these accounted for 80 per cent of the natural cause deaths across the 16 years under review.

19 $p < 0.001$.
20 The QFCC uses the *International Statistical Classification of Diseases and Related Health Problems, version 10* (ICD-10), published by the World Health Organization, to classify and report on the causes of child mortality.

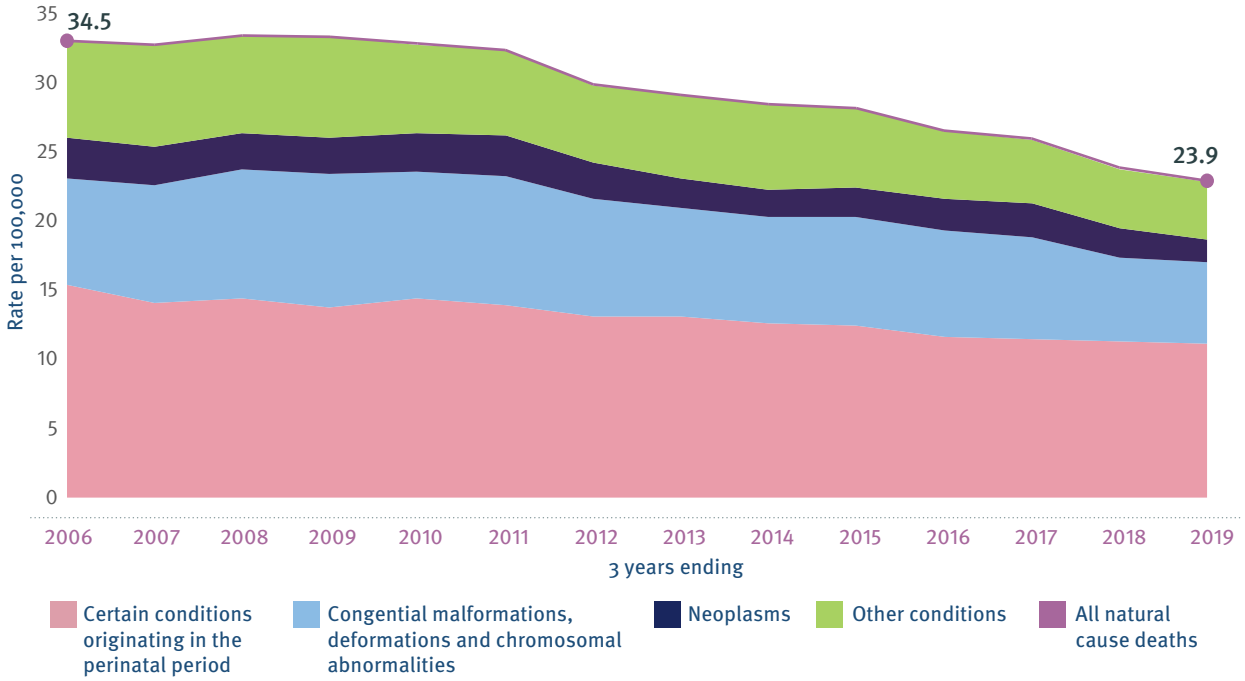

Figure 1.4: Natural cause deaths by leading cause, 2004–2006 to 2017–2019
Note: Rates calculated per 100,000 children aged 0–17 years, averaged over three-year periods.

Conditions originating in the perinatal period were consistently the leading natural cause of death, accounting for 44.7 per cent of natural cause deaths over the 16-year period. These are conditions that arise during pregnancy or within the first 28 days of life, although death may occur later. They include complications of labour and delivery, conditions related to fetal growth, gestation and birth weight and some respiratory, cardiovascular, endocrine and metabolic disorders and infections that are specific to the perinatal period.

Of the 2,329 deaths over the 16-year period that were due to perinatal conditions, more than half were due to maternal factors (such as maternal injury and illness) or complications of pregnancy, labour and delivery (53.3 per cent). The rate of death from perinatal conditions fell from 16.1 per 100,000 in the three-year period between 2004 and 2006 to 11.6 per 100,000 by 2017–2019. Over the 16-year period 2004 to 2019, the annual rate of death from perinatal conditions decreased by 2.4 per cent per year, on average.[21]

Congenital anomalies are cognitive and physical conditions present at birth that are either hereditary or caused by environmental factors. Deaths due to congenital anomalies accounted for 27 per cent of deaths from natural causes, with the greatest proportion of these due to circulatory system defects (28.7 per cent).

The overall rate of deaths from congenital anomalies was 8 per 100,000 in 2004–2006 but dropped to 6.2 by 2017–2019. There was a significant downward trend in the annual death rate of 2.5 per cent per year, on average, between 2004 and 2019.[22]

Death from cancers and tumours (neoplasms) occurred at a much lower rate than perinatal conditions and congenital anomalies, and fell from 3.1 per 100,000 at the beginning of the 16-year period to 1.7 per 100,000 during 2017–2019. This is a strong downward trend, with the annual rate decreasing by an average of 3.7 per cent per year.[23]

1.3.2 Unexplained deaths

Unexplained deaths are those deaths of children or infants who were otherwise well, or suffering from only a mild illness, for which a cause is not able to be determined, even after a complete and comprehensive autopsy, toxicology screen and coronial investigation.[24]

Over the 16-year period, there were 484 child deaths for which a cause could not be determined. The vast majority of unexplained deaths were of infants under 1 year of age (443 cases; 91.5 per cent of unexplained deaths). Statistical analysis shows the rate of unexplained infant deaths increased by an average of 6 per cent per year between 2004 and 2011[25] followed by a strong downward trend, with annual rates decreasing by 13.2 per cent per year on average.[26]

21 $p < 0.001$.
22 $p < 0.01$.
23 $p < 0.001$.
24 This category also includes a small number of cases in which more than one potential cause is possible, but the underlying cause cannot be determined. It also includes cases in which the circumstances of death cannot be determined (such as a child who dies of injuries which are of unknown origin).
25 Joinpoint analysis identified two distinct trends in unexplained infant deaths over the 16-year period. The increase between 2004 and 2011 was weakly significant at $p < 0.05$.
26 $p < 0.001$.

All but two of the unexplained infant deaths recorded fell into the research classification of sudden unexpected deaths in infancy.[27]

Sudden unexpected death in infancy (SUDI)

The QFCC uses the SUDI classification to group together the deaths of otherwise healthy infants who die suddenly and unexpectedly, with no immediately obvious cause.[28] These deaths may be later identified as being due to a previously unrecognised disease or morbid condition such as congenital birth defects, disorders or infections. In some cases an external cause (such as intentional or non-intentional injury) is identified.

However, in many SUDI cases, no potential cause can be identified. These are recorded as Sudden Infant Death Syndrome (SIDS). In other cases, clinical findings are present, but none can be identified as the cause of death. These are considered to be deaths due to undetermined causes.

Unexplained infant deaths are classified as either SIDS or 'undetermined'. These are often reported together but represent distinct categories.

SIDS is defined as:

> *The sudden, unexpected death of an infant under one year of age, with onset … during sleep, that remains unexplained after a thorough investigation, including … a complete autopsy and review of the circumstances of death and the clinical history.*[29]

'Undetermined' infant deaths, on the other hand, are those cases for which alternate causes are possible, but uncertain. The following circumstances preclude a death being categorised as SIDS, as there are alternate explanations evident that are not able to be proven:

- presence of disease not sufficient to cause death
- signs of significant stress
- non-accidental but non-lethal injuries
- presence of non-prescribed but non-lethal drugs within toxicology results
- full autopsy has not been performed and a cause is not otherwise identified.[30]

As shown in **Figure 1.5**, deaths from SIDS and undetermined causes make up a relatively small proportion of infant deaths, with the majority due to natural causes. The rate of infant deaths from all causes fell by an average of 2.6 per cent per year across the 16-year period.[31]

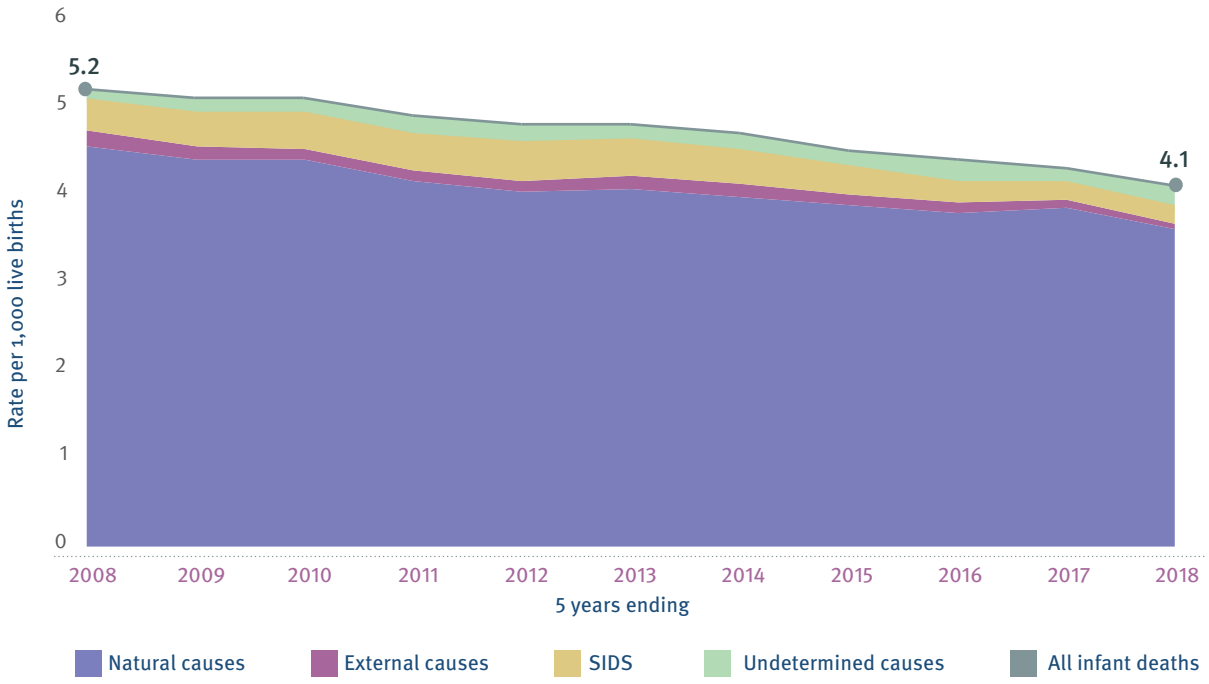

Figure 1.5: Infant deaths by major cause grouping, 2004–2008 to 2014–2018
Note: Rates calculated per 1,000 live births, averaged over five-year periods.

27 The two cases of unexplained infant death that were not included in the SUDI research classification did not occur in circumstances that align with the definition of SUDI.
28 Differing definitions of SUDI exist. For example, some jurisdictions only include deaths that remain unexplained at autopsy—Byard, R 2018, 'Sudden Infant Death Syndrome: Definitions', *Sudden Infant and Early Childhood Death: The past, the present and the future*, The University of Adelaide, viewed 18 May 2020, https://www.adelaide.edu.au/press/system/files/2019-04/uap-sids-ebook.pdf
The QFCC includes all sudden and unexpected infant deaths within its SUDI classification, regardless of the cause of death at autopsy.
29 Kraus et al cited in Byard 2018, 'Sudden Infant Death Syndrome: Definitions', *Sudden Infant and Early Childhood Death: The past, the present and the future*, The University of Adelaide, Adelaide, p. 5, viewed 18 May 2020, https://www.adelaide.edu.au/press/system/files/2019-04/uap-sids-ebook.pdf
30 Queensland Family and Child Commission 2020, Annual Report: Deaths of children and young people, Queensland 2018–19, Queensland Family and Child Commission, Brisbane, viewed 10 June 2020, https://www.qfcc.qld.gov.au/keeping-kids-more-safe/preventing-child-injury-death/child-death-reports-data/annual-report-deaths
31 $p < 0.001$.

While there was no statistically significant trend in the annual rate of SIDS from 2004 to 2011, from this point onwards a strong declining trend was evident, with the rate of SIDS decreasing by 17.4 per cent per year (on average) to 2019.[32] This rapid decline in SIDS is more apparent when illustrated across three-year periods, as shown in **Figure 1.6**.

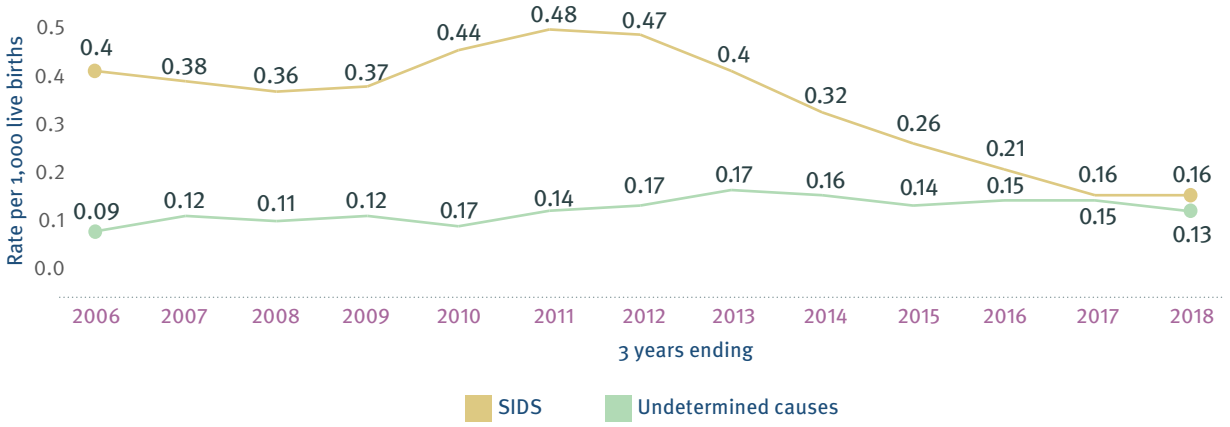

Figure 1.6: Unexplained infant deaths by primary cause, 2004–2006 to 2017–2019
Note: Rates calculated per 1,000 live births, averaged over three-year periods.

The reasons for this sudden decline in SIDS cases is unclear. Researchers have recognised an absence of consistency in the certification of sudden infant deaths, including overuse of the SIDS diagnosis in cases where equivocal post-mortem findings were evident.[33] A reluctance to certify infant deaths as due to suffocation to avoid further stress for already traumatised families has also been noted.[34]

If changing certification practices were a contributing factor, however, an increase in either natural cause deaths, external or undetermined causes would be expected to occur as the rate of SIDS deaths dropped. This would be difficult to detect with the relatively small number of unexplained infant deaths occurring each year. However, this finding does indicate that there may have been a genuine decrease in the rate of SIDS deaths over time.

While SIDS is, by definition, a death for which no cause is identified, there are factors which can increase or reduce the risk. The *Triple Risk Model* hypothesises that the risk of SIDS is raised when a vulnerable infant (such as one of low birthweight or exposed to maternal smoking, for instance), during a critical period of development (particularly the first 6 months of infancy) is exposed to a stressor with which they are unable to cope.[35] These stressors include external factors such as prone (stomach-down) sleeping position, overheating or unsafe shared sleeping arrangements that most babies will survive, but an already vulnerable baby may not be able to overcome.[36]

As such, an alternate explanation for the declining rate of unexplained infant deaths may be the prevention initiatives concerning safe infant sleeping practices implemented in Queensland during these timeframes. For example, a trial of the Pēpi-Pod® Program began in 2014 among participating Aboriginal and Torres Strait Islander families.

The Pēpi-Pod® Program is a safe sleep enabler for infants up to five months of age, embedded within a safe sleep education program. The Pēpi-Pod® device provides physical protection for babies when sharing a sleep surface with parents, carers or siblings and is delivered together with infant care health promotion, advice and support.[37] Early results from this trial indicate that the program increased awareness of safe sleeping and reduced unsafe shared sleeping when known risk factors (such as smoking) were present.[38]

Continuing research on effective safe sleeping campaigns and other potential factors linked to SUDI is critical to reducing the rate of unexpected infant deaths. Identifying other factors that may have contributed to the steep reduction in SIDS deaths in particular will assist in understanding where prevention efforts are best targeted.

32 $p < 0.001$.
33 Byard RW, Shipstone RA & Young J 2019, 'Continuing major inconsistencies in the classification of unexpected infant deaths', *Journal of Forensic and Legal Medicine*, 64, pp. 20–22.
34 ibid.
35 Red Nose National Scientific Advisory Group 2016, *Information Statement: The Triple Risk Model*, viewed 8 July 2020, https://rednose.org.au/article/the-triple-risk-model
36 ibid.
37 Queensland Health 2017, *Pēpi-Pods Program Promotes Safe Sleep for Newborns*, 9 March, Queensland Government, Brisbane, viewed 8 June 2020, https://www.health.qld.gov.au/news-events/news/safe-sleep-for-newborns
38 University of the Sunshine Coast n.d., *The Queensland Pēpi-Pod® Program*, University of the Sunshine Coast, Sippy Downs, viewed 8 June 2020, https://www.usc.edu.au/research/medical-and-health-science/nurture-nursing-midwifery-and-paramedicine-group-for-research-excellence/research-projects/the-queensland-pepi-pod-program

Directions for future research

The QFCC has identified that the rate of death from SIDS has fallen significantly since 2011, while deaths from undetermined causes have been relatively stable over time.

Whether this reduction in SIDS deaths is attributable to recent safe sleeping campaigns rolled out in targeted areas of Queensland, or is the result of a combination of factors, requires further research.

While SIDS and SUDI exclusively relate to the deaths of infants (children under the age of 1 year), each year there is a small number of older children whose cause of death is not able to be determined. These deaths are known as 'sudden unexplained death in childhood' (SUDC).[39] Forty-one children over 1 year of age died of undetermined causes between 2004 and 2019.[40]

Sixty-one per cent of these children were aged 1–2 years at the time of their death. This indicates that the phenomenon of unexplained death in infancy does not cease after the first completed year of life, but rather tapers off over the next one to two years.

Few unexplained deaths are seen in the 5–9 and 10–14 year age categories, but the number appears to rise again for young people aged between 15 and 17 years. The reasons for this are unknown, but this finding aligns with patterns seen in deaths from natural and external causes—the risk of death appears to be lowest in middle childhood, and escalates from the early teen years onwards, as shown in **Figure 1.7**.

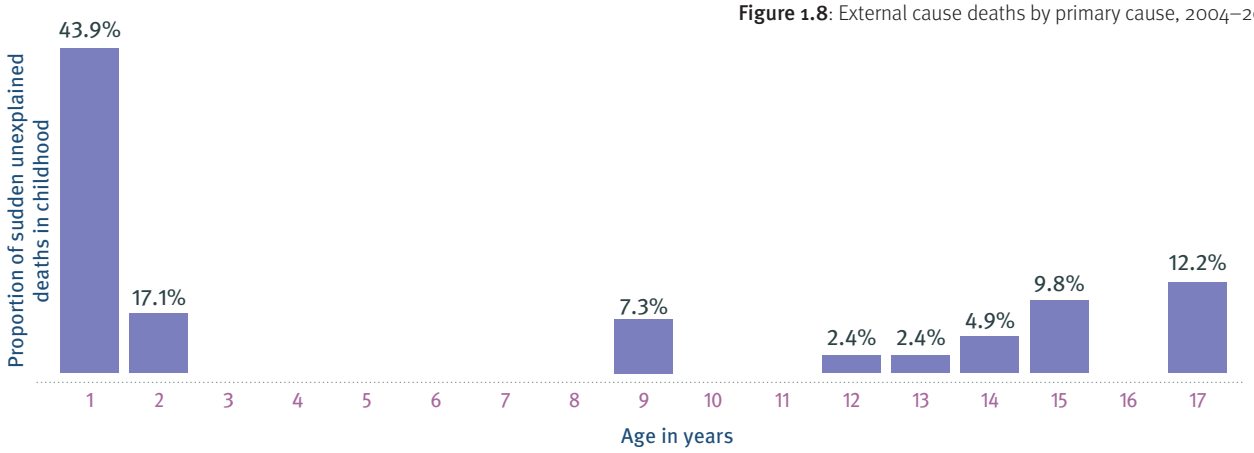

Figure 1.7: Sudden unexplained deaths in childhood, by age in years, 2004–2019

Reviewing the circumstances of death for these children indicates that those in the 1–4 year age group tended to more closely resemble sudden infant deaths, with death usually occurring during sleep (21 of 25 unexplained deaths in this age group).

However, the majority of the deaths of older children (aged 10–17 years) did not. In around a third of deaths, families reported that the child had experienced a sudden onset illness prior to death, with common symptoms including headache, fever and nausea.

1.3.3 External cause deaths

Over the 16-year period, a total of 1,440 children and young people died as a result of external causes in Queensland. There is strong evidence of a downward trend in the annual death rate of 4.1 per cent per year, on average.[41]

As shown in **Figure 1.8**, the greatest proportion of external cause deaths were due to transport incidents (36.8 per cent), with suicide accounting for a further 23 per cent of deaths.

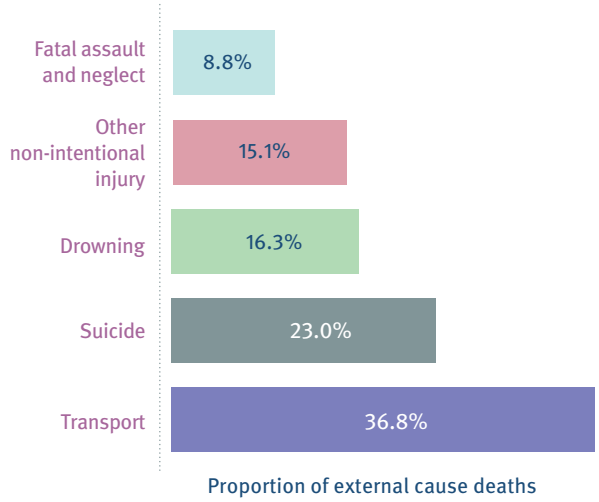

Figure 1.8: External cause deaths by primary cause, 2004–2019

39 Byard, R 2018, 'Sudden Infant Death Syndrome: Definitions', *Sudden Infant and Early Childhood Death: The past, the present and the future*, The University of Adelaide, Adelaide, p. 8, viewed 18 May 2020, https://www.adelaide.edu.au/press/system/files/2019-04/uap-sids-ebook.pdf

40 This includes a small number of cases for which possible causes identified were equivocal.

41 $p < 0.001$.

There have been marked changes over time for external causes of death over the 16-year period, varying by primary cause, as illustrated in **Figure 1.9**.

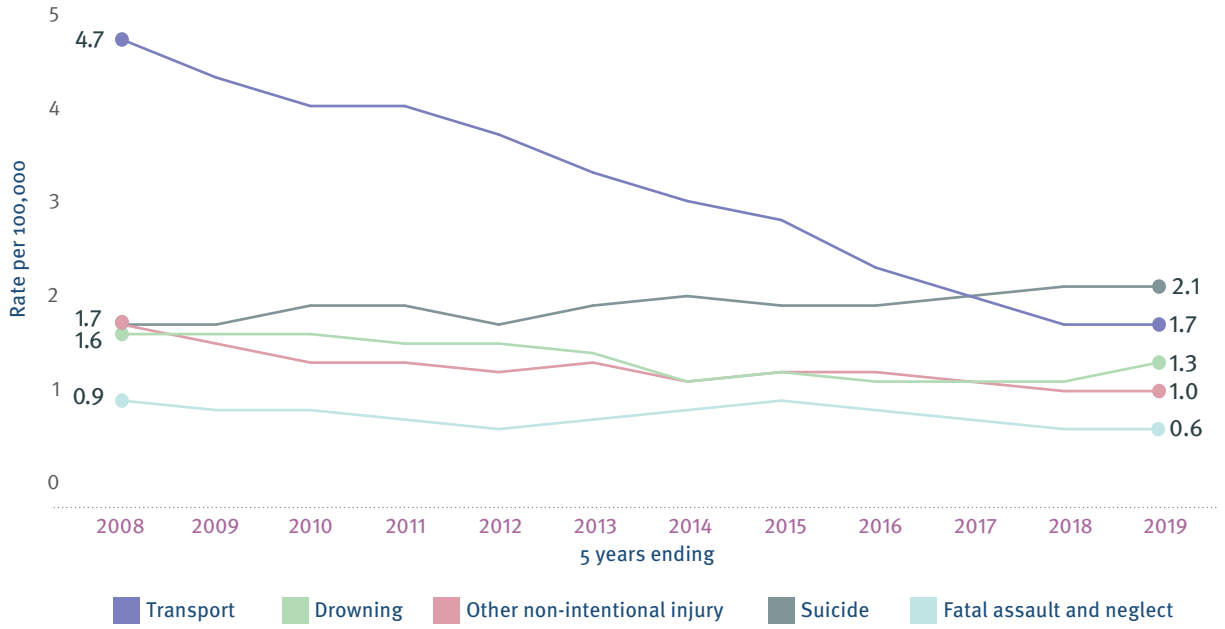

Figure 1.9: External cause deaths by primary cause, 2004–2008 to 2015–2019
Notes: Rates calculated per 100,000 children aged 0–17 years, averaged over five-year periods.
Excludes the deaths of 42 children whose cause of death had not yet been determined at the time of reporting.

Transport

The transport category includes all fatalities that occur as a result of injury sustained from use of a vehicle, either on or off-road.

The majority of transport deaths during the review period resulted from collisions while travelling in motor vehicles (56.4 per cent). Pedestrian deaths accounted for a further 23.4 per cent of transport incidents.[42] Bicycles, motorcycles, quad bikes and agricultural equipment such as tractors are also included in the transport category, as are boats and other watercraft, as shown in **Figure 1.10**.[43]

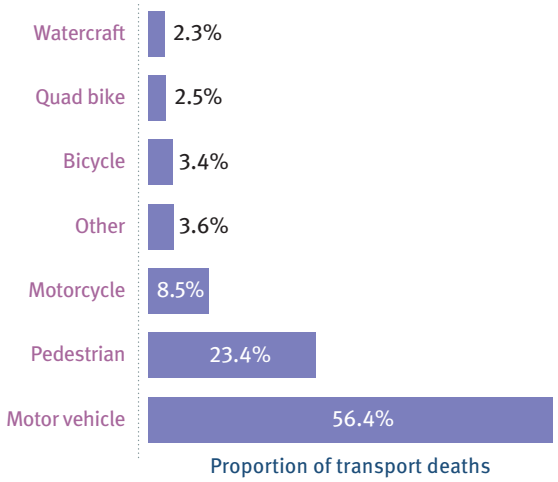

Figure 1.10: Transport deaths by type of incident, 2004–2019

42 The deaths of children using small-wheeled devices such as skateboards and rollerblades are considered to be pedestrian deaths if the incident involves collision with a vehicle. Deaths due to falls from such devices are counted under other non-intentional injury.
43 Other transport incidents, for the purposes of this report, include deaths relating to aircraft, motorised vehicles not elsewhere classified and deaths involving vehicles where intent (suicide/assault or non-intentional) was unable to be determined.

Transport deaths have decreased dramatically over time, with the annual rate falling an average of 7.9 per cent per year.[44] Between 2004 and 2008, the average rate of death was 4.7 per 100,000, which fell to 1.7 per 100,000 between 2015 and 2019. This is largely due to a decrease in the transport-related deaths of young people in the 15–17 year age group. This trend is discussed in further detail in **Chapter 2**.

Drowning

Drowning

Drowning deaths occur from immersion in liquid. This category includes deaths that occur from being immersed in:

- swimming pools (including wading pools)
- baths
- natural and man-made bodies of water (such as lakes, creeks and ponds)
- rural water hazards such as dams and troughs
- buckets or other containers.

Rates of drowning deaths are relatively low, but there is weak evidence of a downward trend in the annual death rate of 2.8 per cent per year, on average.[45]

Extensive reforms to Queensland's pool fencing legislation, designed to enforce pool barrier inspections and maintenance, were progressively introduced from December 2009. The five-year rolling average shows a decline in the rate of swimming pool drownings from this point, reaching a low of 0.4 per 100,000 in the five-year period ending 2014 as shown in **Figure 1.11**.

However, the average rate over the most recent five-year period has increased to 0.6 per 100,000 (2015–2019). The overwhelming majority of drowning deaths that occur in swimming pools are of children aged less than 5, for whom adequate supervision and prevention of unintended access to the pool is vital to drowning prevention.

An increase in pool drownings, despite the robust fencing legislation enacted, reinforces the need for age-appropriate supervision in conjunction with physical barriers and continued diligence to limit children's unintended access to swimming pools. The relationship between pool drowning and supervision for children under 5 years of age is discussed further in **Chapter 2**.

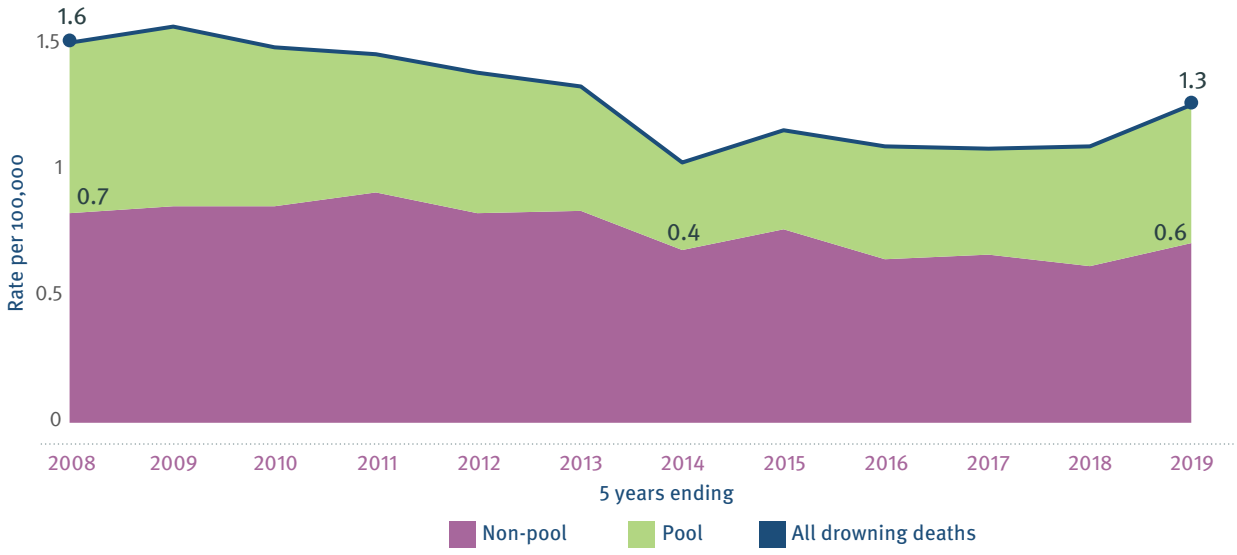

Figure 1.11: Drownings by type of incident, 2004–2008 to 2015–2019
Note: Rates calculated per 100,000 children aged 0–17 years, averaged over five-year periods.

44 $p < 0.001$.
45 $p = 0.045$.

Other non-intentional injury

Other non-intentional injury

The 'other non-intentional injury' category is a grouping of non-intentional deaths that occur too infrequently to be analysed separately. Examples include (but are not limited to):

- falls, or being struck by falling objects
- threats to breathing, such as the accidental suffocation of infants in bed or strangulation by blind cords
- fire and explosions
- electrocution
- exposure to excessive heat
- poisoning.

The overall rate of death from other non-intentional injury has dropped from 1.7 per 100,000 between 2004 and 2008 down to 1.0 per 100,000 in 2015–2019. This is a significant downward trend with the annual death rate decreasing by an average of 6.1 per cent per year.[46]

The small numbers across the many different causes of death within the other non-intentional injury category make it difficult to discern meaningful patterns. That is not to say that these deaths are not preventable. Over the 16-year period, a number of policy initiatives have been introduced to reduce and prevent these deaths. Examples include the retrospective introduction of legislation in Queensland requiring all homes to install at least one battery-powered smoke alarm from 2007. These regulations have recently been strengthened to mandate the installation of photoelectric interconnected smoke alarms from 1 July 2017.[47]

Regular improvements have also been made to product safety standards following the introduction of the Australian Consumer Law in 2010. This national consumer law was aimed at ensuring consistency between states and territories and that all products or product-related services complied with mandatory standards. In Queensland, the Office of Fair Trading is responsible for providing consumers with information about safety standards and recalls for products targeted at infants and children.[48] Examples include the tightening of safety standards and codes of practice relating to button batteries, small powerful magnets, flotation devices, aquatic toys and toys containing lead and other dangerous elements.[49]

Suicide

Suicide is the act of deliberately taking one's own life. The QFCC considers a number of factors when determining whether the death of a child or young person is a suicide. These include:

- whether a statement implying their intent was made by the child prior to their death
- the presence of a note or recording at the scene
- witnesses
- previous suicide attempts
- the presence of significant precipitating factors or life stressors
- whether the method used has a high probability of lethality.[50]

QFCC's suicide classification model

Where police indicate that a child death is a suspected suicide, the QFCC reviews evidence from a range of sources to assess whether there is sufficient indication that the death is a suicide, according to the following classification model:

- **Confirmed**—at least one significant factor that indicates it is virtually certain the death is a suicide (e.g. witnesses, a clear statement of intent or a coronial finding of suicide).
- **Probable**—factors are more consistent with death by suicide than by 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 (e.g. highly lethal method, history of mental illness, significant stressors or obvious effort to die).
- **Possible**—there is insufficient information about the circumstances of death to enable the death to be classified as suicide.[51]

To reduce the likelihood of child suicides being under-counted, the QFCC reports on all cases identified as confirmed or probable suicides.

46 $p < 0.001$.
47 Queensland Fire and Emergency Services 2020, *Smoke Alarms: Existing properties*, Queensland Fire and Emergency Services, Brisbane, viewed 18 May 2020, https://www.qfes.qld.gov.au/community-safety/smokealarms/Pages/existing-properties.aspx; Queensland Government 2017, *Changes to Queensland's Smoke Alarm Legislation*, viewed 18 May 2020, https://www.qld.gov.au/about/newsroom/smoke-alarm-legislation; *Fire and Emergency Services Act 1990* (Qld), Division 5A. Photoelectric smoke alarms detect visible particles of combustion and respond more quickly to the various types of smoke seen in house fires. When multiple alarms within the property are interconnected, all alarms will sound simultaneously when one is activated—Queensland Fire and Emergency Services 2017, *Photoelectric Smoke Alarms*, Queensland Fire and Emergency Services, Brisbane, viewed 18 May 2020, https://www.qfes.qld.gov.au/community-safety/smokealarms/documents/QFES-InfoSheet-SATypes.pdf
48 Queensland Government n.d., *Product Safety for Consumers*, Queensland Government, Brisbane, viewed 18 May 2020, https://www.qld.gov.au/law/your-rights/consumer-rights-complaints-and-scams/product-safety-for-consumers
49 Australian Competition and Consumer Commission 2017, *Review of Mandatory Safety Standards for Children's Toys: Consultation paper*, Australian Competition and Consumer Commission, Canberra, viewed 8 June 2020, https://consultation.accc.gov.au/product-safety/review-of-mandatory-safety-standards-for-childrens/supporting_documents/ACCC%20review%20of%20the%20mandatory%20safety%20standards%20for%20childrens%20toys%20%20consultation%20paper%202017.pdf
50 Queensland Family and Child Commission 2020, *Annual Report: Deaths of children and young people, Queensland 2018–19*, Queensland Family and Child Commission, Brisbane, pp. 101–102, viewed 10 June 2020, https://www.qfcc.qld.gov.au/keeping-kids-more-safe/preventing-child-injury-death/child-death-reports-data/annual-report-deaths
51 ibid.

Queensland has the second-highest overall suicide rate (for all ages) in Australia after the Northern Territory.[52] Rates of suicide of children and young people in Queensland have progressively increased over time (from 1.7 per 100,000 in 2004–2008 to 2.1 per 100,000 in 2015–2019). Over the 16-year period, the annual rate of suicide increased an average of 2.6 per cent per year.[53]

The current *Shifting Minds* strategic plan aims to improve mental health wellbeing for Queenslanders, with the *Every Life* prevention plan detailing whole-of-government action to reduce and prevent suicide across all ages.[54] This includes a specific focus on supports for vulnerable young people, including those with mental health needs, those who are known to the child protection or youth justice systems, and Aboriginal and Torres Strait Islander young people.[55]

Over the 16-year review period, Aboriginal and Torres Strait Islander children were consistently over-represented in suicide statistics.

During the five-year period 2015–2019, Aboriginal and Torres Strait Islander children died by suicide at a rate 2.9 times that of non-Indigenous children. While Aboriginal and Torres Strait Islander children make up approximately 8 per cent of the child population in Queensland, they accounted for more than 25 per cent of child suicides recorded over the 16-year period.

The rate of suicide for non-Indigenous children has steadily increased over time, as shown in **Figure 1.12**. The annual non-Indigenous suicide rate increased by an average of 3.3 per cent per year between 2004 and 2019.[56]

Rates of suicide for Aboriginal and Torres Strait Islander children, however, have varied considerably from year to year. The average suicide rate for Indigenous young people peaked at 7.4 per 100,000 in 2007–2011 but fell to 5.3 per 100,000 in 2015–2019. While annual rates appear to decline from 2008 onwards, the trend was not statistically significant due to the relatively small number of deaths each year.

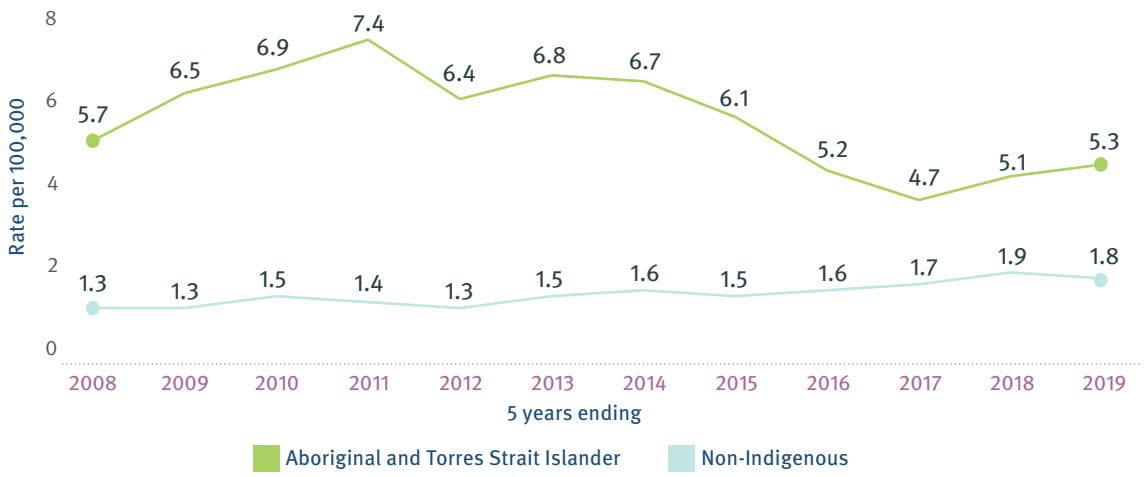

Figure 1.12: Suicide deaths by Aboriginal and Torres Strait Islander status, 2004–2008 to 2015–2019
Note: Rates calculated per 100,000 Aboriginal and Torres Strait Islander and non-Indigenous children aged 0–17 years, averaged over five-year periods.

52 Australian Bureau of Statistics 2019, 'Intentional self-harm deaths by states and territories: Standardised death rates', *Causes of Death, Australia, 2018*, Australian Bureau of Statistics, Canberra, viewed 11 May 2020, https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/3303.0~2018~Main%20Features~Intentional%20self-harm,%20key%20characteristics~3
53 $p = 0.037$.
54 Queensland Mental Health Commission 2018, *Shifting Minds*, Queensland Government, Brisbane, viewed 20 April 2020, https://www.qmhc.qld.gov.au/sites/default/files/files/qmhc_2018_strategic_plan.pdf
55 Queensland Mental Health Commission 2019, *Every Life: The Queensland suicide prevention plan 2019–2029: Phase one*, Queensland Government, Brisbane, viewed 20 April 2020, https://www.qmhc.qld.gov.au/sites/default/files/every_life_the_queensland_suicide_prevention_plan_2019-2029_web.pdf
56 $p = 0.019$.

Fatal assault and neglect

Fatal child assault is the death of a child from acts of violence perpetrated upon them by another person, while neglect specifically refers to a carer's failure to provide essential care necessary for survival.

This category includes cases where the perpetrator intended to kill the child, as well as those where the act (or omission) did not involve an intent to kill. Assault and neglect are not exclusive and often overlap (such as failure to seek medical care for the child following a deliberately inflicted injury).

Types of fatal assault and neglect

The QFCC uses the following subcategories to describes acts of assault or neglect:

- **Intrafamilial**
  - **Fatal child abuse**—death from a one-off assault, or escalating violence over time. In many cases death is not the intended outcome of the violence inflicted by the perpetrator (usually a parent or step-parent).
  - **Domestic homicide**—premeditated murder, often followed by suicide of the perpetrator and usually precipitated by breakdown of the parental relationship. It is also associated with acute episodes of perpetrator mental illness.
  - **Fatal neglect**—death resulting from a carer's failure to provide the necessities of life. This may involve acts or omissions on the part of the carer that are either deliberate or extraordinarily irresponsible or reckless.
  - **Neonaticide**—the killing of an infant within 24 hours of birth, typically characterised by an attempt to conceal the birth, but may also include intentional harm to the infant.
- **Extrafamilial**
  - **Intimate partner homicide**—fatal assault by an intimate partner, often the culmination of a pattern of domestic violence experienced within the relationship. This involves older children and tends to resemble adult intimate partner homicides.
  - **Peer fatal assault**—confrontational violence between friends, acquaintances and strangers. This more closely resembles adult homicides.
  - **Stranger homicide**—a child death that occurs at the hands of an adult person (over 18 years) who is unknown to the child.
  - **Acquaintance homicide**—a child killed by an adult known to them, but not in a familial or friendship relationship (for example neighbours, family friends or someone known to the child online).

Rates of death from fatal assault and neglect fluctuated between 0.6 and 0.9 per 100,000 between 2004–2008 and 2015–2019. There is weak evidence of a downward trend in the annual death rate of 3.9 per cent per year, on average.[57]

The majority (81.7 per cent) of child deaths from assault and neglect are intra-familial in context, with the suspected perpetrator being a parent, carer or other family member (see **Figure 1.13**).

The most common types of intra-familial homicides over the past 16 years are domestic homicides and fatal child abuse, which occur in almost equal proportions. Together, these two types of assault make up 69 per cent of all fatal assault and neglect cases in Queensland.

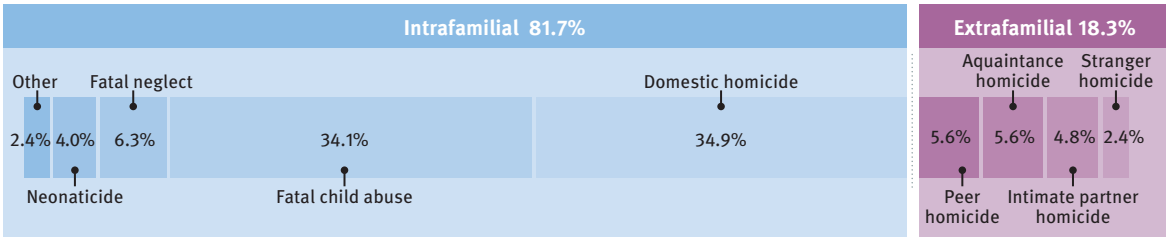

Figure 1.13: Fatal assault and neglect by type of incident, 2004–2019

As discussed further in **Chapter 2**, the prevalence of young children who die at the hands of a parent, carer or family member highlights their dependence on these figures in their lives for their care and survival. By contrast, fatal assaults occurring in an extra-familial context tend to more closely resemble adult homicides and involve young people in older age groups.

57 $p = 0.042$.

Chapter 2—Patterns of risk throughout childhood

2.1 A life-stage approach

A child's risk of death, particularly death from injury, varies significantly throughout their childhood as they develop physically and cognitively.[58] Across Australia, children aged 0–4 years have the highest rate of death from injury (6.1 per 100,000). This declines at ages 5–9 (2.1 per 100,000) before rising again for children aged 10–14 years (4.1 per 100,000).[59]

Infancy is the time of highest mortality in a child's life. During the early months of the first year of life, deaths from natural causes such as congenital and perinatal conditions, as well as sudden unexpected death in infancy (SUDI) predominate. In addition, infants are inquisitive and rapidly developing, yet entirely dependent upon those around them to fulfil their basic safety and survival needs. This is particularly relevant to injury-related deaths.

While the risk of death from natural causes and SUDI decreases drastically after the first year of life, as children's mobility increases (without a corresponding appreciation of hazards, risks or consequences),[60] the chance of injury from immersions, falls, scalds, poisoning, ingestion of foreign bodies, and collision with objects also increases.

Primary school age children have a greater understanding of risk, but their perceptual awareness and interpretation of risk is not yet fully formed. They are also beginning to expand the ways in which they exercise their mobility, both in and outside of their home environment. The activities children engage in during this developmental stage (for example, riding bicycles, climbing play equipment, engaging in organised sport and other physical activities), together with a gradually decreasing need for adult supervision, presents different risks for this age group. Their eagerness to imitate adults can also lead to situations that pose a significant risk of injury.[61]

During the ages of 10 to 14 years, puberty and associated emotional turmoil, along with the increased importance of peer relationships, can lead to greater levels of risk-taking behaviour or self-harm.

As teenagers progress towards adulthood, having greater independence, learning to drive, experiencing conflict with peers and experimenting with alcohol or substances can present yet another set of risks for young people in the 15–17-year age group. By this age, many have gained their first job, and may be exposed to new risks and hazards as a result.[62]

In seeking to identify means of preventing future child deaths, particularly those from external causes which can be addressed by modifying risk factors, patterns in child mortality within and between age categories must be considered. Throughout this chapter, findings from the 16-year review of the register have been placed in context with information about non-fatal injury to provide a more complete picture of risks to children in each age group.

2.2 Leading causes of death by age category

The causes of death to which children are most vulnerable changes with age, largely in line with the changes to the risks faced at each developmental stage, as already described.

Figure 2.1 highlights that natural causes were among the leading causes of death for all age categories. This is particularly the case for the under 1 year age category, where deaths from natural causes account for 87 per cent of all deaths. Deaths from natural causes drop substantially after the first 12 months of life. In general, deaths from natural causes decrease and external causes account for greater numbers of deaths as children age. The exception to this is the 5–9 year age group, which has the highest proportion of deaths from natural causes and the lowest proportion of external cause deaths (excluding infants). By the time children reach 15–17 years of age, external causes account for 2.3 times the number of deaths from natural causes.

58 Pointer S 2014, *Hospitalised Injury in Children and Young People 2011–12*, Injury research and statistics series no. 91, Australian Institute of Health and Welfare, Canberra, viewed 21 April 2020, https://www.aihw.gov.au/getmedia/obf3dcfe-f3b6-4857-9116-f28bfc2649c8/17903.pdf.aspx?inline=true; World Health Organization 2008, *World Report on Child Injury Prevention*, World Health Organization, Geneva, viewed 10 June 2020, https://www.who.int/violence_injury_prevention/child/injury/world_report/World_report.pdf

59 Australian Institute of Health and Welfare 2020, *Australia's Children*, Australian Institute of Health and Welfare, Canberra, viewed 9 June 2020, https://www.aihw.gov.au/reports/children-youth/australias-children/contents/health/injuries#howmanyinjuries

60 The Royal Children's Hospital Melbourne n.d, *How Are Children Different*, The Royal Children's Hospital, Melbourne, viewed 18 May 2020, https://www.rch.org.au/trauma-service/manual/how-are-children-different/

61 KidSafe Tasmania 2014, *Home Safety Community Action Kit: A guide for health professionals*, Kidsafe Tasmania, Claremont, viewed 19 May 2020, https://www.kidsafetas.com.au/uploads/file/Injury%20Risks%20by%20Stage%20of%20Child%20Development.pdf

62 ibid.

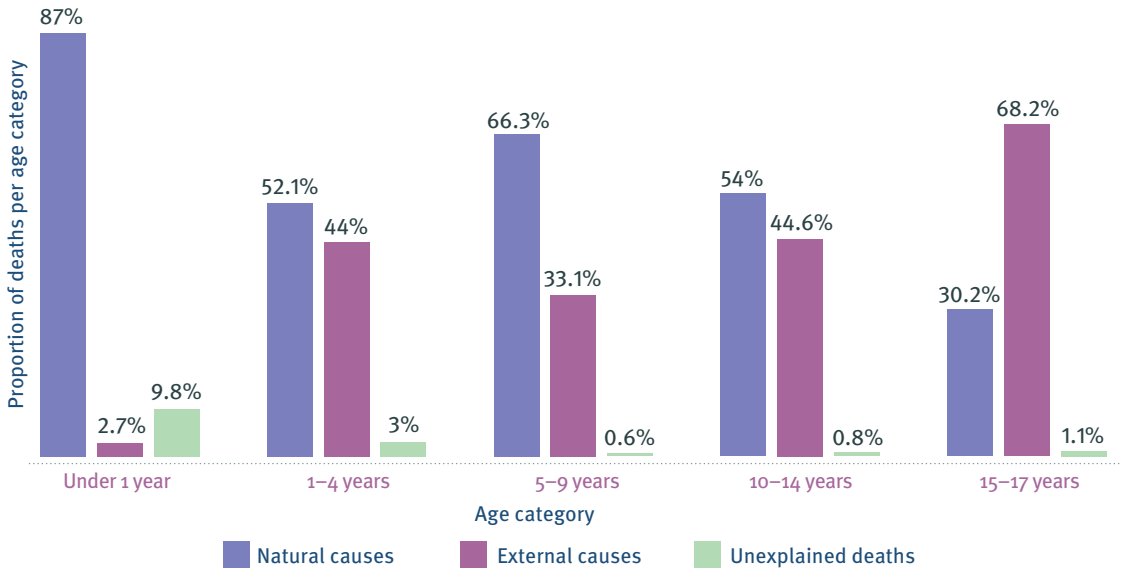

Figure 2.1: Child deaths by age category and major cause grouping, 2004–2019

Note: Excludes the deaths of 42 children whose cause of death had not yet been determined at the time of reporting. As a result, percentages may not add up to 100%.

2.2.1 Infants (under 1 year of age)

Infants under 1 year of age are most at risk of death, comprising 63.1 per cent of all deaths recorded.

Periods of infancy

Neonatal period—the first month of life, from 0 to 27 days.

Post-neonatal period—the period of life from day 28 to day 364.

The first month of life is a particularly vulnerable time. Preterm birth, complications during labour (such as birth asphyxia), birth defects and infections cause most neonatal deaths worldwide.[63] In Queensland, complications of pregnancy, labour and delivery accounted for 37.6 per cent of all neonatal deaths during the 16-year review period.

The risk of death decreases sharply after the first month of life and continues to decrease with each passing month, as shown in **Figure 2.2**.

Over the 16-year period, almost 71 per cent of infant deaths were of infants less than 28 days old. By comparison, infants in their second month of life accounted for only 8 per cent of infant deaths. These findings are consistent with those from previous research. In 2017, infant deaths accounted for 69 per cent of all child deaths in Australia (aged 0–14 years), with 73 per cent of these occurring within the first month of life.[64]

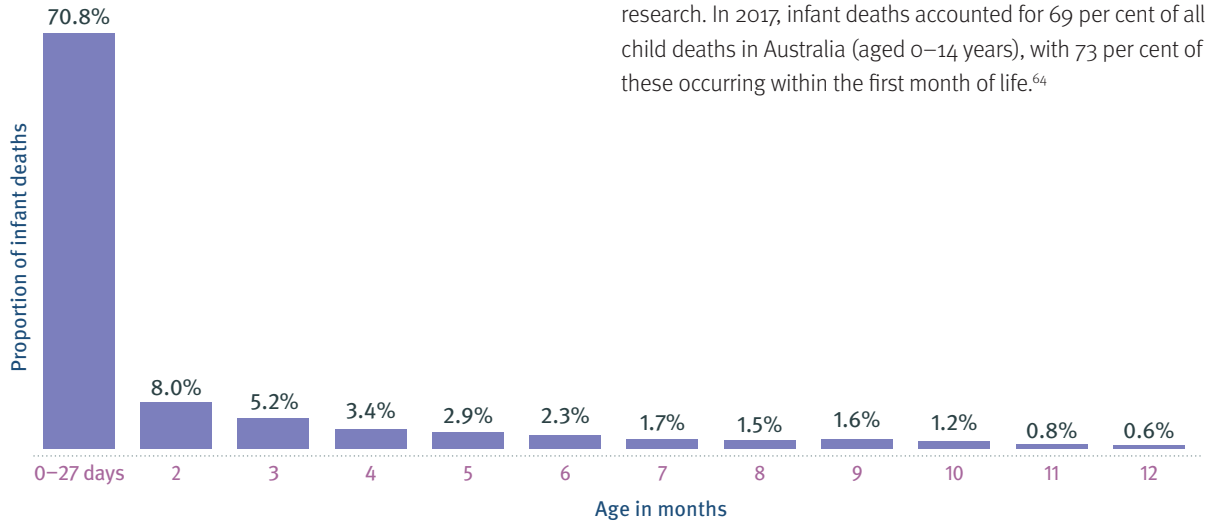

Figure 2.2: Infant deaths by age in months, 2004–2019

63 World Health Organization 2019, *Newborns: Reducing mortality*, World Health Organization, Geneva, viewed 1 April 2020, https://www.who.int/news-room/fact-sheets/detail/newborns-reducing-mortality

64 Australian Institute of Health and Welfare 2019, *Australia's Children*, Australian Institute of Health and Welfare, Canberra, viewed 1 April 2020, https://www.aihw.gov.au/reports/children-youth/australias-children/contents/health/infant-and-child-deaths

Deaths from natural causes far exceeded deaths from any other causes in this age group, accounting for almost 87 per cent of infant deaths. Unexplained deaths (those attributed to SIDS and other undetermined causes) were the next most common cause of death for infants (9.8 per cent of infant deaths).

This pattern changes across the first year of life. As shown in **Figure 2.3**, within the first month, natural causes account for almost all deaths, while unexplained deaths peak between 2 and 3 months of age. After this point, external causes begin to progressively account for a greater proportion of deaths, while unexplained deaths decrease.

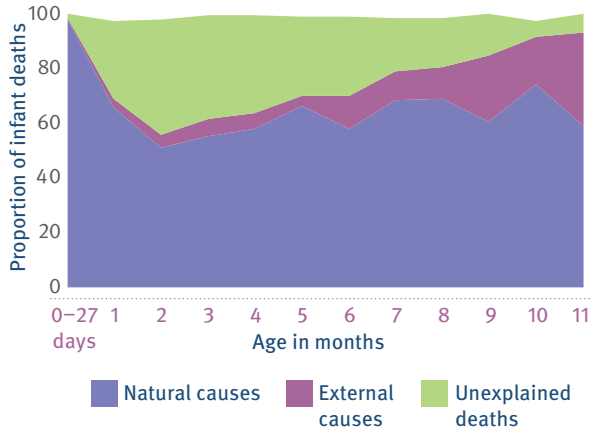

Figure 2.3: Infant deaths by major cause grouping and age in months, 2004–2019
Note: Excludes the deaths of 28 infants whose cause of death had not yet been determined at the time of reporting.

While deaths from external causes account for less than 3 per cent of all infant deaths, the most common external cause deaths for infants are other non-intentional injury and fatal assault and neglect.

The presence of other non-intentional injury deaths within this age group largely reflects sudden unexpected deaths in infancy later identified as sleep incidents, such as accidental suffocation and strangulation in bed.

This contrasts with non-fatal injury data for infants, in which falls account for the greatest proportion of non-intentional injury.[65]

Children in this age group are also highly vulnerable to assault and neglect due to their inability to communicate their needs or to physically mobilise to defend themselves.[66]

They are completely reliant on adults for their care and survival and may be virtually invisible from a social perspective if parents are not well-engaged with informal networks or formal systems such as childcare.[67] Intentional injury accounts for approximately 5.5 per cent of injury-related hospitalisations in this age group.[68]

2.2.2 Early childhood (ages 1–4 years)

Aside from natural cause deaths (52 per cent of deaths in this age group), children aged 1–4 years were most at risk of death from drowning and transport incidents, as shown in **Figure 2.4**. Drowning accounted for 17 per cent of deaths in this age group and transport incidents 13.7 per cent.

This is in contrast to non-fatal injury data, which shows that during early childhood, children are predominantly injured in falls, while drowning and submersion account for only 0.8 per cent of hospitalised injury cases for 1–4-year-olds.[69]

Immersion incidents in children under 5 years of age are likely to be fatal. In addition to more obvious water hazards such as swimming pools and dams, young children can also drown in bodies of water that seem harmless, including buckets and shallow ponds. Drowning can occur in only a few centimetres of water and within seconds, limiting opportunities for rescue.[70]

Research has shown that while children under 1 year are most at risk of drowning in baths, pool drownings are most common among children in the 1–4 year age group.[71] This is supported by the findings of the 16-year review—while 81.3 per cent of infant drowning deaths occurred in baths, children aged 1–4 years predominantly drowned in swimming pools (55.4 per cent of drowning deaths for 1–4-year-olds).

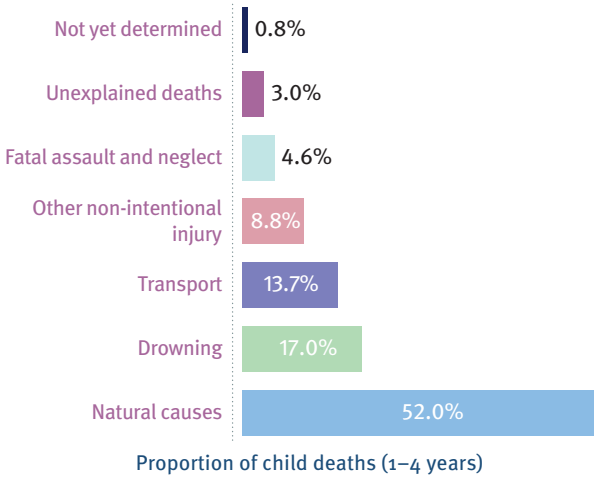

Figure 2.4: Causes of death, children aged 1–4 years, 2004–2019

65 Pointer S 2014, *Hospitalised Injury in Children and Young People 2011–12*, Injury research and statistics series no. 91, Australian Institute of Health and Welfare, Canberra, p. 23, viewed 21 April 2020, https://www.aihw.gov.au/getmedia/0bf3dcfe-f3b6-4857-9116-f28bfc2649c8/17903.pdf.aspx?inline=true
66 Queensland Government n.d., *Child Protection Intervention with High-risk Infants*, Queensland Government, Brisbane, viewed 27 May 2020, https://www.communities.qld.gov.au/resources/childsafety/practice-manual/intervention-with-high-risk-infants.pdf
67 The Benevolent Society 2015, 'Guide 8: Infants at risk of abuse and neglect', *Resilience Practice Framework*, The Benevolent Society, Paddington, viewed 19 May 2020, https://www.benevolent.org.au/ArticleDocuments/404/Resiliencepracticeframework_infantsatriskofabuseandneglect.pdf.aspx
68 Pointer S 2014, *Hospitalised Injury in Children and Young People 2011–12*, Injury research and statistics series no. 91, Australian Institute of Health and Welfare, Canberra, p. 23, viewed 21 April 2020, https://www.aihw.gov.au/getmedia/0bf3dcfe-f3b6-4857-9116-f28bfc2649c8/17903.pdf.aspx?inline=true
69 ibid., p. 30.
70 Kidsafe 2019, *Drowning*, viewed 8 July 2020, https://kidsafe.com.au/wp-content/uploads/2019/03/Drowning-Information-Sheet.pdf
71 Wallis BA, Watt K, Franklin RC et al. 2015, 'Where children and adolescents drown in Queensland: A population-based study', *BMJ Open*, 5(11), viewed 19 May 2020, https://bmjopen.bmj.com/content/bmjopen/5/11/e008959.full.pdf

The increasing mobility and curiosity of children at this age is not always matched by their capacity to understand and respond to risk.[72] While legally compliant fencing may decrease the risk of pool drowning, it is no guarantee of safety, and is in no way a substitute for appropriate adult supervision for children under 5 years of age. For example, drownings can occur when young children use objects to climb otherwise compliant pool fencing.

Pool safety campaigns stress the importance of supervision as the primary prevention method. According to the Royal Life Saving Society Australia, active supervision requires an adult's attention to be fully focused on a child when they are in or around water, to be 'within arm's reach, interacting with your child and be ready to enter the water in case of an emergency'.[73] However, parents and carers may not always be aware that their child has gained access to a water hazard such as a backyard pool. Compliant pool barriers are intended to provide an additional layer of protection.[74]

The QFCC classifies the adequacy of supervision for children under 5 years of age depending on whether the child was known to be in or around water. In addition to active supervision around water, it is essential that young children who are *not* known to be in or around water are still regularly checked on by an active supervisor.

Inadequate supervision was noted in 82.8 per cent of drownings of children under 5 years of age during the 16-year review period (88.6 per cent of non-pool drownings and 76.9 per cent of pool drownings). In just over 70 per cent of these cases, the child was known to be in or around water at the time.

Of the 78 swimming pool drownings of children under 5 years of age, 32 per cent (25 children) occurred in pools with compliant fencing. Inadequate supervision was noted in 19 of these cases. The circumstances in which children drowned despite compliant fencing included cases where the gate had been deliberately propped open, children left in the pool area without an appropriate adult supervisor, children using objects to climb the fence, and cases where it is unclear how children gained access to the pool.

Directions for future research

Pool drownings of children under 5 years of age continue to be an area of concern.

Over the 16-year period, 25 children under the age of 5 years drowned in swimming pools that were noted to have fencing compliant with legislative requirements. Inadequate supervision was noted in 76 per cent of these cases, including circumstances in which the pool gate had been deliberately propped open.

Future research could focus on factors influencing supervision of young children around water, ways to ensure carers maintain awareness of the importance of adequate supervision, and ways to minimise reliance on physical barriers to prevent drowning.

2.2.3 Middle childhood (ages 5–9 years)

A child's risk of death, and of external cause deaths in particular, is lowest during middle childhood.[75] Children in this age group have a greater capacity to avoid dangers than younger children, but are still generally protected by a continued level of adult supervision and are yet to be exposed to many of the challenges that come with increasing age and independence.

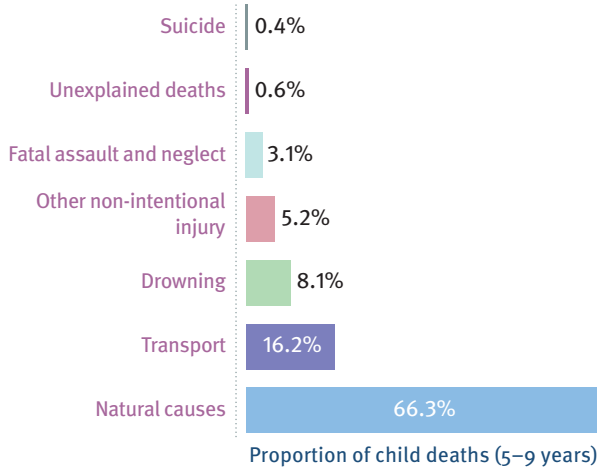

Figure 2.5: Causes of death, children aged 5–9 years, 2004–2019

72 Agran PF, Winn D, Anderson C, Trent R & Walton-Haynes L 2011, 'Rates of pediatric and adolescent injuries by year of age', *Pediatrics*, 108(3), pp. 45–56; Kidsafe Tasmania 2014, *Injury Risks by Stage of Child Development*, Kidsafe Tasmania, Claremont, viewed 11 June 2020, https://www.kidsafetas.com.au/uploads/file/Injury%20Risks%20by%20Stage%20of%20Child%20Development.pdf; World Health Organization 2008, *World Report on Child Injury Prevention*, World Health Organization, Geneva, viewed 10 June 2020, https://www.who.int/violence_injury_prevention/child/injury/world_report/World_report.pdf

73 Royal Life Saving Society Australia n.d., 'Supervise', Fact Sheet No. 1, viewed 8 July 2020, https://www.royallifesaving.com.au/__data/assets/pdf_file/0005/3956/RLS_FactSheet_1.pdf

74 Royal Life Saving Society Australia 2016, *Drowning Deaths of Children Under Five in Private Swimming Pools in NSW: A 13 year review*, Royal Life Saving Society Australia, Broadway, viewed 8 June 2020, https://www.royallifesaving.com.au/__data/assets/pdf_file/0005/16448/RLSNSW_ChildDrowningReportLR.pdf

75 This is in contrast with findings from the World Health Organization, which reports that mortality rates for 5–9 year-olds worldwide are higher than those in the 10–14 year age group—World Health Organization 2019, *Mortality Among Children Aged 5–14 Years*, World Health Organization, Geneva, viewed 1 June 2020, https://www.who.int/news-room/fact-sheets/detail/mortality-among-children-aged-5-14-years

Over the 16-year period reviewed, the proportion of deaths from external causes was lowest for children aged 5–9 years than for any other age group (except for infants). While falls generally account for the greatest proportion of injury requiring hospitalisation for the 5–9-year age group (particularly falls from playground equipment)[76], transport incidents accounted for the most fatalities (excluding natural causes). Causes of death for children aged 5–9 years are illustrated in **Figure 2.5**.

While pedestrian incidents were common among 5–9-year-olds who died in transport fatalities (accounting for 21 of 78 deaths), children in this age group were most often fatally injured as car occupants in collisions with other vehicles or stationary objects (39 deaths occurring between 2004 and 2016).

This contrasts with non-fatal injury data for 5–9-year-olds, who were predominantly involved in transport incidents as cyclists.[77]

2.2.4 Late childhood/early adolescence (ages 10–14 years)

Between the ages of 10 and 14, childhood is

> *… characterised by an increase in risk-taking behaviours … children typically have increasing, and often unsupervised access to a broader range of settings, such as schools, sporting environments, streets and neighbourhoods. Exposure to roads, traffic and transport increases, as does access to drugs and alcohol.*[78]

These patterns and risk-taking behaviours are reflected in the mortality data for this age group over the 16-year period. As shown in **Figure 2.6**, transport incidents and suicide were leading causes of death for the 10–14-year age category, each accounting for around 16 per cent of deaths.

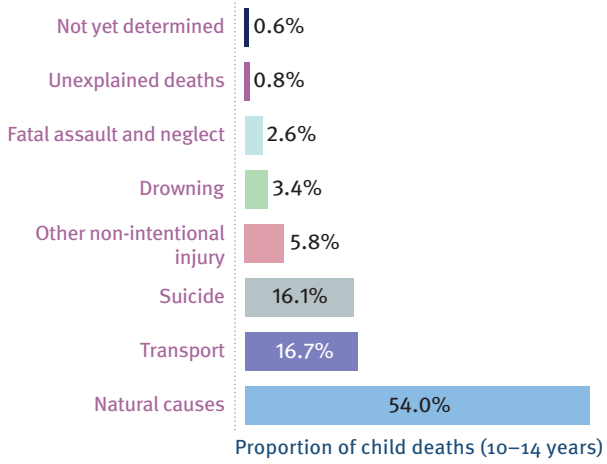

Figure 2.6: Causes of death, children aged 10–14 years, 2004–2019

Children aged 10–14 years who died in transport incidents were most often involved as a passenger in a motor vehicle (37 cases, 44.6 per cent of transport incidents in this age group). In almost 30 per cent of these cases (11 deaths), the vehicle was identified as carrying 'peer passengers'.[79]

In seven of these 11 cases (63.6 per cent) inappropriate driver behaviour was noted. Inappropriate driver behaviour includes actions such as alcohol or substance use, speeding, mobile phone use, driving while fatigued or failure to drive to road conditions or in accordance with the driver's experience and level of skill. These findings indicate that children in this age group are beginning to travel in vehicles with newly licensed (or in some cases unlicensed) peers, increasing their risk of injury.

Reporting on suicides of children under 15 years of age at a national level has only begun to occur relatively recently and is influenced by coronial reporting practices.[80] Historically, there has been a reluctance to classify deaths as suicide due to social stigma and the impact for the family, an effect heightened for children who take their own lives.[81] There are inherent difficulties in determining a person's intent (where it has not been directly stated or implied prior to death), particularly for younger children, where questions may be raised as to their capacity to comprehend the finality of death and the irreversibility of their actions.[82]

The QFCC has consistently reported on the suicides of children aged 10–14 years. Rates of suicide for this age group have remained relatively steady over time, and well below those of young people aged 15–17 years. Evidence of the child's intent to suicide (such as a note/recording or having stated or implied their intent by other means prior to death) has more often been present for the 15–17-year age group than for 10–14-year-olds. Just over 52 per cent of 10–14-year-olds indicated their intent to suicide prior to their death, compared to 61.4 per cent of 15–17-year-olds who took their lives during the 16-year review period.

76 Pointer S 2014, *Hospitalised Injury in Children and Young People 2011–12*, Injury research and statistics series no. 91, Australian Institute of Health and Welfare, Canberra, pp. 39–41, viewed 21 April 2020, https://www.aihw.gov.au/getmedia/obf3dcfe-f3b6-4857-9116-f28bfc2649c8/17903.pdf.aspx?inline=true
77 ibid., p. 41.
78 ibid., p. 46.
79 Under Queensland's young driver licensing laws, newly licenced drivers (under 25 years of age) are not permitted to carry more than one peer passenger (any passenger under 21 years of age who is not an immediate family member) between the hours of 11pm and 5am—Queensland Government 2020, *Provisional Licence Restrictions*, Queensland Government, Brisbane, viewed 10 June 2020, https://www.qld.gov.au/transport/licensing/driver-licensing/applying/provisional/restrictions#peer. A breach of peer passenger restrictions was noted in four of the 11 cases reviewed.
80 Australian Institute of Health and Welfare 2020, *Australia's Children*, Australian Institute of Health and Welfare, Canberra, viewed 9 June 2020, https://www.aihw.gov.au/reports/children-youth/australias-children/contents/health/injuries#howmanyinjuries
81 Commonwealth of Australia 2010, *The Hidden Toll: Suicide in Australia*, Senate Community Affairs Committee Secretariat, Canberra, viewed 15 May 2020, https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Community_Affairs/Completed_inquiries/2008-10/suicide/report/c03
82 Commission for Children and Young People and Child Guardian 2009, *Reducing Youth Suicide in Queensland: Discussion paper*, pp. 5–6, viewed 18 May 2020, https://web.archive.org.au/awa/20110123162521mp_/http://pandora.nla.gov.au/pan/14014/20110121-1019/www.ccypcg.qld.gov.au/pdf/monitoring/RYSQ-Discussion-Paper.pdf

2.2.5 Adolescence (ages 15–17 years)

Injury associated with risk-taking behaviour increases in frequency for the 15–17-year age group.

> *Older children experience increased and often unsupervised exposure to adult activities such as driving, employment and alcohol and drug use. Much of the injury among adolescents is associated with risk-taking behaviour associated with physical contact (either through violence or sport) and transport, both of which are influenced by alcohol and drug use.*[83]

Aligning with this finding, the 16-year review found that transport incidents and suicide were the leading external causes of death for 15–17-year-olds (see **Figure 2.7**). These two causes occurred almost as frequently as deaths from natural causes—a pattern not seen in any other age group.

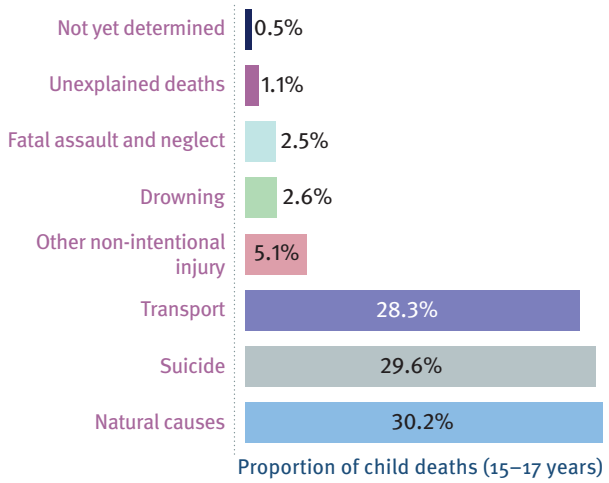

Figure 2.7: Causes of death, young people aged 15–17 years, 2004–2019

During the 16-year period, a total of 183 young people aged 15–17 years have died in on-road transport incidents involving motor vehicles or motorcycles.

While transport fatalities were a leading cause of death for this age group across the 16-year review period, the deaths of 15–17-year-olds in on-road transport incidents has decreased notably over time.

The five-year rate of on-road deaths for young people in this age group (motor vehicle and motorcycle incidents only) dropped from 10.1 per 100,000 (2004–2008) to 3.8 per 100,000 (2015–2019) as shown in **Figure 2.8**.

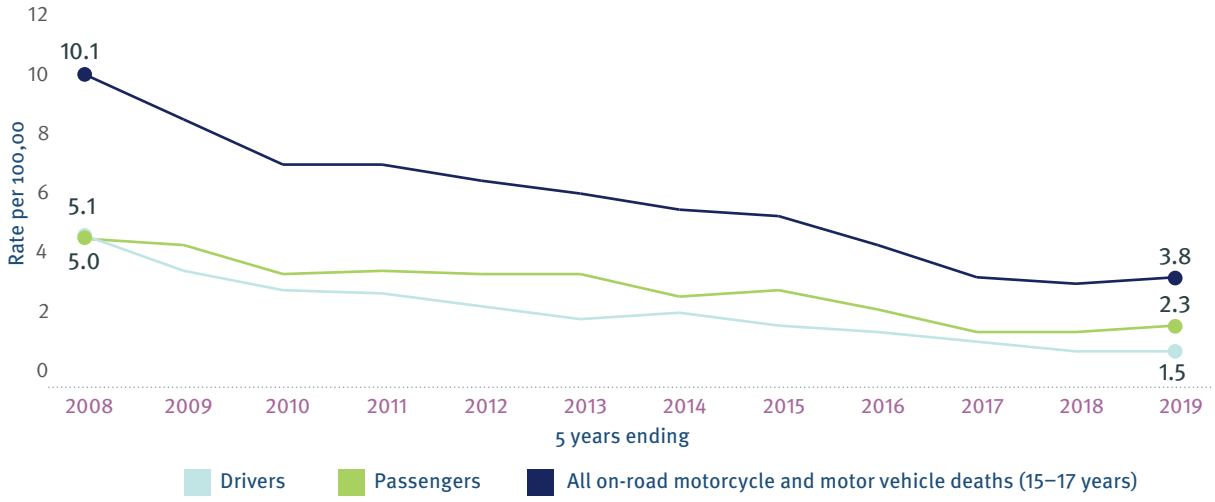

Figure 2.8: On-road motor vehicle and motorcycle fatalities (15–17 years), 2004–2008 to 2015–2019

Notes: Rates calculated per 100,000 young people aged 15–17 years, averaged over five-year periods.
Excludes deaths where the young person's role in a fatal incident (driver or passenger) could not be determined.

83 Pointer S 2014, *Hospitalised Injury in Children and Young People 2011–12*, Injury research and statistics series no. 91, Australian Institute of Health and Welfare, Canberra, p. 55, viewed 21 April 2020, https://www.aihw.gov.au/getmedia/obf3dcfe-f3b6-4857-9116-f28bfc2649c8/17903.pdf.aspx?inline=true

From 1 July 2007, Queensland introduced a graduated licensing system (GLS) aimed at preventing the deaths of young drivers. This initiative increased the number of supervised hours of driving required prior to being licensed and minimised exposure to hazardous situations once on the road.

It included a range of restrictions for new drivers, including restrictions on the use of high-powered vehicles and mobile phones (including hands-free). It also reduced the number of peer passengers young drivers could transport. The GLS is thought to be partly responsible for the decrease in transport deaths of children and young people from 2007 onwards.[84]

Unfortunately, the annual rate of death from suicide for young people in the 15–17-year age category has increased over the 16-year period by 3.5 per cent per year on average. This is a statistically significant increase—that is, greater than what would be expected to occur by chance. Over the same period, the five-year rolling rate increased from 7.4 per 100,000 in 2004–2008 to 10.3 per 100,000 in 2015–2019, as shown in **Figure 2.9**.

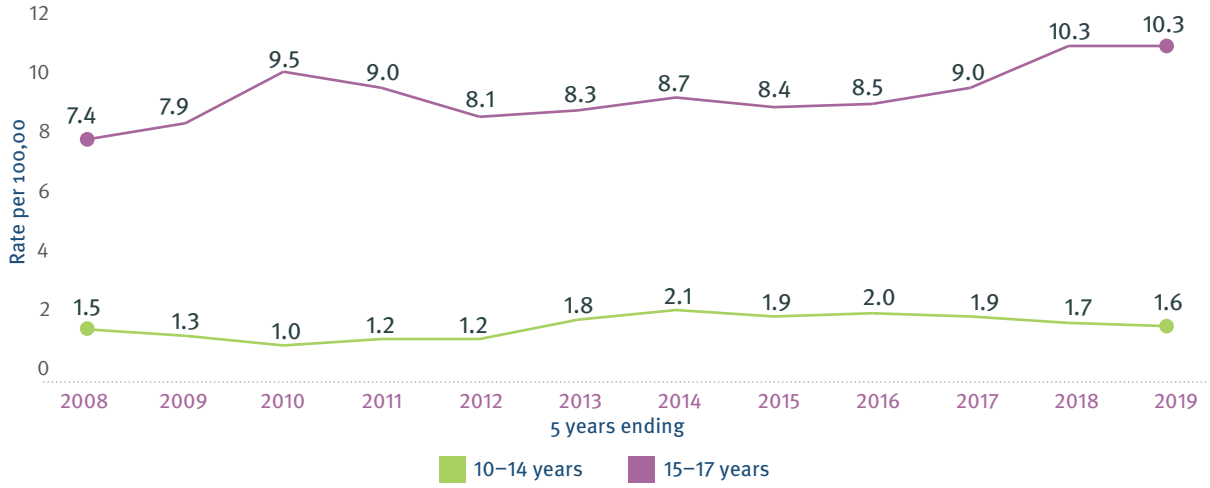

Figure 2.9: Suicide deaths by age category, 2004–2008 to 2015–2019
Notes: Rates are calculated per 100,000 children in each age category, averaged over five-year periods. Excludes suicides of children aged 5–9 years.

Directions for future research

The QFCC has identified a statistically significant annual average increase in the rate of suicide deaths among young people aged 15–17 years between 2004 and 2019. This increase has occurred in the face of increasing awareness and prevention initiatives aimed at reducing youth suicide and improving mental health. This is a finding calling for continued investigation by suicide researchers.

2.3 Causes of death by single year of age

As previously mentioned, the risk of death from different causes changes as children progress through each major developmental stage. Children grow and develop so rapidly, their exposure to risk changes on an almost daily basis. It is therefore worthwhile considering the patterns that emerge in different causes of death with each passing year of age.

As previously described, the risk of death from natural causes was highest in the first year of life (86.9 per cent of infant deaths). As shown in **Figure 2.10**, in the second year of life, the proportion of deaths from natural causes dropped to around 51 per cent. There was a small peak in natural cause deaths between the ages of 5 and 8, but the proportion of deaths from natural causes generally decreased thereafter.

84 Evaluations of Queensland's graduated licensing system also identified the influence of safer roads, safer vehicles and health system improvements on reducing fatalities—Senserrick T, Boufous S, Olivier J & Hatfield J 2016, *Final report to Transport and Main Roads Queensland Government 'TMR9815 – Evaluation of Queensland's graduated licensing system'*, University of New South Wales, Sydney, viewed on 8 June 2020, https://www.tmr.qld.gov.au/-/media/Safety/roadsafety/Road-safety-research-reports/gls-evaluation-191216.pdf?la=en

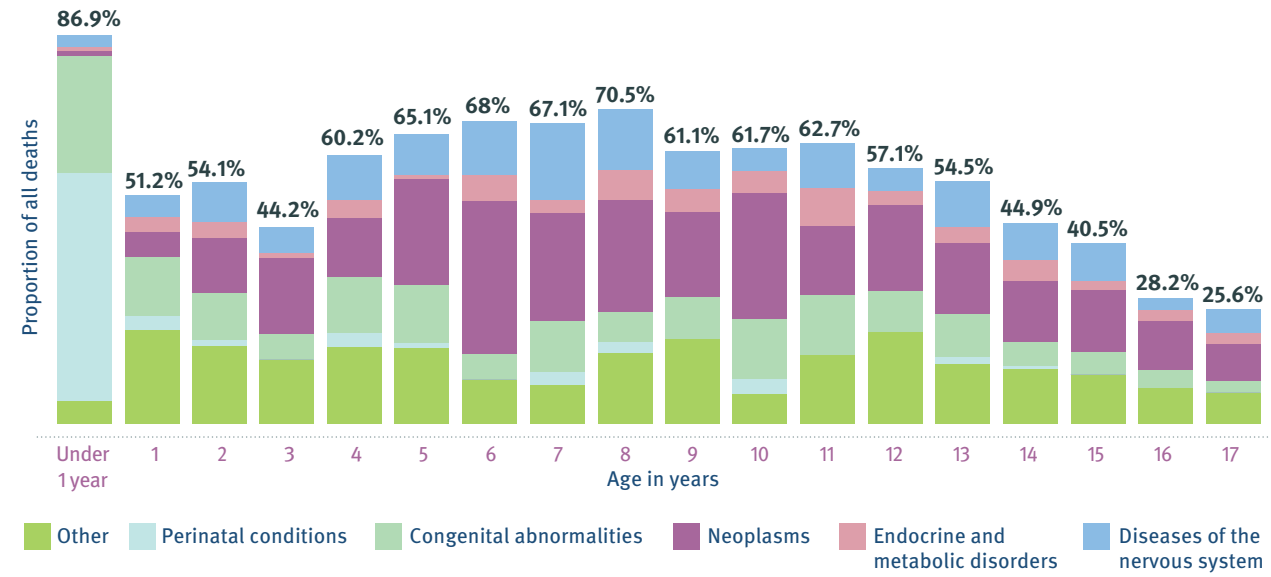

Figure 2.10: Natural cause deaths by leading cause and age in years, 2004–2019

Figure 2.10 also shows the changing patterns in the types of natural cause deaths over the course of childhood. As expected, perinatal conditions make up around half of all infant deaths from natural causes, but make up less than 5 per cent of deaths at each age thereafter. Neoplasms account for the greatest proportion of natural cause deaths between the ages of 5 and 10.

Figure 2.11 plots the proportion of deaths from transport incidents, drowning and other non-intentional injury, as a proportion of total deaths, by single year of age.

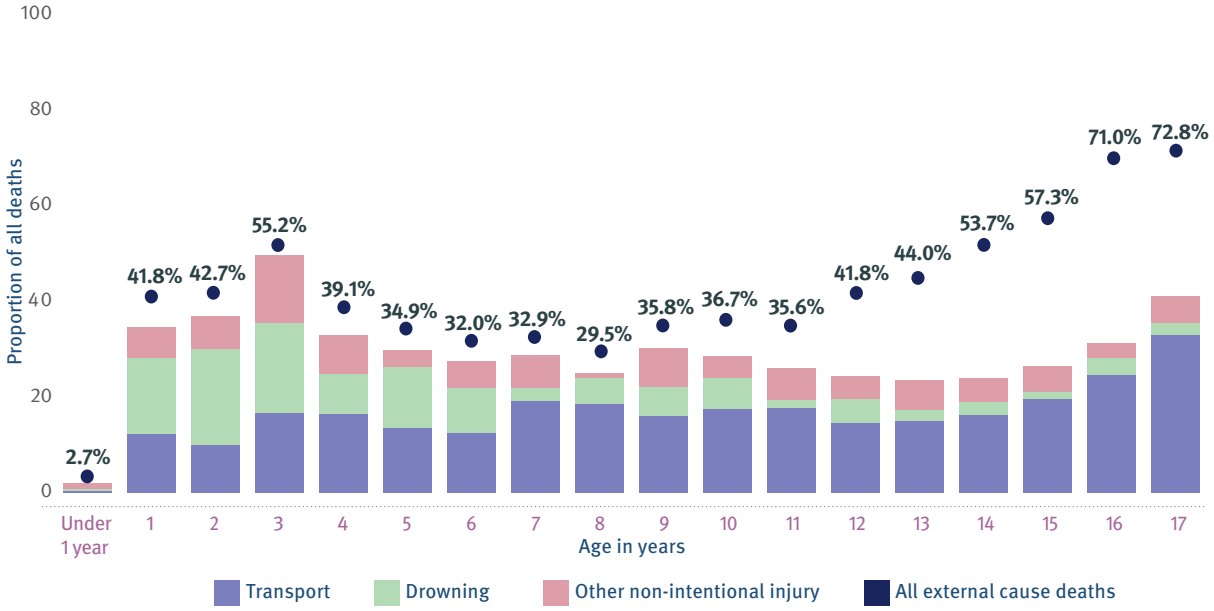

Figure 2.11: Transport, drowning and other non-intentional injury deaths by age in years, 2004–2019

Drowning deaths peak between the ages of 1 and 3 years, with the proportion of deaths attributable to drowning declining markedly from age 6. It is well established that fatal drowning is most likely for children under the age of 5, with 41% of all drowning deaths of children under 5 in Australia occurring in 1-year-olds.[85] National data reported by Royal Life Saving Australia indicates that drowning risk triples at age 1, with falls leading to drowning in 88% of cases.[86]

Children of this age are at the greatest risk of drowning due to behavioural factors such as increased mobility, curiosity and exploring their environment, combined with a lack of swimming skills and ability to understand the dangers of water.[87] The physical build of young children also places them at increased risk as they are 'top heavy', with limited dexterity, balance and coordination, so they are prone to falling in if they lean over to look in water or reach for an object.[88]

Other non-intentional injury deaths peak at age 3, accounting for around 15 per cent of deaths of children at this age. Other non-intentional injury generally accounts for between 5 and 7 per cent of deaths of children from the age of 10 onwards, corresponding with an increase in risk-taking behaviour.

For example, deaths due to non-intentional poisoning accounted for 37.2 per cent of deaths from other non-intentional injury among 15–17-year-olds. In 87.5 per cent of these cases, the death was directly attributed to misuse of alcohol, illicit drugs, volatile substances and/or prescription medication.

While transport incidents may occur at any age, a child's risk of involvement in a fatal incident increases from age 15 onwards. While younger children may be involved as pedestrians and passengers, during the teenage years, young people are also independently operating quadbikes and trail bikes in off-road situations, learning to drive and travelling with peers, increasing their exposure to high-risk transport scenarios.

The cognitive skills required for driving, including hazard perception, inhibition of distractions, attention and decision-making are known to be underdeveloped in young drivers[89]. In addition, young people are not yet psychosocially mature, which means they may be more prone to unsafe driving behaviours such as failing to wear seatbelts, speeding, drink-driving, and distracted or aggressive driving.[90]

The proportion of deaths occurring at each age that have resulted from suicide and fatal assault and neglect are outlined in **Figure 2.12**.

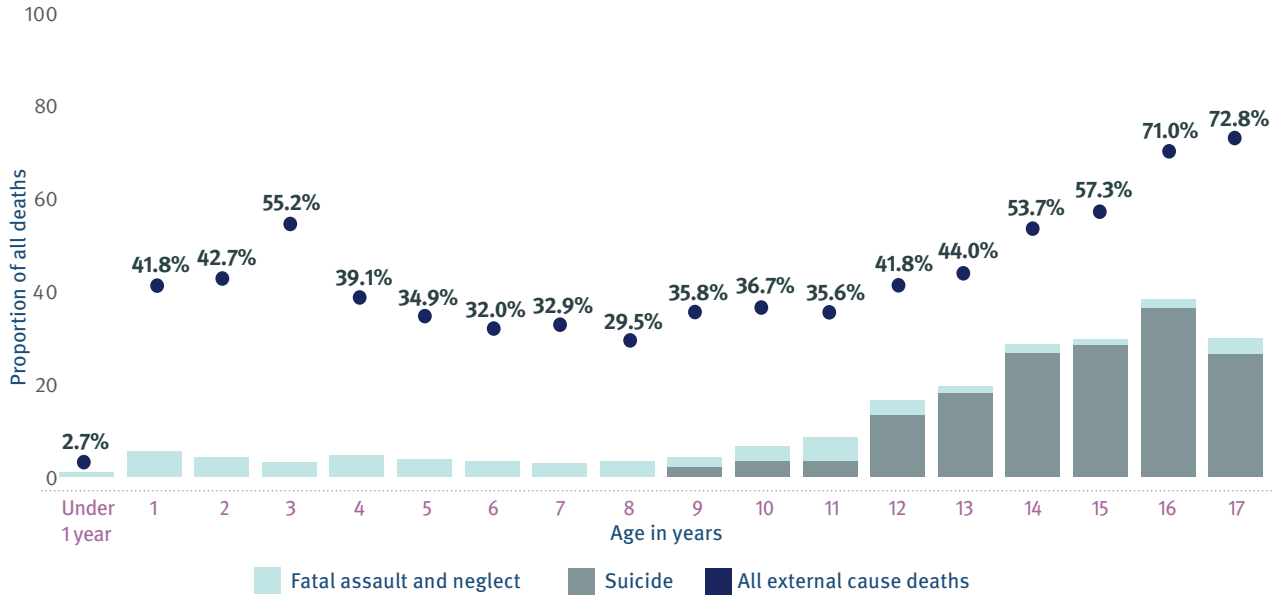

Figure 2.12: Suicide deaths and deaths due to fatal assault and neglect by age in years, 2004–2019

85 Royal Life Saving Society Australia n.d., *Keep Watch*, Royal Life Saving Society Australia, Broadway, viewed 22 May 2020, https://www.royallifesaving.com.au/families/at-home/toddler-drowning-prevention; Royal Life Saving Society Australia 2019, *Drowning Risk Triples When Children Turn One*, 23 October, Royal Life Saving Society Australia, Broadway, viewed 22 May 2020, https://www.royallifesaving.com.au/about/news-and-events/news-items/drowning-risk-triples-when-children-turn-one

86 ibid.

87 Royal Life Saving Society Australia 2018, *Trends in Child Drowning Over the Last 25 Years*, Royal Life Saving Society Australia, Broadway, https://www.royallifesaving.com.au/__data/assets/pdf_file/0004/23494/RLS_ChildDrowning_25yrReport.pdf

88 Kidsafe Australia 2019, *Drowning*, Kidsafe Australia, viewed 8 June 2020, https://kidsafe.com.au/wp-content/uploads/2019/03/Drowning-Information-Sheet.pdf; Royal Life Saving Society Australia 2019, *Drowning Risk Triples When Children Turn One*, 23 October, Royal Life Saving Society Australia, Broadway, viewed 22 May 2020, https://www.royallifesaving.com.au/about/news-and-events/news-items/drowning-risk-triples-when-children-turn-one

89 Cassarino M & Murphy G 2018, 'Reducing young drivers' crash risk: Are we there yet? An ecological systems-based review of the last decade of research', *Transportation Research Part F*, 56, pp. 54–73.

90 ibid.

At age 1, fatal assault and neglect accounted for 5.5 per cent of all deaths at this age, and generally declined thereafter. Infants and very young children are more likely to be victims of fatal assault and neglect than children at all other ages, with national data showing that 29 per cent of child homicide victims are under 1 year of age, with a further 22.6 per cent between the ages of 1 and 4 years.[91]

Research has identified that the lowest levels of child homicide rates are for children aged 5–14 years.[92] At age five, most children begin schooling, and the correlation between this and the reduction in fatal assault has been suggested as potentially being due to two factors: children are absent from the home for the majority of the day, which lowers carer stress and physically removes the children from the environment in which assault or neglect is likely to occur.[93] This also coincides with the time at which children become more physically robust, develop greater communication skills and become visible to society through their involvement with education systems—providing an opportunity for adults outside the family to identify issues and intervene.[94]

The risk of fatal assault and neglect is very low during middle childhood, escalating again from age 15, when young people are more likely to be assaulted by individuals outside of their immediate family, including peers and partners.[95]

The proportion of deaths due to suicide escalate rapidly from the age of 11 onwards. At age 11, suicide accounts for 3.4 per cent of deaths, jumping to 13.3 per cent at age 12 and increasing thereafter. Over the 16-year period between 2004 and 2019, 36.1 per cent of all 16-year-old deaths were due to suicide. This is a trend of particular concern and requires further research.

2.4 Differing levels of risk for male and female children

Male children are over-represented in mortality statistics across all causes of death, as shown in Figure 2.13.[96] Overall, during the five-year period to 2019, male children died at 1.2 times the rate of female children.[97]

During this most recent five-year period, males were 2.1 times more likely to be involved in a fatal transport incident, and 2.8 times more likely to die of other non-intentional injury.

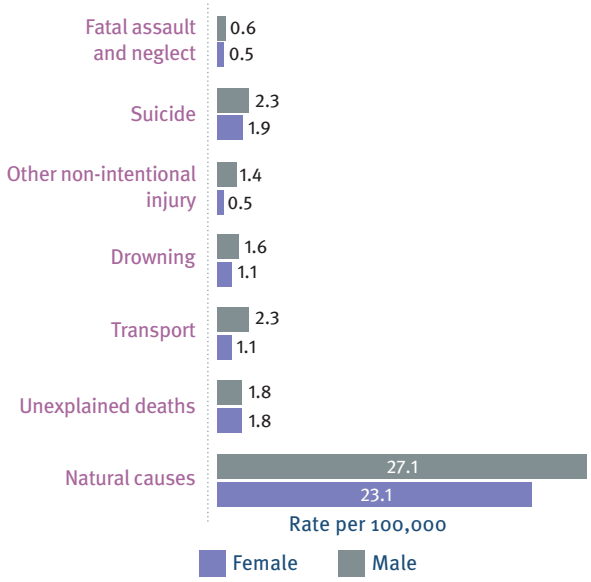

Figure 2.13: Child deaths by primary cause and sex, 2015–2019
Notes: Rates calculated per 100,000 male and female children aged 0–17 years, averaged over the five-year period 2015–2019.
Excludes the deaths of 42 children whose cause of death had not yet been determined at the time of reporting and three whose sex was not able to be determined.

91 Queensland Sentencing Advisory Council 2018, *Child Homicide in Queensland: A descriptive analysis of offences finalised by Queensland criminal courts, 2005–06 to 2016–17, Research report*, Queensland Sentencing Advisory Council, Brisbane, viewed 8 June 2020, https://www.sentencingcouncil.qld.gov.au/__data/assets/pdf_file/0006/576510/sentencing-for-child-homicide-offences-research-report-jul-2018.pdf
92 ibid.
93 NSW Commission for Children and Young People 2002, *Fatal Assault of Children and Young People*, NSW Commission for Children and Young People, Surry Hills, viewed 8 June 2020, https://www.parliament.nsw.gov.au/la/papers/DBAssets/tabledpaper/webAttachments/44931/fatalassault_full.pdf
94 ibid.
95 ibid.
96 With the exception of cases in which a cause is not yet known.
97 Children whose sex was not able to be determined have been excluded from this analysis.

It is widely accepted that the male child mortality rate is higher at all ages throughout childhood, which leads to the suggestion that biological, psychological, environmental, behavioural and social factors could play a part.[98] For example, factors that may contribute to the higher male child mortality rate may include differences in the rate of biological and psychological development between boys and girls and greater resistance to infection among females.[99]

During infancy, males have a higher death rate than females, with death rates between 1.1 and 1.3 times as high as those for girls nationwide.[100] This pattern has been noted across the globe, with studies demonstrating higher fetal death rates of males, with the mortality gap continuing to widen from birth.[101] Males are more likely to be born prematurely and to have conditions related to pre-term birth including infections and neonatal respiratory distress syndrome (a condition that makes it difficult for a baby to breathe).[102] Infant boys also face a higher risk of birth injury and mortality due to their larger body and head size.[103]

Research has found that from as young as 3 years, boys are more likely to engage in risk-taking behaviours than girls, hold the belief that they will not be injured while undertaking these behaviours, and hold optimism bias (that is, if they become injured, it was simply bad luck, not due to a controllable situation).[104] This may mean boys are less likely to learn from near-misses and more likely to engage in the risky behaviour again.[105] It is unclear whether these tendencies are inherent in male children or the result of different parenting practices and socialisation of boys.

In older age groups, the higher rate of male deaths may be influenced by higher levels of aggression and risk-taking behaviour among young men.[106] Males are generally more likely to participate in high-contact sports, as well as sports involving motorised vehicles, and to participate in these activities more frequently than their female counterparts.[107]

Social forces also play a part. Males are consistently more likely to drink heavily and engage in risk-taking behaviours as a result of masculine socialisation and gender differences in competitiveness.[108] Girls seem to be more likely to moderate their behaviours when in the presence of a supervising adult, even if the supervision is intermittent, while boys seem less concerned with altering their behaviour when supervised.[109]

The heightened risk of death for male children, from external causes in particular, changes across the course of childhood. **Figure 2.14** examines the rate of death for males and females for each external cause by age category, averaged over the most recent five-year period (2015–2019).

98 Sidebotham P, Fraser J, Covington T et al. 2014, 'Understanding why children die in high-income countries', *The Lancet*, 384(9946), pp. 915–27.
99 Kalben cited in Sidebotham P, Fraser J, Covington T et al. 2014, 'Understanding why children die in high-income countries', *The Lancet*, 384(9946), pp. 915–27.
100 Between 1998 and 2017—Australian Institute of Health and Welfare 2020, *Australia's Children*, Australian Institute of Health and Welfare, Canberra, viewed 9 June 2020, https://www.aihw.gov.au/reports/children-youth/australias-children/contents/health/injuries#howmanyinjuries
101 Sorenson SB 2011, 'Gender disparities in injury mortality: Consistent, persistent and larger than you'd think', *American Journal of Public Health*, 101(1), pp. 353–58.
102 Drevenstedt G, Crimmins E et. al. 2008, 'The rise and fall of excess male infant mortality', *Proceedings of the National Academy of Sciences April 2008*, 105(13), pp. 5016–21.
103 Dunham W 2008, 'Death more common in baby boys than girls', *Reuters*, 25 March, viewed 9 June 2020, https://www.reuters.com/article/us-infant-deaths/death-more-common-in-baby-boys-than-girls-idUSN24338128200803 24#:~:text=In%20the%20past%20three%20decades,California%2C%20one%20of%20the%20researchers.
104 Centre for Accident Research and Road Safety—Queensland 2014, *Adolescent Risk-taking*, Centre for Accident Research and Road Safety—Queensland, Brisbane, viewed 8 June 2020, https://research.qut.edu.au/carrsq/wp-content/uploads/sites/45/2017/04/Adolescent-risk-taking-screen.pdf
105 Barton BK & Schwebel DC 2007, 'The roles of age, gender, inhibitory control, and parental supervision in children's pedestrian safety', *Journal of Pediatric Psychology*, 32(5), pp. 517–26.
106 However, it is noted that sex differences in rates of some risk-taking behaviours, such as smoking, alcohol, and illegal drug misuse are decreasing—Kalben cited in Sidebotham P, Fraser J, Covington T et al. 2014, 'Understanding why children die in high-income countries', *The Lancet*, 384(9946), pp. 915–27.
107 Boufous A, Dennis R & Finch C 2006, *IRMRC Sports Injury Report: A profile of hospitalisations and deaths due to sport and leisure injuries in New South Wales, 2000–2004*, NSW Injury Risk Management Research Centre, Sydney, viewed 9 June 2020, http://www.irmrc.unsw.edu.au/documents/irmrcSportsInjuryReport.pdf
108 Sorenson SB 2011, 'Gender disparities in injury mortality: Consistent, persistent and larger than you'd think', *American Journal of Public Health*, 101(1), pp. 353–58.
109 Morrongiello BA & Schell SL 2010, 'Child injury: The role of supervision in prevention', *American Journal of Lifestyle Medicine*, 4(65), pp. 65–74.

Figure 2.14: External cause deaths by sex and age category, 2015–2019
Note: Rates calculated per 100,000 children in each age and sex category, averaged over the five-year period 2015–2019.
Rates for infants under 1 year of age calculated per 1,000 registered live births. Data pertaining to the number of registered live births in 2019 were not available at the time of reporting. For the Under 1 year age category, data are for the period 2014–2018.

Males are more likely to die in transport incidents in almost all developmental stages. The greatest disparity occurs in the 1–4-year and 15–17-year age group, where males died at 2.6 and 2.5 times the rate of females of the same age, respectively.

While infant males drowned at approximately the same rate as females, male toddlers are 1.5 times more likely to drown than females. During middle childhood, rates of drowning for male and female children are similar. However, by late adolescence (15–17 years), males are 2.4 times more likely to drown.

Death as a result of other non-intentional injury is much more likely among males of all ages, except between the ages of 5 and 14 years. For other non-intentional injury deaths, the greatest disparities exist among children aged 1–4 years and young people 15–17 years of age, with males 5.1 and 5.2 times more likely to die of other non-intentional injury.

Males are more likely to suicide than females in both the 10–14 and 15–17-year age groups (at 1.3 and 1.2 times the rate of females, respectively). Research suggests males are much more likely to die during their first suicide attempt,[110] due to the higher lethality of the method by which the suicide is attempted.[111]

Within the 16-year period under review, hanging accounted for the greatest proportion of both male and female suicides (84.4 per cent and 83.3 per cent, respectively).

Suicide by poisoning, however, was a method exclusively used by females, while deliberate motor vehicle incidents only occurred among males. Only a relatively small number of young people used firearms or explosives to end their lives. Of those who did, 93 per cent were male.

110 Poole G, n.d. *Research Confirms 5 Uncomfortable Facts about Young Male Suicide*, Australian Men's Health Forum, Sydney South, viewed 22 May 2020, https://www.amhf.org.au/research_confirms_5_uncomfortable_facts_about_young_male_suicide; Tsirigotis K, Gruszczynski W & Tsirigotis M 2011, 'Gender differentiation in methods of suicide attempts', *Medical Science Monitor*, 17(8), pp. 65–70.
111 Kolves K, Kumpula E & De Leo D 2013, *Suicidal Behaviours in Men: Determinants and prevention*, Australian Institute for Suicide Research and Prevention, Brisbane, viewed 15 July 2020, https://www.griffith.edu.au/__data/assets/pdf_file/0033/359754/GriffithMen_WEB.pdf; Stefanac N, Hetrick S, Hulbert C, Spittal MJ, Witt K & Robinson J 2019, 'Are young female suicides increasing? A comparison of sex-specific rates and characteristics of youth suicides in Australia over 2004–2014', *BMC Public Health*, 19(1389), p. 7.

Chapter 3—Geographic and socio-economic factors

Child mortality rates are influenced by socio-economic and geographic factors. The rate of child death is higher in more disadvantaged areas—including areas with higher poverty rates, lower school engagement, overcrowded housing, and higher rates of developmental vulnerability.[112]

There is also an association between child mortality and indicators of parental disadvantage, including sole parenting, low maternal education, young maternal age, low income or unemployment and large family size.[113]

The rate of child deaths is also higher in rural and remote areas, particularly in the case of deaths due to injury. For example, national data for the period 2012–2016 indicates the injury death rate in outer regional, remote and very remote areas of Australia was 4.1 times higher than in major cities and 2.8 times higher than in inner regional areas.[114]

By analysing the geographical and socio-economic distribution of child deaths across the state, we have an opportunity to explore differences in mortality rates between regions and the interplay of social and economic factors that may impact on this. In doing so, we can identify areas for intervention to reduce child deaths.

3.1 Place of usual residence

The following analysis of the distribution of child death across the state is based on the Australian Statistical Geography Standard Statistical Area 4 (SA4), which divides the state into 19 regions based on their population.[115] For the purpose of this report, wherever the term **statistical area** is used, this refers to SA4 regions.

3.1.1 Type of death by place of usual residence

Figure 3.1 illustrates the distribution of child deaths across Queensland, based on the statistical area of their place of usual residence, over the most recent five-year period available.[116] At the time of reporting, estimated resident populations by geographic boundaries were not available for 2019. As such, the five-year period analysed covers the years 2014–2018 rather than 2015–2019, as presented in other sections of the report.

This shows that children who usually resided in Outback Queensland had the highest rate of death, at more than twice the state average (77.1 deaths per 100,000 children aged 0–17 years compared with 35.3 per 100,000 across the state).

Deaths from natural causes in Outback Queensland occurred at twice the average rate across Queensland, while external cause deaths were 3.5 times as common. Unexpectedly, the rate of unexplained deaths was lower in Ouback Queensland than many other statistical areas.

The Outback Queensland statistical area covers an extensive area of the state and includes many remote areas. Children in rural and remote areas of Australia are more likely to face vulnerabilities from social, economic and environmental conditions that are known to adversely affect health and wellbeing. This is complicated by a greater likelihood of a lack of access to appropriate services to moderate the impact of these vulnerabilities.[117]

112 Developmental vulnerability refers to children falling below the 10th percentile in one of the following domains of the *Australian Early Development Census:* physical health and wellbeing; social competence; emotional maturity; language and cognitive skills; communication and general knowledge—Department of Education and Training 2019, *Australian Early Development Census National Report 2018*, Department of Education and Training, Canberra, viewed 8 July 2020, https://www.aedc.gov.au/resources/detail/2018-aedc-national-report; NSW Child Death Review Team 2018, *Spatial Analysis of Child Deaths in New South Wales*, NSW Ombudsman, Sydney, viewed 8 July 2020, https://www.ombo.nsw.gov.au/__data/assets/pdf_file/0006/54258/Spatial-analysis-of-child-deaths-in-New-South-Wales.pdf; Australian Institute of Health and Welfare 2020, *Australia's Children*, Australian Institute of Health and Welfare, Canberra, viewed 9 June 2020, https://www.aihw.gov.au/reports/children-youth/australias-children/contents/health/infant-child-deaths

113 Australian Institute of Health and Welfare 2020, *Australia's Children*, Australian Institute of Health and Welfare, Canberra, viewed 9 June 2020, https://www.aihw.gov.au/reports/children-youth/australias-children/contents/health/infant-child-deaths

114 ibid.

115 Australian Bureau of Statistics 2020, *Australian Statistical Geography Standard (ASGS)*, Australian Bureau of Statistics, Canberra, viewed 17 June 2020, https://www.abs.gov.au/websitedbs/D3310114.nsf/home/Australian+Statistical+Geography+Standard+(ASGS)

116 Rates across the most recent five-year period have been used due to an administrative change in address coding practices in earlier years.

117 Arefadib, N & Moore, TG 2017, *Reporting the Health and Development of Children in Rural and Remote Australia*, The Centre for Community Child Health at the Royal Children's Hospital and the Murdoch Children's Research Institute, viewed 8 June 2020, https://www.royalfarwest.org.au/wp-content/uploads/2017/12/Murdoch-Report.pdf

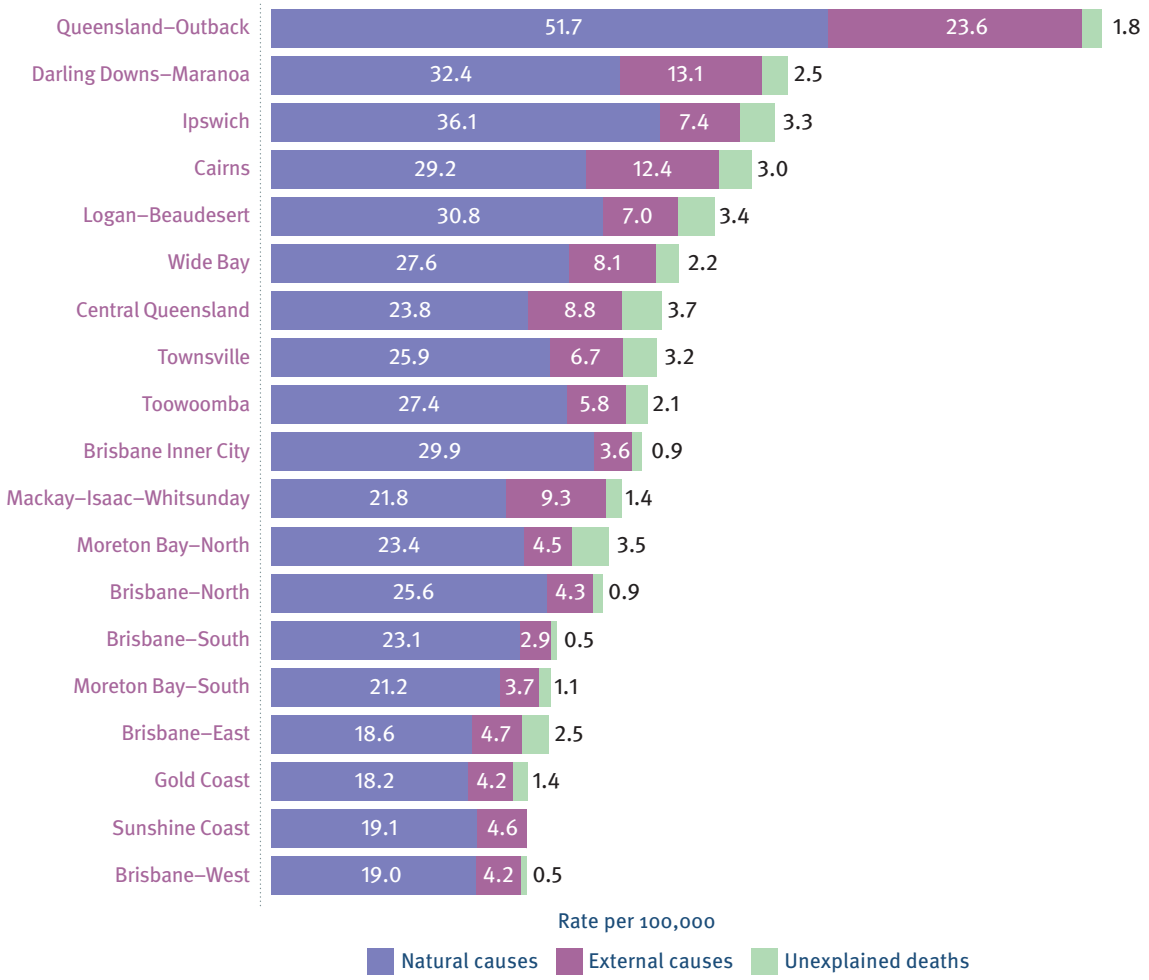

Figure 3.1: Child deaths by statistical area of usual residence and major cause grouping, 2014–2018

Notes: Rates calculated per 100,000 children aged 0–17 years in each statistical area, averaged over the five-year period 2014–2018.

Excludes the deaths of eight children whose cause of death was not yet determined at the time of reporting and 69 whose usual place of residence was outside Queensland.

External causes

The five statistical areas with the highest rate of external cause deaths for usual residents between 2014 and 2018 were Outback Queensland, Darling Downs–Maranoa, Cairns, Mackay–Isaac–Whitsunday and Central Queensland. The types of external cause deaths in each region are worthy of closer examination and are presented in **Figure 3.2**.

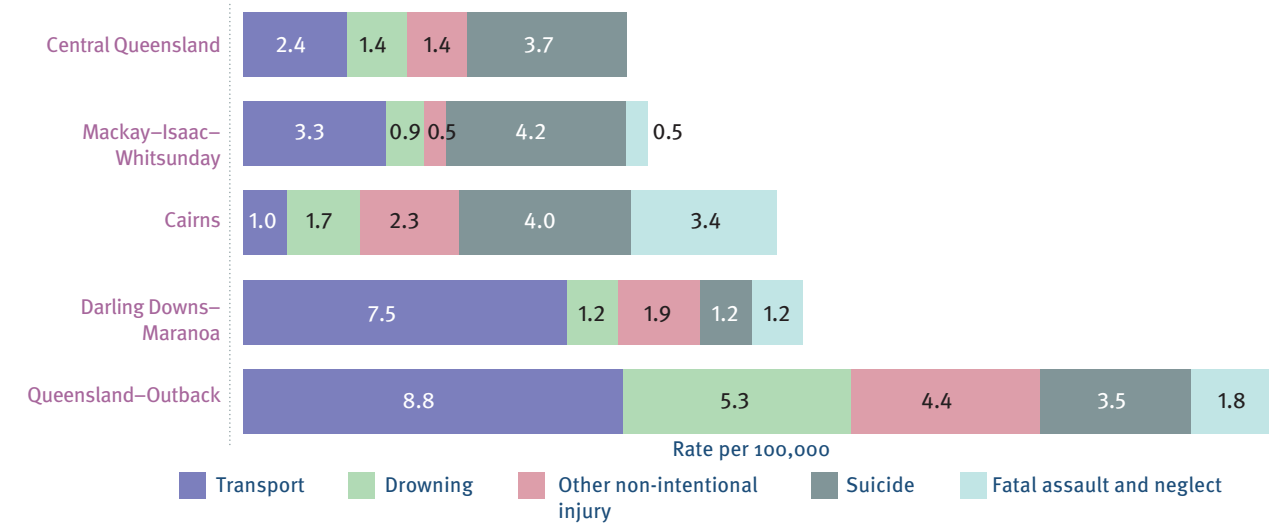

Figure 3.2: External cause deaths by selected statistical area of usual residence, 2014–2018

Notes: Rates calculated per 100,000 children aged 0–17 years in each statistical area, averaged over the five-year period 2014–2018.

Transport fatalities (including both on and off-road incidents) accounted for the greatest proportion of external cause deaths in Outback Queensland and Darling Downs–Maranoa. The greater distances between destinations in regional and remote areas of Queensland and the risks posed by higher travel speeds, increased fatigue, lower quality road conditions, unique hazards and unpredictability (for example, wildlife, livestock, and farming and mining equipment on-road) and lower rates of seatbelt use are thought to contribute to higher rates of transport deaths in these areas.[118]

The remoteness of accident locations and the increased travel time for emergency services could also lead to longer response times to receive medical treatment.[119]

In three of the five statistical areas with the highest rates of external cause deaths—Cairns, Mackay–Isaac–Whitsunday and Central Queensland—suicide was the leading external cause. These areas recorded suicide rates of between 3.7 and 4.2 per 100,000 during the five-year period 2014–2018. Suicide rates were also high in Outback Queensland (3.5 per 100,000).

The higher rate of suicide observed in these areas is consistent with national data, which records higher rates of suicide in rural and remote areas and shows rates increase with the level of remoteness.[120] For example, 15–24-year-old males in regional areas are 1.5–1.8 times more likely to end their life by suicide than their metropolitan counterparts, while those in very remote areas are up to six times more likely to suicide.[121]

A range of factors are thought to play a part, including social isolation, economic and employment stressors, greater availability of lethal means of self-harm, and barriers to accessing mental health care services.[122]

It is also important to acknowledge the high rate of suicide in areas with high Indigenous populations. Aboriginal and Torres Strait Islander young people are at significantly increased risk of suicide. While the reasons behind this are complex, the 'crushing effects of intergenerational trauma'[123] play a significant part.

Outback Queensland recorded the highest rate of drowning deaths at 5.3 per 100,000—a rate 4.6 times the average drowning rate across the state during this five-year period. The higher rate of drowning in Outback Queensland is likely due to a combination of factors. Children in rural and remote areas often have access to a number of waterways within walking distance of their homes. These include dams, creeks and rivers (which are not supervised or lifeguarded like public swimming pools and beaches) and other man-made water hazards including buckets, water troughs, drains or culverts.[124]

Children in more remote and disadvantaged areas may also have less access to water safety programs and swimming lessons compared to their urban counterparts.[125] Finally, it could be assumed that the distance required for emergency services to travel when a drowning incident occurs could heighten the risk of adverse outcomes.

During the same period, Cairns recorded the highest rate for fatal assault and neglect (3.4 per 100,000), 2.7 times the rate for all fatal assault and neglect deaths across Queensland. However, this high rate is likely to be influenced by a single incident during this period in which multiple children died.

3.1.2 Location of death incident

Rates of death are predominantly analysed by the area in which a child usually resided. However, the incident leading to death may not necessarily occur in the same area in which a child lived. This is particularly relevant for transport deaths, in which travel is a critical component of the death incident.

Additional details about the location of the incident leading to death are generally available for reportable deaths, as this information is collected as part of the police report to the coroner.[126] **Figure 3.3** provides a breakdown of external cause deaths for the five statistical areas with the highest rate based on the number of incidents actually *occurring* within that area. This provides an indication of whether deaths from particular causes are occurring close to home, or are of children visiting or travelling through the area.

118 Centre for Accident Research and Road Safety–Queensland 2017, *Rural and Remote Road Safety*, Centre for Accident Research and Road Safety—Queensland, Brisbane, viewed 31 March 2020, https://research.qut.edu.au/carrsq/wp-content/uploads/sites/45/2017/05/FINAL-Rural-remote-road-safety-screen.pdf; Rowden P, Steinhardt D & Sheehan M 2008, 'Road crashes involving animals in Australia', *Accident Analysis and Prevention*, 40(6), pp. 1865–71; Steinhardt DA & Watson BC 2007, 'Nighttime seatbelt non-use in serious crashes: A comparison of contributing factors in rural and urban areas of the United States and Queensland', *Road Safety: Research, Policing, Education Conference*, Melbourne, viewed 22 June 2020, https://eprints.qut.edu.au/10554/1/10554.pdf

119 King J 2016, 'Regional and rural medical emergencies: What happens after calling triple-0?', *ABC News*, 22 February, viewed 11 June 2020, https://www.abc.net.au/news/2016-02-22/regional-and-rural-emergencies-what-happens-after-calling-000/7176486; Queensland Ambulance Service 2017, *Public Performance Indicators: Financial year to date–July to December 2016*, Queensland Ambulance Service, Brisbane, viewed 15 July 2020, https://www.ambulance.qld.gov.au/docs/QAS-Public-Performance-Indicators-Q2-2016-17.pdf; Strong K, Trickett P, Titulaer I, Bhatia K 1998, *Health in Rural and Remote Australia*, AIHW Cat. No. PHE 6, Australian Institute of Health and Welfare, Canberra, viewed 20 June 2020, https://www.aihw.gov.au/getmedia/10d11540-5ed1-4e41-8503-915a45ba33c3/hrra.pdf.aspx?inline=true

120 Kõlves K, Milner A, McKay K & De Leo D (eds) 2012, *Suicide in Rural and Remote Areas of Australia*, Australian Institute for Suicide Research and Prevention, Brisbane, viewed 8 June 2020, https://www.griffith.edu.au/__data/assets/pdf_file/0031/359761/Suicide-in-Rural-and-Remote-Areas-of-Australia2.pdf

121 National Rural Health Alliance Inc 2009, *Suicide in Rural Australia*, Fact Sheet 14, National Rural Health Alliance Inc, Deakin West, viewed 8 June 2020, https://www.ruralhealth.org.au/sites/default/files/fact-sheets/fact-sheet-14-suicide%20in%20rural%20australia_0.pdf

122 Kõlves K, Milner A, McKay K & De Leo D (eds) 2012, *Suicide in Rural and Remote Areas of Australia*, Australian Institute for Suicide Research and Prevention, Brisbane, viewed 8 June 2020, https://www.griffith.edu.au/__data/assets/pdf_file/0031/359761/Suicide-in-Rural-and-Remote-Areas-of-Australia2.pdf

123 State Coroner of Western Australia 2019, *Inquest into the Deaths of Thirteen Children and Young Persons in the Kimberley Region, Western Australia*, 7 February 2019, Coroners Court of Western Australia, Perth, viewed 8 June 2020, https://www.coronerscourt.wa.gov.au/_files/inquest-2019/13-Children-and-Young-Persons-in-the-Kimberley-Region-Finding.pdf

124 Wallis BA, Watt K, Franklin RC et al. 2015, 'Where children and adolescents drown in Queensland: A population-based study', *BMJ Open*, 5(11), viewed 19 May 2020, https://bmjopen.bmj.com/content/bmjopen/5/11/e008959.full.pdf; Royal Life Saving Society Australia 2016, *Warning to all Parents and Carers Living in Rural and Remote Areas about Young Children's Risk of Drowning*, Royal Life Saving Society Australia, Broadway, viewed 15 July 2020, https://www.royallifesaving.com.au/about/news-and-events/news-items/warning-to-all-parents-and-carers-living-in-rural-and-remote-areas-about-young-childrens-risk-of-drowning

125 Christian B & Shepherd B 2015, 'Drowning risk for children five times higher in regional, remote WA than metropolitan areas, report finds', *ABC News*, Australian Broadcasting Corporation, viewed 8 June 2020, https://www.abc.net.au/news/2015-10-09/regional-and-remote-wa-tops-drowning-risk-for-kids/6839498

126 Reportable deaths are those that are sudden and unexpected, or resulting from violence or external forces (that is, not natural causes).

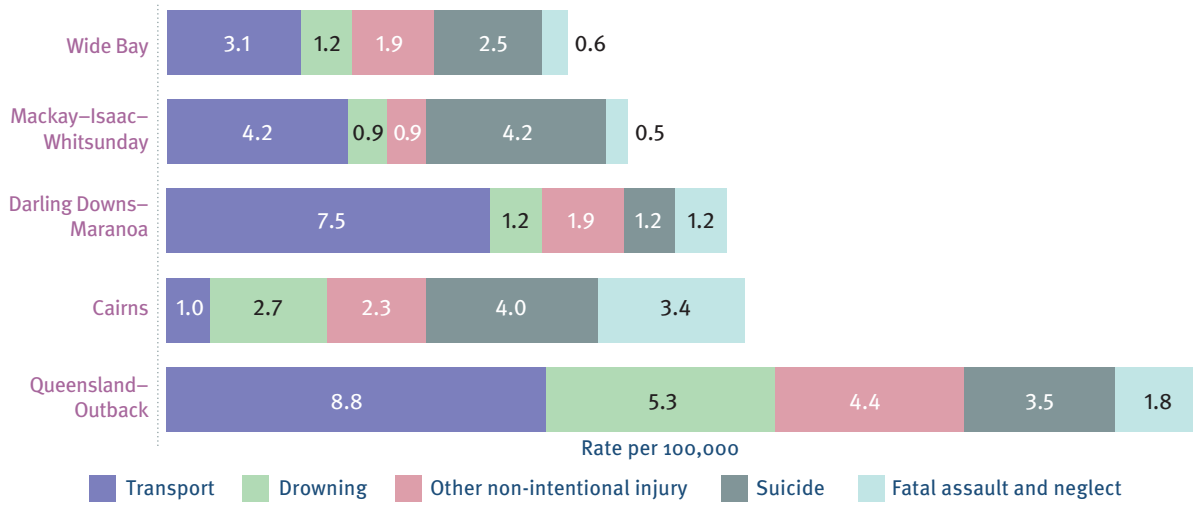

Figure 3.3: External cause deaths by selected statistical area of death incident location, 2014–2018
Note: Rates calculated per 100,000 children aged 0–17 years in each statistical area, averaged over the five-year period 2014–2018.

Outback Queensland retained the same rates of death for each external cause, which may indicate that deaths occurring in this region are more likely to be of usual residents.

However, the rate of drowning deaths in Cairns was higher when comparing location of death incident with usual residence of the deceased (2.7 compared with 1.7 per 100,000 children). Similarly, transport deaths in Mackay–Isaac–Whitsunday were higher for deaths by location of incident compared with usual residence (4.2 compared with 3.3 per 100,000). This may indicate that drowning and transport fatalities in these respective statistical areas involve visitors from other areas.

3.2 Remoteness and accessibility of place of usual residence

The Accessibility/Remoteness Index of Australia Plus (ARIA+) is an Australian Bureau of Statistics measure of remoteness that ranks locations based on their distance by road to a centre that provides services.[127]

Families living in regional and remote areas may have difficulty accessing services such as healthcare, employment, financial services, telecommunications services, education and child care and specialist services (for example, disability, domestic and family violence, drug and alcohol or counselling services).[128] Combined, these factors associated with living in regional and remote areas can affect the risk of death from a variety of causes.

ARIA+ areas

The ARIA+ index ranks locations based on their distance by road to a service centre. Service centres are divided into five categories based on population size.

Queensland examples include:

- **Major cities** (also referred to as metropolitan areas), e.g. Brisbane, Logan, Gold Coast, Ipswich
- **Inner regional**, e.g. Toowoomba, Mackay
- **Outer regional**, e.g. Townsville, Cairns
- **Remote**, e.g. Mt Isa, Palm Island, Goondiwindi
- **Very remote**, e.g. Longreach, Charleville, Doomadgee

Throughout this report, these are the categories used to describe the remoteness of locations in which the children who died usually resided.

127 The University of Adelaide 2020, *Accessibility/Remoteness Index of Australia (ARIA)*, viewed 18 May 2020, https://www.adelaide.edu.au/hugo-centre/services/aria; The Department of Health 2011, *Accessibility Remoteness Index of Australia (ARIA) Review Analysis of Areas of Concern–Final Report* viewed 18 May 2020, https://www1.health.gov.au/internet/publications/publishing.nsf/Content/ARIA-Review-Report-2011~ARIA-Review-Report-2011-2~ARIA-Review-Report-2011-2-2-3
128 Baxter J, Hayes, A & Gray M 2011, *Families in Regional, Rural and Remote Australia*, Australian Institute of Family Studies, viewed 31 March 2020, https://aifs.gov.au/publications/families-regional-rural-and-remote-australia

3.2.1 Type of death by ARIA+

Over the 16-year period between 2004 and 2019, the greatest number of deaths occurred in metropolitan areas (3,870 deaths, or 53.9 per cent of all deaths). Natural causes accounted for the greatest proportion of deaths across all ARIA regions, ranging from 78.6 per cent of deaths of usual residents of metropolitan areas to just over half (52 per cent) in remote Queensland.

While the total *number* of deaths decreased with increasing remoteness, as shown in **Figure 3.4**, the rate of death increased with remoteness, from 30.8 per 100,000 in metropolitan areas to 72.7 per 100,000 in very remote areas. Rates in inner and outer regional, remote and very remote areas were all higher than the metropolitan area rates during the most recent available five-year period (2014–2018).

While the rate in very remote areas (72.7 per 100,000) appears to be higher than in remote areas (52.9 per 100,000), due to the relatively small counts of child deaths in these regions over the 5-year period examined, the difference between the rates was not statistically significant.

Rates of death from external causes in inner/outer regional and remote/ very remote areas were higher than that in metropolitan areas, with rates increasing with remoteness. External cause child deaths in very remote areas occurred at 4.5 times the rate of those in metropolitan areas.

Differences in rates of natural cause deaths were relatively small when comparing metropolitan, inner regional, outer regional and remote areas. However, the rate of natural cause deaths in very remote areas was 1.6 times the rate in remote areas.

External causes

Looking at external cause deaths specifically (see **Figure 3.5**), between 2004 and 2019, transport incidents accounted for around 40 per cent of all external cause deaths outside of metropolitan areas. More than 20 per cent of external cause deaths in very remote areas were due to drowning, compared with 14.8 per cent of external cause deaths in metropolitan areas. Suicide accounted for between one-fifth and just over one-quarter of external cause deaths in each remoteness area.

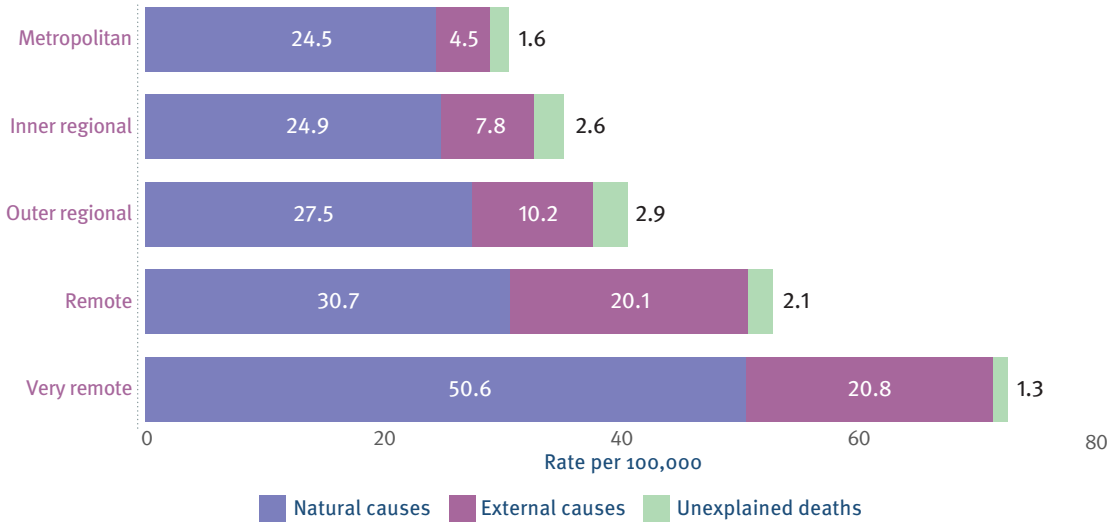

Figure 3.4: Child deaths by ARIA+ of usual residence and major cause grouping, 2014–2018
Notes: Rates calculated per 100,000 children aged 0–17 years in each ARIA+ category, averaged over the five-year period 2014–2018.
Excludes the deaths of eight children whose cause of death was not yet determined at the time of reporting and 69 whose usual place of residence was outside Queensland.

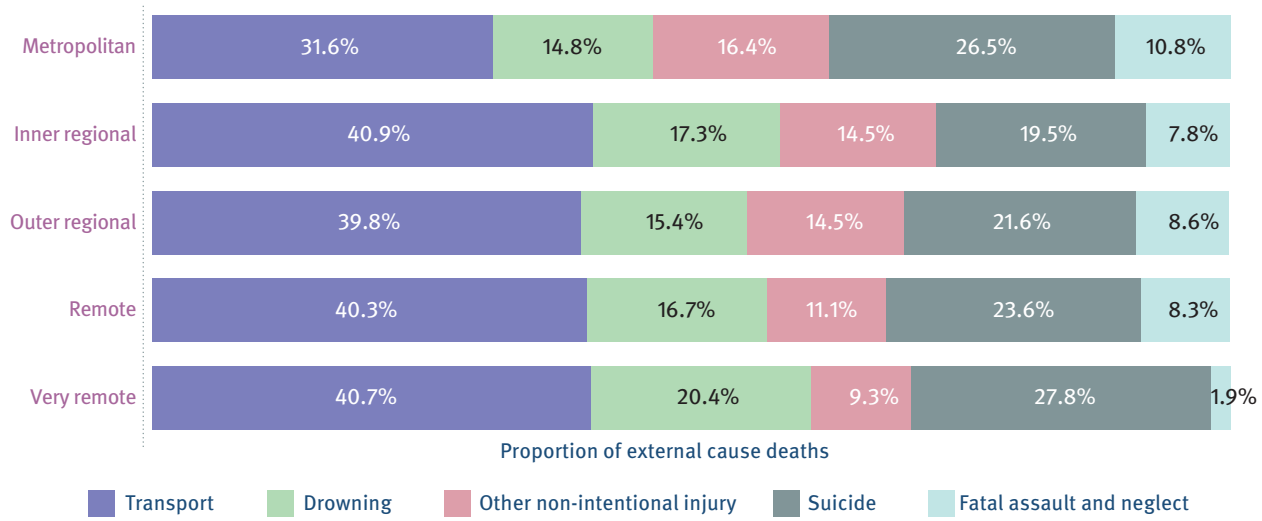

Figure 3.5: External cause deaths by ARIA+ of usual residence and primary cause, 2004–2019

Note: Primary cause as a proportion of external cause deaths in each ARIA+ category.

Excludes the deaths of 45 children whose usual place of residence was outside Queensland.

Rates of death during the most recent five-year period available for analysis (2014–2018) confirm that transport fatalities increase with remoteness and indicate that the risk of suicide is also higher in remote and very remote areas than in metropolitan areas, as shown in **Figure 3.6**.

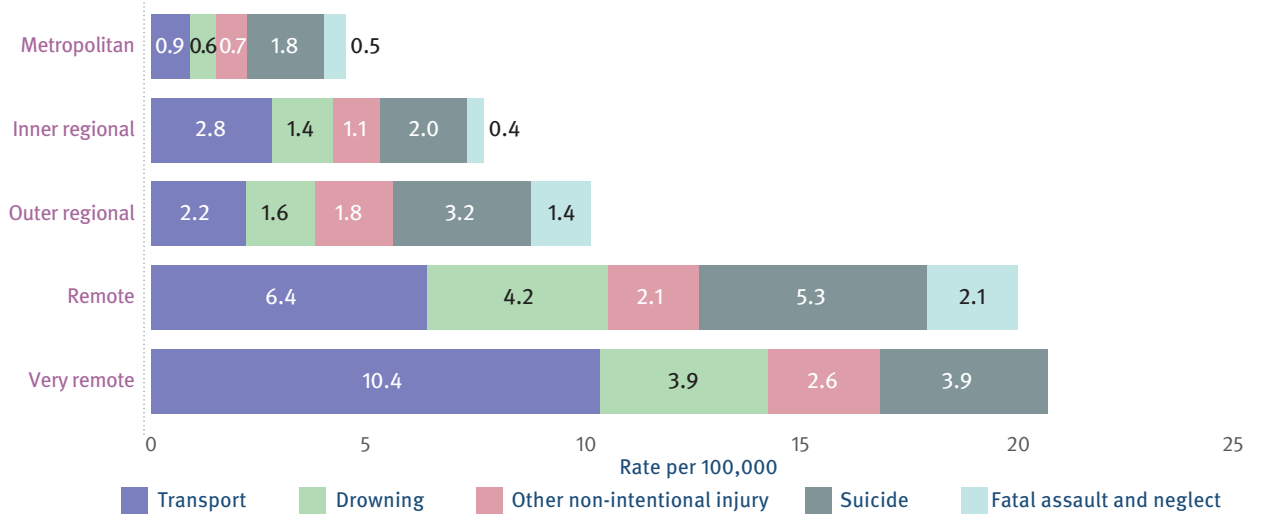

Figure 3.6: External cause deaths by ARIA+ of usual residence and primary cause, 2014–2018

Notes: Rates calculated per 100,000 children aged 0–17 years in each ARIA+ category, averaged over the five-year period 2014–2018.

Excludes the deaths of 12 children whose usual place of residence was outside Queensland. No child deaths from fatal assault and neglect were recorded in very remote areas during the five-year period analysed.

Remoteness can generally increase a child's exposure to environmental risk, particularly where the home is combined with the workplace, such as occurs on farms. As would be expected, the rate of death from other types of non-intentional injury (such as poisoning, falls or injury from machinery) increased with remoteness.

The rate of both suicide and fatal assault was highest in remote areas, although the lower rates seen in very remote areas may be the result of the small number of cases in these areas during the five-year period analysed. For example, while the overall rate of external cause deaths in metropolitan areas between 2014 and 2018 was low (4.5 per 100,000 compared with 20.8 per 100,000 in very remote areas), it is worth noting that 39.1 per cent of these were due to suicide, a higher proportion than in other remoteness areas.

The impact of remoteness on mortality rates is complex. A range of risk factors for injury and death may be more prevalent in remote areas. Some of these may be inherently tied to remoteness (such as longer distances travelled by road, the time taken to receive emergency medical treatment or the availability of mental health services for children and young people), while others may be the result of an association between remoteness and other factors, such as socio-economic status.

3.3 Socio-economic status of place of usual residence

The Australian Bureau of Statistics' Socio-Economic Indexes for Areas (SEIFA) allocates a score to geographical areas to represent their level of advantage or disadvantage. [129]

The score reflects the characteristics of the area in which a child's usual place of residence is located. It does not provide any indication of the socio-economic status of an individual child or their family. Rather, it provides an indication of whether residents of the local area are likely to have skilled or unskilled occupations, higher or lower incomes, and higher or lower levels of education.

Socio-economic status is strongly related to many causes of death. Previous research has identified, for example, death as a result of transport incidents across all ages is 2.2 times higher for males living in the lowest socio-economic areas of Australia than for those living in the most affluent areas. For Australian women, death from diabetes is 1.9 times higher among residents of low socio-economic areas.[130]

Analysis using SEIFA scores allows us to further understand how this relationship operates for child mortality specifically. Socio-economic factors, such as parental income and education, are closely linked to rates of infant and child mortality.[131]

3.3.1 Type of death by SEIFA

Over the 16-year period, the greatest proportion of deaths occurred among children living in very low socio-economic areas (27.3 per cent of all child deaths). Of the 1,962 children living in very low socio-economic areas at the time of their death 23.4 per cent were from external causes, compared with 15.3 per cent of children living in very high socio-economic areas. The proportion of deaths from unexplained causes was also higher in these very low socio-economic areas, making up 9.6 per cent of deaths in these areas compared with 4.6 per cent in very high socio-economic areas.

During the five-year period 2014–2018, the rate of death in very low socio-economic areas was 47.3 per 100,000. This is 1.7 times the rate in very high socio-economic areas.

Interestingly, the rate of death for usual residents of moderate, high and very high socio-economic areas were relatively similar—the increase in rates of death becomes much more apparent in low and very low socio-economic areas.

While natural causes accounted for most deaths in each socio-economic area, the rate of natural cause deaths was higher in low and very-low socio-economic areas, as shown in **Figure 3.7**.

129 The SEIFA Index of Advantage/Disadvantage is used in this report. It measures both advantage and disadvantage, effectively providing a measure of the net effect of social and economic conditions in particular areas.

130 Australian Institute of Health and Welfare 2014, *Mortality Inequalities in Australia 2009–2011*, Bulletin no. 124. Cat. No. AUS184, Australian Institute of Health and Welfare, Canberra, viewed 27 March 2020, https://www.aihw.gov.au/getmedia/5683dc4b-796f-49bd-87eb-5a11135956f5/16934.pdf.aspx?inline=true

131 Australian Institute of Health and Welfare 2018, 'Infant mortality', *Children's Headline Indicators*, Australian Institute of Health and Welfare, Canberra, viewed 30 March 2020, https://www.aihw.gov.au/reports/children-youth/childrens-headline-indicators/contents/2-infant-mortality

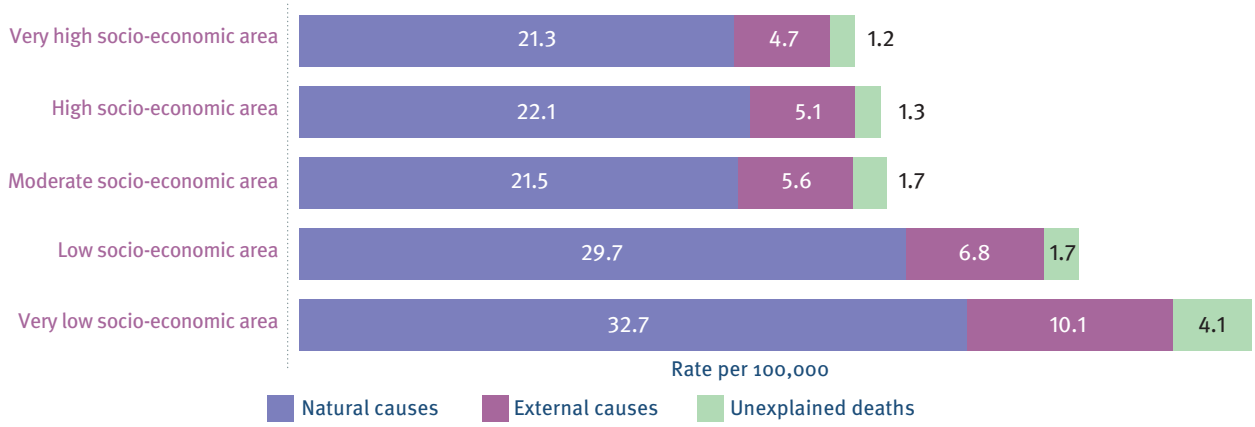

Figure 3.7: Child deaths by SEIFA of usual residence and major cause grouping, 2014–2018
Notes: Rates calculated per 100,000 children aged 0–17 years in each SEIFA category, averaged over the five-year period 2014–2018.
Excludes the deaths of eight children whose cause of death was not yet known at the time of reporting and 69 whose usual place of residence was outside Queensland.

External cause deaths also occurred at a higher rate in very low socio-economic areas, with the rate of death decreasing as socio-economic status rose. External cause deaths in these areas occurred at 2.2 times the rate in very high socio-economic areas. This is supported by international research, which suggests 'the inverse relationship between socio-economic level and injury morbidity and mortality is pervasive, persistent and profound'.[132]

External causes

Across the 16-year period, transport incidents accounted for the greatest proportion of deaths in each area (see **Figure 3.8**). Low socio-economic areas recorded the greatest proportion of deaths from transport incidents (40.8 per cent of all external cause deaths in these areas), although this figure was comparable to other socio-economic areas.

Suicides accounted for 27.6 per cent of external cause deaths in very high socio-economic areas. This is a greater proportion than in any other socio-economic area—suicide accounted for 19.9 per cent of external cause deaths in low socio-economic areas and 23 per cent in very low areas.

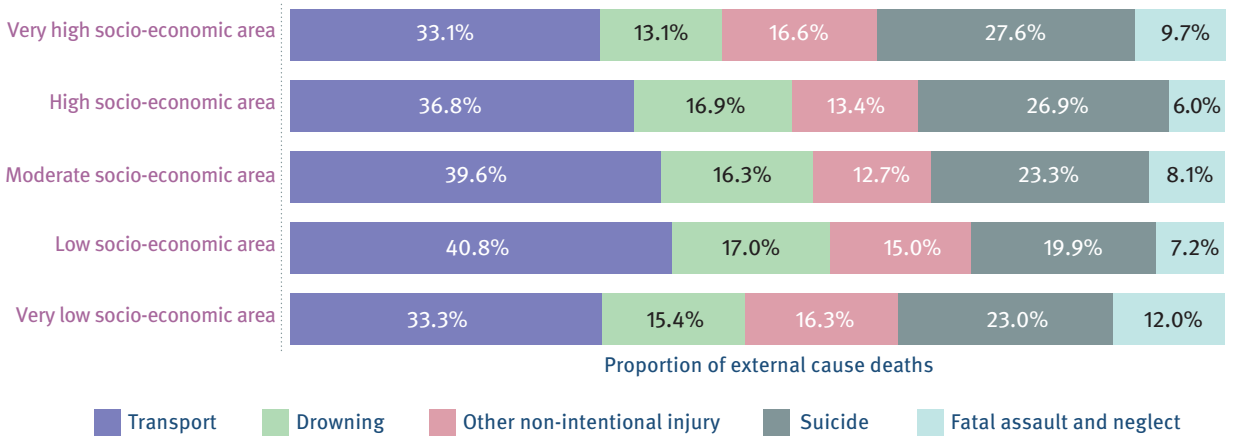

Figure 3.8: External cause deaths by SEIFA and primary cause (proportion), 2004–2019
Note: Primary cause as a proportion of external cause deaths in each SEIFA category.
Excludes the deaths of 45 children whose usual place of residence was outside Queensland.

132 Birken CS & Macarthur C 2004, 'Socio-economic status and injury risk in children', *Paediatrics & Child Health*, 9(5), pp. 323–25.

Over the most recent available five-year period (2014–2018), the rate of death was highest in very low socio-economic areas at 10.1 deaths per 100,000 children aged 0–17 years, as shown in **Figure 3.9**. This compares with 4.7 per 100,000 in very high socio-economic areas.

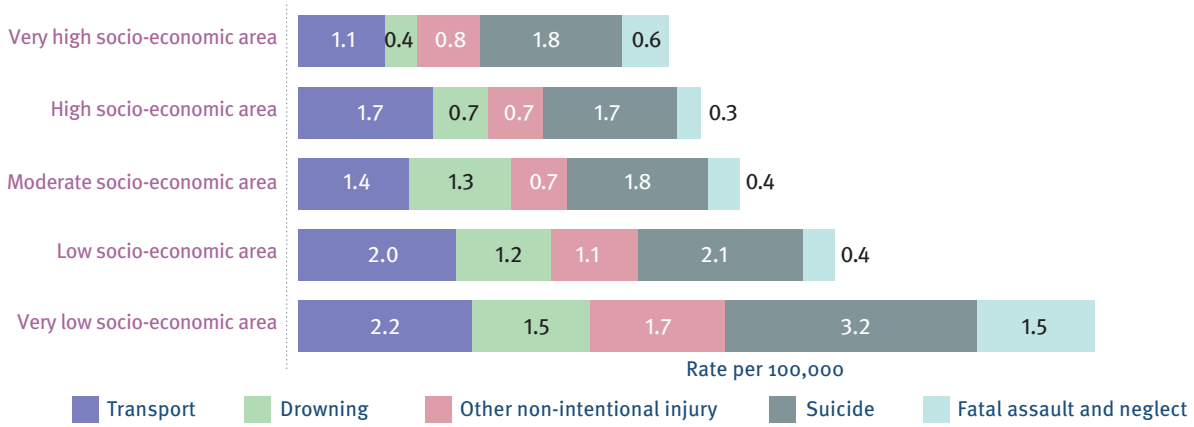

Figure 3.9: External cause deaths by SEIFA and primary cause (rate), 2014–2018
Notes: Rates calculated per 100,000 children aged 0–17 years in each SEIFA category, averaged over the five-year period 2014–2018. Excludes the deaths of 12 children whose usual place of residence was outside Queensland.

Unexplained deaths

The unequal distribution across areas of differing socio-economic status is particularly evident when considering deaths from unexplained causes. Rates of unexplained deaths were comparable across all areas except very low socio-economic areas, where the rate was 2.4 times that in low socio-economic areas (4.1 per 100,000 compared with 1.7 per 100,000).

As previously discussed, most unexplained deaths are of infants, with many of these deaths certified as SIDS. The relationship between SIDS and socio-economic status is complex, but research suggests a variety of risk factors for SIDS, such as smoking, low birth weight, younger mothers, being a later-born sibling in a larger family and sleep position are 'socially patterned'—that is, more prevalent in families with low socio-economic status.[133]

Studies in the United Kingdom have observed that as the incidence of SIDS has declined, the association with social deprivation has become stronger.[134] In the UK, SIDS is now largely confined to disadvantaged families and almost half of cases occur during co-sleeping.[135] The characteristics of SIDS families have also changed over time, with an increase in single mothers, younger mothers, mothers who smoke, and lower birth weight infants.[136]

Findings from the United States have similarly found that social inequalities such as single parenthood, low educational attainment, teenage pregnancy, and poverty continue to be risk factors for SIDS, despite social education campaigns about safe infant sleeping.[137]

Across the world, SIDS is most common in poor and marginalised populations, living in wealthy countries, who continue to live with the legacies of historical trauma and racism (including Australia's First Nations peoples, Indigenous Canadians, African Americans, Native Americans, Alaskan Natives and New Zealand Maoris).[138] These populations continue to experience ongoing disadvantage and higher rates of poverty, poorer access to high quality health care, higher rates of harmful health behaviours (for example, higher rates of smoking during and after pregnancy) and lower rates of breastfeeding.[139]

Recent research suggests that co-ordinated efforts to address poverty, reduce smoking and premature birth and promote breastfeeding are critical to reducing infant mortality, and would have greater effect than a focus on reducing SIDS and unexpected infant deaths in isolation.[140]

133 Pickett KE, Luo Y & Lauderdale DS 2005, 'Widening social inequalities in risk for Sudden Infant Death Syndrome', *American Journal of Public Health*, 95(11), pp. 1976–81; Spencer N & Logan S 2004, 'Sudden unexpected death in infancy and socio-economic status: A systematic review', *Journal of Epidemiology and Community Health*, 58, pp. 366–73.
134 Garstang J, Pease AS 2018, 'Chapter 18: A United Kingdom Perspective', in JR Duncan & RW Byard (eds) *Sudden Infant and Early Childhood Death: The past, the present and the future*, University of Adelaide Press, Adelaide, viewed 8 June 2020, https://www.adelaide.edu.au/press/system/files/2019-04/uap-sids-ebook.pdf
135 Blair PS, Sidebotham P, Berry PJ, Evans M, Fleming PJ 2006, 'Major epidemiological changes in sudden infant death syndrome: A 20-year population-based study in the UK', *Lancet*, 367(9507), pp. 314–19.
136 ibid.
137 Pickett KE, Luo Y & Lauderdale DS 2005, 'Widening social inequalities in risk for Sudden Infant Death Syndrome', *American Journal of Public Health*, 95(11), pp. 1976–81.
138 Bartick M & Tomori C 2019, 'Sudden infant death and social justice: A syndemics approach', *Maternal and Child Nutrition*, 15, e12652.
139 ibid.
140 ibid.

3.4 Combining the effects of remoteness and socio-economic status

Poor outcomes for children experiencing socio-economic disadvantage are likely to be compounded by a lack of access to services where these children also reside in regional or remote areas.[141] The Australian Bureau of Statistics has reported that people living in disadvantaged areas are over-represented in smaller towns and geographically isolated communities, and more than one quarter of the Australian population with the lowest incomes usually reside in outer regional, remote or very remote areas.[142] With the benefit of a large dataset, the QFCC sought to identify what impact geographic isolation and socio-economic disadvantage had on child deaths when these circumstances were combined.[143]

Notably, almost half of all child deaths (47.5 per cent) were of children who lived in areas that were neither geographically isolated nor socio-economically disadvantaged. A further 44.1 per cent of deaths were of children who lived in areas that were socio-economically disadvantaged, but accessible (that is, metropolitan or regional areas).

Children living in remote or very remote areas of Queensland, but whose usual residence was in a moderate, high or very high socio-economic area—that is, geographically isolated but not socio-economically disadvantaged—made up only 1.6 per cent of deaths over the 16-year period.

A small proportion of deaths (3.8 per cent) were of children who were both geographically isolated and socio-economically disadvantaged, which is similar to the distribution of the child population living in these areas of Queensland in 2018.

The small number of deaths in these latter two categories makes it difficult to examine this data by cause of death. Exploring the impacts of combining isolation and disadvantage on deaths from particular causes is an area for further research.

141 National Rural Health Alliance Ltd 2017, *Disadvantage and Lack of Access Exacerbating the Rural Health Divide*, National Rural Health Alliance Ltd, Canberra, viewed 15 July 2020, https://www.ruralhealth.org.au/media-release/disadvantage-and-lack-access-exacerbating-rural-health-divide

142 Australian Bureau of Statistics 2000, *Australian Social Trends, 2000*, Australian Bureau of Statistics, Canberra, viewed 15 July 2020, https://www.abs.gov.au/ausstats/abs@.nsf/2f762f95845417aeca25706c00834efa/a30c81b7fbcf02aeca2570ec000e215b!OpenDocument; Australian Bureau of Statistics 2004, *Measures of Australia's Progress, 2004*, Cat.No. 1370.0, Australian Bureau of Statistics, Canberra, viewed 15 July 2020, https://www.abs.gov.au/AUSSTATS/abs@.nsf/94713ad445ff1425ca25682000192af2/2b2d7742b4059b04ca256e7d00002658!OpenDocument

143 For this analysis, geographically isolated was defined as living in remote or very remote areas while socio-economic disadvantage was defined as living in an area with a low or very low SEIFA score.

Chapter 4—Children and families experiencing vulnerability

4.1 Determinants of health

Child mortality and the risk of injury or death for any individual child are influenced by a wide range of factors. There is no single factor that determines a child's health and wellbeing. The multitude of factors 'are pieces of a complex jigsaw that interact and affect children's development at different times and in response to certain circumstances'.[144] Collectively, these factors are known as determinants of health.[145]

Determinants of health and risk factors for childhood injury and death

A variety of factors determine a child's health and wellbeing, either positively or negatively. They operate in combination with each other and change throughout a child's lifespan. Risk factors for adverse life outcomes include:

- biological factors that are inherent to an individual such as their age, sex, presence of congenital anomalies or genetic predisposition
- the presence of disease, mental illness or preventable health conditions such as obesity
- behaviours that increase risk of adverse outcomes such as alcohol or substance use, violence, or engaging in high-risk activities
- social and economic characteristics, such as having a low household income, being exposed to domestic and family violence or experiencing homelessness
- environmental factors that may increase exposure to risk such as living in a remote area or working in a high-risk occupation.[146]

In relation to child mortality specifically, some biological, social, economic, environmental or behavioural factors can act as risk factors for specific causes of death. Examples include:

- prematurity and unsafe sleep environments as risk factors for sudden unexpected infant deaths
- failure to use age-appropriate restraints increasing the risk of death in transport incidents
- non-compliant pool fencing as a contributory factor in swimming pool drownings for young children
- the absence of smoke alarms increasing the risk of death in house fires.

However, other factors are often present in the lives of children and their families that do not directly contribute to a death incident, but nonetheless place a child in a position of vulnerability. Examples include living in a household characterised by domestic and family violence, living with parental substance use or experiencing homelessness.

For reportable deaths in particular, the Queensland Family and Child Commission (QFCC) is provided with a wealth of information from various sources about the health, wellbeing and social circumstances of children and their families.[147] This allows us to collect data on a range of experiences that may place a child at greater risk of injury and death. These factors are described as **vulnerability characteristics** and may be present in the lives of children who die from a range of different causes.

144 Commissioner for Children and Young People Western Australia 2018, *"It's like a big circle trap": Discussion paper on children and young people's vulnerability*, Commissioner for Children and Young People Western Australia, Subiaco, viewed 27 April 2020, https://www.ccyp.wa.gov.au/media/2961/report-vulnerability-discussion-paper-march-2018.pdf

145 Australian Institute of Health and Welfare 2019, *Risk Factors*, Australian Institute of Health and Welfare, Canberra, viewed 27 April 2020, www.aihw.gov.au/reports-data/behaviours-risk-factors/risk-factors/about

146 ibid.; Vic Health 2008, *Research Summary: Key influences on health inequalities*, Vic Health, Carlton, viewed 26 May 2020, https://www.vichealth.vic.gov.au/-/media/ResourceCentre/PublicationsandResources/Health-Inequalities/key_influences.pdf?la=en&hash=BCFBA71012C82D3FFE95E65B23967F70B87A804B; Moore T, Oberklaid F 2010, 'Investing in early childhood education and care: The health and wellbeing case', in P Peterson, E Baker and B McGaw (eds) *International Encyclopedia of Education*, Elsevier Ltd, viewed 19 June 2020, https://www.rch.org.au/uploadedFiles/Main/Content/ccch/Investing_ECEC_Wellbeing_Case.pdf

147 Reportable deaths are those that are sudden and unexpected, or resulting from violence or external force (that is, not natural causes).

4.1.1 Vulnerability characteristics

As already explained, vulnerability may be experienced as a result of biological factors, behavioural or lifestyle choices, or simply through greater exposure to risk of injury. Vulnerability may also be a lack of opportunity and/or the presence of constraints that inhibit a child's ability to achieve their potential. Consider, for example:

> *... children who live in a high-income household with tertiary-educated parents in a high socio-economic neighbourhood will commonly have opportunities to attend a school that provides high quality education, to have educational support provided at home, to participate in sport and other recreational activities and to travel on family holidays. These opportunities make it significantly more likely that they will achieve well at school, attend university and achieve stable employment in the future.*[148]

Vulnerability may be created through the experience of chronic stress or trauma, family or household dysfunction, poverty or social exclusion. When these experiences occur in the absence of supportive, stable relationships, their effect is heightened.[149]

In the simplest terms, vulnerability may be thought of as arising from:

> *... multiple experiences of adversity and exposures to harm (biologically and/or in the environments in which [children] are being raised) and their limited access to and use of resources that support them to cope with and recover from this adversity.*[150]

The QFCC captures information—where provided by sources—about the following vulnerability characteristics of children who die in Queensland and their families/households.

- **Alcohol and substance use**—details the types of substances the individual was known to have consumed, the frequency of use, and whether the person was intoxicated at the time of the incident leading to death.
- **Behavioural or school engagement issues**—details the kind of behavioural issues experienced, such as aggression, oppositional behaviour or risk taking, whether the child had experienced bullying (or been known to bully others), issues with attending or participating in formal education and any disciplinary action taken by schools.
- **Domestic and family violence**—identifies whether domestic and family violence was occurring within the child's household or within their own intimate relationships, recency and characteristics of the violence experienced, and whether any domestic violence prevention orders were in place.
- **Housing, homelessness and transience**—describes any compromised living conditions, overcrowding, homelessness/transience and whether there was evidence the family lacked social supports.
- **Illness, disability and developmental delay**—details any pre-existing medical condition or sudden-onset illness experienced, known disability or evidence of developmental delay, history of contact with health services and immunisations, and medications prescribed to or consumed by the child.
- **Allegations of maltreatment**—records any evidence of maltreatment of the child or their siblings (whether or not this was known to Child Safety), details of the alleged abuse and services offered to the family and their level of engagement with them.
- **Mental health issues**—details diagnosed mental health issues as well as any evidence the person may have had an undiagnosed condition, and any treatment sought or received.
- **Alleged offending behaviour or history of detention**—details types of offences for which the person has been involved with police and details any evidence of periods of detention.
- **Self-harm and suicidal behaviour**—details evidence of suicidal thoughts, history of self-harm or previous suicide attempts.

This is not an exhaustive list of the kinds of vulnerabilities a child may experience, but attempts to capture a broad range of established risk factors for adverse outcomes.

148 Commissioner for Children and Young People Western Australia 2018, *"It's like a big circle trap": Discussion paper on children and young people's vulnerability*, Commissioner for Children and Young People Western Australia, Subiaco, p. 13, viewed 27 April 2020, https://www.ccyp.wa.gov.au/media/2961/report-vulnerability-discussion-paper-march-2018.pdf
149 ibid., p. 14.
150 ibid., p. 19.

Limitations of research with QFCC vulnerability characteristics

Information about vulnerability characteristics is only available for reportable deaths, for which the QFCC receives additional information from a range of sources. As a result, vulnerability characteristic information is only routinely recorded for external cause and unexplained deaths.

The presence of a vulnerability characteristic in a child death record indicates there was evidence that relevant factors existed, either for the child themselves, for a significant member of the child's household (for example, a parent, carer or sibling), or for another person, where that characteristic was relevant to the death (for example, an intoxicated driver in a transport incident).

It should not be interpreted to mean this was necessarily a causal or contributory factor to the death. Rather, it provides an indication of the extent to which the child and their family were experiencing vulnerability, in a broad sense of the term.

Similarly, the absence of a vulnerability characteristic within QFCC records does not imply it was not experienced by the child or their family, only that the QFCC does not hold any evidence to this effect.

Finally, it should be noted that the QFCC does not hold information about the prevalence of these vulnerability characteristics within the general population. It is therefore not possible to draw conclusions about the way in which the presence of vulnerability characteristics may affect risk of death.

4.2 Vulnerabilities present in the lives of children

The QFCC has routinely recorded information about vulnerability characteristics within the Queensland Child Death Register (the register) for reportable deaths since 2013. This provides seven years of data for external cause and unexplained child deaths in Queensland—a rich source of information to assist in understanding areas where prevention initiatives can best be targeted.

Figure 4.1 outlines the proportion of child deaths from external and unexplained causes in Queensland between 2013 and 2019 for which each vulnerability characteristic was recorded.

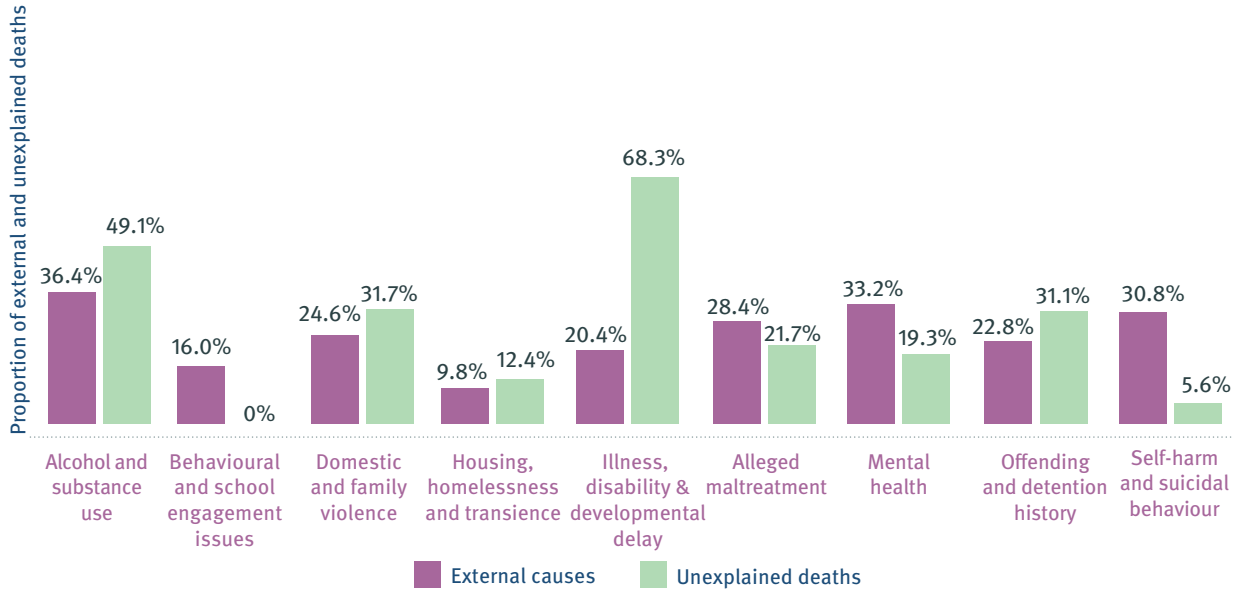

Figure 4.1: External and unexplained deaths by identified vulnerability characteristics, 2013–2019
Note: Proportion of deaths from external and unexplained causes in which a vulnerability characteristic was identified as present for either the child or their family. Total number of cases = 710.

Alcohol and substance use was the most commonly recorded vulnerability present in the lives of children who died of external causes between 2013 and 2019. Around 36 per cent of cases were noted to have either a direct or indirect experience of alcohol or substance use.

Mental health issues (diagnosed or suspected) was the next most common vulnerability characteristic for external cause deaths (present in 33.2 per cent of these deaths). This may be a mental health issue experienced by the child or young person themselves, a relevant mental health history of a parent or member of the child's household or of persons relevant to the death incident.

For children whose cause of death remains unexplained after forensic examinations are complete (most commonly infant deaths), illness, disability or developmental delay was the most commonly recorded vulnerability characteristic (68.3 per cent of cases). This may be a pre-existing condition such as a respiratory, congenital or cardiac condition or a sudden onset illness with symptoms noted prior to death, but which were not considered sufficient to have caused the death.

As most deaths from unexplained causes are of infants, the vulnerability characteristics recorded tend to relate to the child's family or household.[151] Alcohol and substance use, domestic and family violence, housing instability and a history of offending or detention were more common among families of children who died from unexplained causes than of those who died of external causes. Many of these characteristics align with known risk factors for sudden unexpected death in infancy.

While the figures discussed here relate only to deaths from external and unexplained causes, this report does not imply that these factors are not also common among families who have children who die from natural causes. Rather, it reflects the greater detail collected about the physical, social and emotional wellbeing of children in cases that are reported to a coroner for investigation, which are predominantly (although not exclusively) deaths due to external causes or unexplained deaths.

4.3 Known vulnerabilities and external causes of death

This section identifies trends and patterns in relation to the frequency with which certain vulnerability characteristics were present in deaths from particular external causes. These results should be interpreted with caution, as it is unclear whether any data bias is at play.

For instance, information about alcohol and substance use may be more routinely collected by investigating police officers for transport fatalities than for other types of non-intentional injury. As another example, information about self-harm and previous suicide attempts is likely to be collected more routinely in cases of suicide than in drowning.

4.3.1 Transport

A history of alcohol and substance use was present in the lives of almost 32 per cent of children who died in transport fatalities in Queensland between 2013 and 2019, as shown in **Figure 4.2**. While it is not possible to determine whether this was a factor in a fatal crash without further interrogation of the data, alcohol and substance use is consistently identified as a risk factor for transport fatalities and serious injuries. Alcohol and/or drug use was considered a characteristic in 48.2% of the total transport fatalities in Queensland in 2018.[152]

Alcohol and substance-affected drivers are more likely to be involved in a severe crash and more likely to take additional risks that contribute to the severity of accidents.[153] They are less likely to wear a seatbelt, more likely to speed, and more likely than non-substance affected drivers to be distracted.[154]

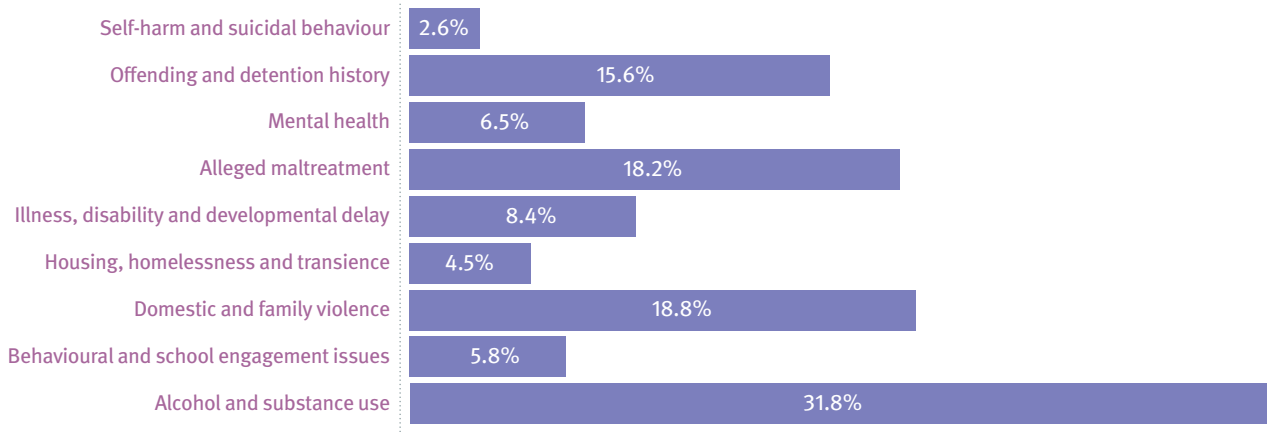

Figure 4.2: Transport deaths by identified vulnerability characteristics, 2013–2019
Note: Proportion of transport fatalities in which a vulnerability characteristic was identified as present for either the child or their family. Total number of cases = 154.

151 This explains the absence of behavioural or school engagement issues for this group and the lower recordings of self-harm or suicidal behaviour, for example.
152 Department of Transport and Main Roads 2018, *2018 Summary Road Crash Report: Queensland road fatalities*, Queensland Government, Brisbane, viewed 8 June 2020, https://www.tmr.qld.gov.au/-/media/Safety/Transport-and-road-statistics/Road-safety/Summary_Road_Crash_Report_2018.pdf?la=en
153 Shyalla, K 2014, 'Alcohol involvement and other risky driver behaviors: Effects on crash initiation and crash severity', *Traffic Injury Prevention*, 15(4), pp. 325–34.
154 ibid.

4.3.2 Drowning

Interestingly, the vulnerability characteristic most commonly associated with drowning was illness, disability and developmental delay, present in 25 per cent of drowning deaths, as shown in **Figure 4.3**.

Underlying health conditions including epilepsy and autism are known to increase the risk of drowning.[155] People with epilepsy are vulnerable to drowning due to seizures causing impaired consciousness and the loss of protective reflexes[156], with studies suggesting the rate of drowning for people with epilepsy is between 5 and 15 times higher than for those who do not.[157]

Children with autism are also at a substantially heightened risk of drowning than the general population.[158] This is likely due to a combination of factors including the tendency for children with autism to wander, to seek out water due to fascination or its calming sensory effects, lack of access to swimming lessons that accommodate their special needs, and a reduced ability to assess risks compared to a neurotypical child.[159]

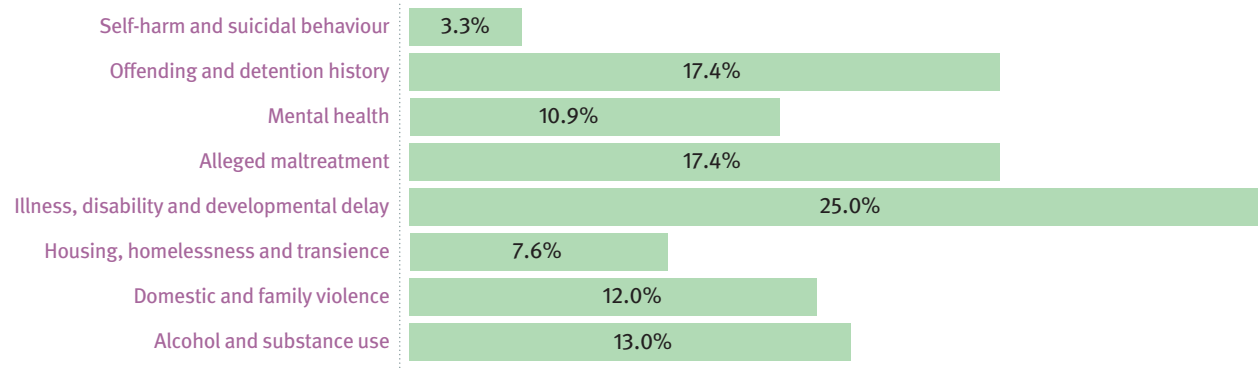

Figure 4.3: Drowning deaths by identified vulnerability characteristics, 2013–2019

Note: Proportion of drowning deaths in which a vulnerability characteristic was identified as present for either the child or their family. Total number of cases = 92.

4.3.3 Other non-intentional injury

Alcohol and substance use was the most frequently recorded vulnerability characteristic associated with deaths from other non-intentional injury, as shown in **Figure 4.4**. Thirty of the 79 other non-intentional injury deaths between 2013 and 2019 had alcohol or substance use flagged on their record (38 per cent).

Problematic drug and alcohol use by a parent can directly affect the safety and wellbeing of a child, including circumstances placing them at risk of non-intentional injury. This can include poor or absent supervision or leaving children home alone or with unsuitable carers.[160]

Young people who drink alcohol are more likely to engage in risk-taking behaviour that can result in unintentional injury and death associated with driving, other risky activities undertaken after drinking, violence, homicide, accidental overdose and sexual assault.[161]

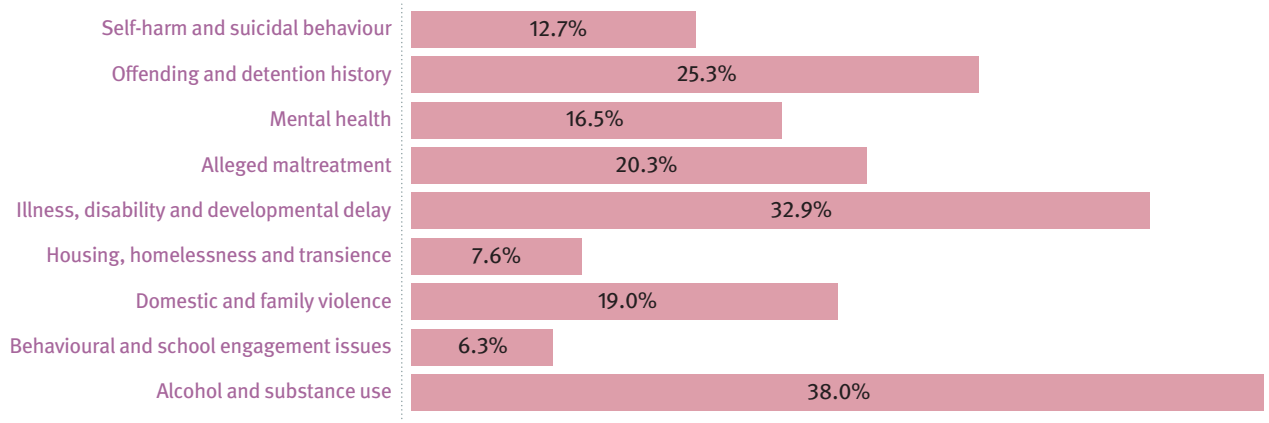

Figure 4.4: Other non-intentional injury deaths by identified vulnerability characteristics, 2013–2019

Note: Proportion of non-intentional injury deaths in which a vulnerability characteristic was identified as present for either the child or their family. Total number of cases = 79

155 World Health Organization 2008, *World Report on Child Injury Prevention*, World Health Organization, Geneva, viewed 10 June 2020, https://www.who.int/violence_injury_prevention/child/injury/world_report/World_report.pdf
156 Cihan E, Hesdorffer DC, Brandsoy M et al 2018, 'Dead in the water: Epilepsy- related drowning or sudden unexpected death in epilepsy?', *Epilepsia*, 59, pp. 1966–72.
157 Royal Life Saving Society Australia n.d. *Drowning and Epilepsy*, Fact Sheet No. 29, Royal Life Saving Society Australia, Broadway, viewed 14 July 2020, https://www.royallifesaving.com.au/__data/assets/pdf_file/0007/19348/RLS_FactSheet_29_Drowning-and-Epilepsy.pdf
158 Guan J & Li G 2017, 'Injury mortality in individuals with autism', *American Journal of Public Health*, 107, pp. 791–93.
159 Special Broadcasting Service Australia 2019, 'Drowning is the leading cause of death among children with autism: Report', *SBS News*, 24 February, viewed 3 June 2020, https://www.sbs.com.au/news/drowning-is-the-leading-cause-of-death-among-children-with-autism-report
160 Moore T, Noble-Carr D & McArthur M 2010, 'Who cares? Young people with parents who use alcohol or other drugs talk about their experiences with services', *Family Matters*, 85, pp. 18–27, viewed 10 June 2020, https://aifs.gov.au/publications/family-matters/issue-85/who-cares
161 National Research Council and Institute of Medicine Committee on Developing a Strategy to Reduce and Prevent Underage Drinking 2004, 'Chapter 3: Consequences of Underage Drinking', in RJ Bonnie & ME O'Connell (eds) *Reducing Underage Drinking: A collective responsibility*, National Academies Press, Washington, viewed 10 June 2020, https://www.ncbi.nlm.nih.gov/books/NBK37591/

4.3.4 Suicide

As shown in **Figure 4.5**, more than 80 per cent of children and young people who took their own lives between 2013 and 2019 were known to have previously expressed suicidal thoughts, self-harmed or previously attempted suicide, or been exposed to this through friends or family. Exposure to the suicide (or suicide attempt) of a friend or family member can increase the risk of suicide for young people (a concept known as suicide contagion).[162] This is consistent with the results of research, which indicate that a previous suicide attempt in children or adolescents increases the risk of a future suicide attempt threefold.[163] This stark finding reinforces the importance of taking talk or threats of suicide from children seriously.

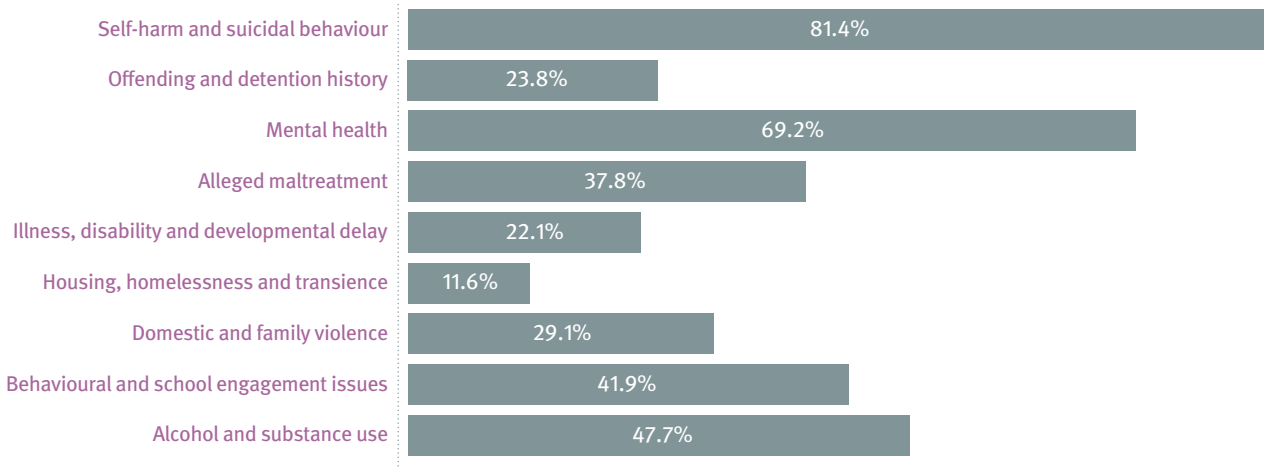

Figure 4.5: Suicide deaths by identified vulnerability characteristics, 2013–2019
Note: Proportion of suicide deaths in which a vulnerability characteristic was identified as present for either the child or their family. Total number of cases = 172

Further, almost 70 per cent of these children had a diagnosed or suspected mental health issue.[164] Other studies have suggested that up to 90% of young people who suicide have at least one psychiatric diagnosis upon completion of a psychological autopsy, with depression the most common diagnosis.[165] This indicates significant opportunities exist for early intervention with young people experiencing mental health issues, communicating suicidal thoughts or engaging in self-harm.[166]

162 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—Queensland Family and Child Commission 2020, *Annual Report: Deaths of children and young people, Queensland 2018–19*, Queensland Family and Child Commission, Brisbane, viewed 10 June 2020, https://www.qfcc.qld.gov.au/keeping-kids-more-safe/preventing-child-injury-death/child-death-reports-data/annual-report-deaths
163 Carballo JJ, Llorente C, Kehrmann L et al 2019, 'Psychosocial risk factors for suicidality in children and adolescents', *European Child and Adolescent Psychiatry*, viewed 8 June 2020, https://doi.org/10.1007/s00787-018-01270-9
164 This figure may include children who did not have a mental health issue themselves, but the mental health issue of a person known to them was a relevant factor in their life or the events leading to their death.
165 Posner K, Melvin GA, Stanley B, Oquendo MA & Gould M 2007, 'Factors in the assessment of suicidality in youth', *CNS spectrums*, 12(2), pp. 156–162.
166 Mitchell P 2000, *Valuing Young Lives: Evaluation of the National Youth Suicide Prevention Strategy*, Australian Institute of Family Studies, Southbank, viewed 8 June 2020, https://aifs.gov.au/sites/default/files/publication-documents/evalrep1.pdf

4.3.5 Fatal assault and neglect

Allegations of maltreatment, mental health issues, domestic and family violence and alcohol and substance abuse were recorded for child deaths from fatal assault and neglect with almost equivalent frequency, as shown in **Figure 4.6**.

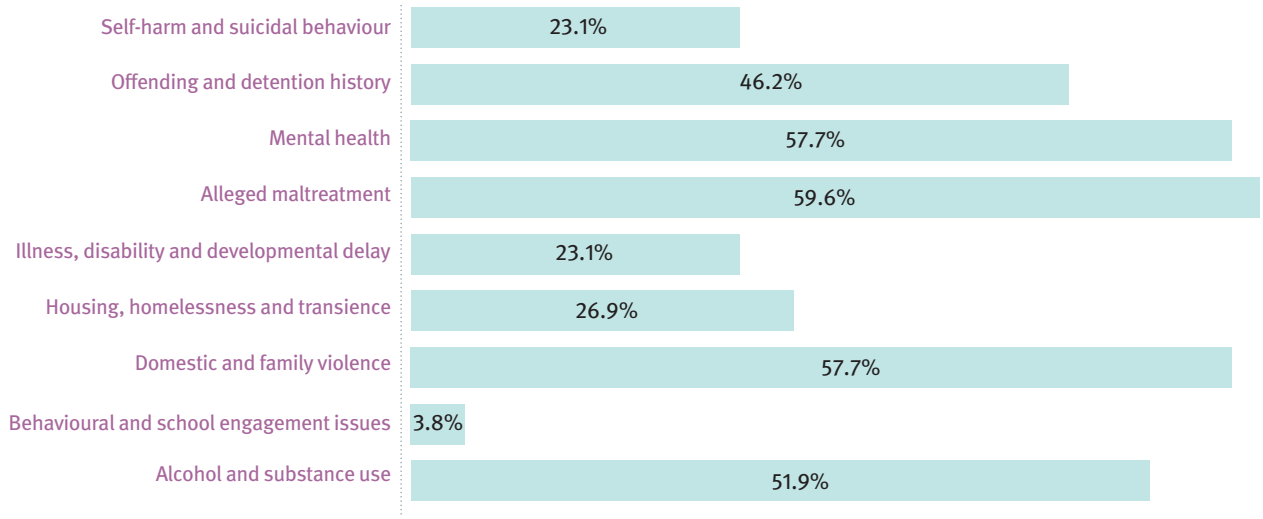

Figure 4.6: Fatal assault and neglect by identified vulnerability characteristics, 2013–2019
Note: Proportion of fatal assault and neglect deaths in which a vulnerability characteristic was identified as present for either the child or their family. Total number of cases = 52.

These risk factors have all previously been identified by research to be strongly correlated with abuse and neglect.[167] Research on fatal child assault in New South Wales identified the presence of poverty and disadvantage was common across all types of fatal assault deaths. This research further identified that many families were experiencing multiple psycho-social problems including prior child abuse, domestic and family violence, parental mental health issues, financial difficulties, parental alcohol and substance use, parental relationship breakdown and prior parental arrests.[168] More than half of the families had a very high number of co-existing social problems (between four and six).

With the benefit of 16 years of mortality data, including seven years of collecting information on vulnerability characteristics, the QFCC has an opportunity to identify which risk factors, or combination of factors, are more commonly noted in deaths from specific causes. This will assist in identifying areas for further research and prevention efforts.

4.4 Multiple vulnerabilities

The kinds of vulnerabilities recorded by the QFCC rarely occur in isolation, and children may experience multiple vulnerabilities at the same time. For example, in previous unpublished analysis, the QFCC has identified that the co-occurrence of domestic and family violence, parental separation and mental illness is common among cases in which a parent or step-parent is responsible for the fatal assault of a child.

The Queensland Sentencing Advisory Council's report on child homicide also identified the complex interacting risk factors present in cases of fatal assault, including 'a history of domestic or other violence, substance misuse … mental illness … child protection history, parental separation and parenting very young children'.[169]

Further, research into fatal child abuse has shown that vulnerabilities including unemployment, young parenthood, insecure parental relationships and unstable financial circumstances often combine, with poverty and instability featuring in the lives of the majority of abused children.[170]

Of the 710 children who died between 2013 and 2019 from external or unexplained causes, just over a quarter were not known to have experienced any of the vulnerabilities recorded by the QFCC (see **Figure 4.7**). A further 20 per cent were known to have experienced only one type of vulnerability.

However, more than half of these children experienced more than one vulnerability, including 123 children who experienced five or more vulnerability characteristics, either concurrently or at different stages throughout their life (17.3 per cent).

167 Scott D 2016, *Reporting of Fatal Neglect in NSW*, NSW Ombudsman, Sydney, viewed 8 June 2020, http://www.ombo.nsw.gov.au/__data/assets/pdf_file/0003/45786/Reporting-on-fatal-neglect-in-NSW.pdf
168 ibid.
169 Queensland Sentencing Advisory Council 2018, *Sentencing for Criminal Offences Arising from the Death of a Child: Final report*, Queensland Sentencing Advisory Council, Brisbane, viewed 11 June 2020, https://www.sentencingcouncil.qld.gov.au/__data/assets/pdf_file/0005/587669/Sentencing-for-criminal-offences-arising-from-the-death-of-a-child-Final-report.pdf
170 Strang H 1996, 'Children as victims of homicide' *Trends & Issues in Crime and Criminal Justice*, no. 53, Australian Institute of Criminology, Canberra, viewed 8 June 2020, https://www.aic.gov.au/publications/tandi/tandi53

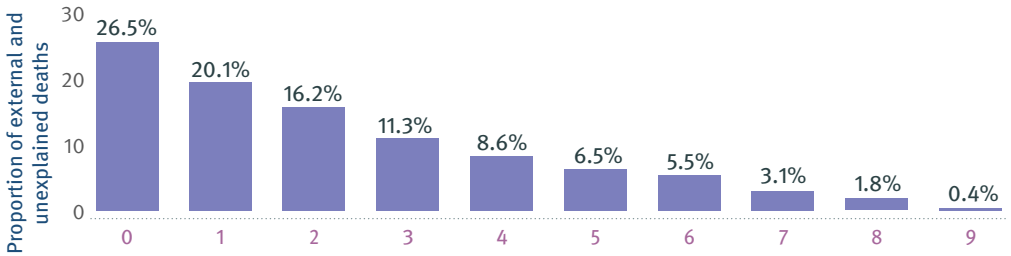

Figure 4.7: Child deaths by number of identified vulnerabilities, 2013–2019
Note: Proportion of deaths from external and unexplained causes in which a vulnerability characteristic was identified as present for either the child or their family. Total number of cases = 710.

Across external cause deaths specifically, a high number of multiple vulnerabilities is more often present in cases of suicide and fatal assault and neglect. Thirty-two per cent of children who suicided and 30.8 per cent of children fatally assaulted or neglected between 2013 and 2019 experienced five or more vulnerabilities compared with 5.8 per cent of transport fatalities, 7.6 per cent of drownings and 13.9 per cent of other non-intentional injury deaths.

Of the 172 suicides recorded between 2013 and 2019, 140 (81.4 per cent) were known to have a history of self-harm or suicidal behaviour. In nearly 63 per cent of suicides, this was recorded in conjunction with a relevant mental health history.

Almost 35 per cent of children who suicided had a history of suicidal behaviour and a relevant mental health history *and* a relevant alcohol and substance use history recorded, as shown in **Figure 4.8**.

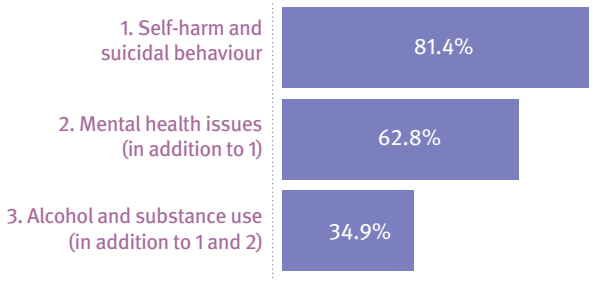

Figure 4.8: Suicide deaths by selected multiple vulnerabilities, 2013–2019
Note: Total number of cases = 172

The co-occurrence of the top vulnerability characteristics in cases of fatal assault and neglect also highlights interesting findings. Almost 60 per cent of the children who died of fatal assault and neglect between 2013 and 2019 had a history of alleged maltreatment, as shown in **Figure 4.9**.

Just over 40 per cent had also experienced domestic and family violence. Almost 33 per cent experienced maltreatment, domestic and family violence and had a relevant mental health history recorded. A slightly smaller proportion (26.9 per cent) of fatal assault/neglect cases experienced these three factors, in combination with exposure to alcohol and substance use.[171]

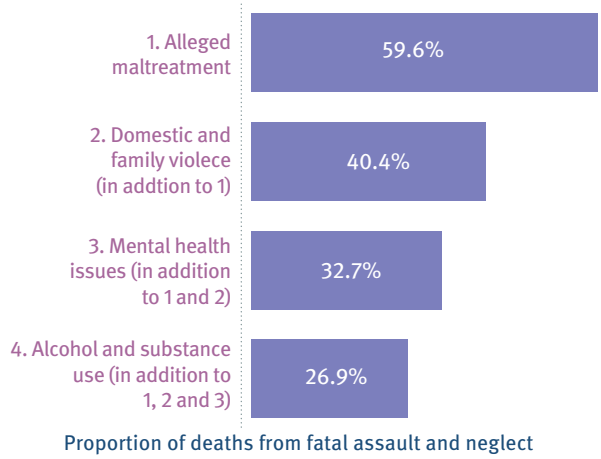

Figure 4.9: Fatal assault and neglect deaths by selected multiple vulnerabilities, 2013–2019
Note: Total number of cases = 52.

This chapter provides insights into the types of findings that can be generated from analysis of the register, and how they may be used to inform prevention initiatives.

The influence of vulnerability characteristics on specific causes of death will be the subject of further analysis by the QFCC, including in collaboration with external stakeholders.

Directions for future research

Analysis of data collected by the QFCC on vulnerability characteristics has identified that multiple, complex circumstances and risk factors are often present in the lives of children who die of external and unexplained causes. While these findings are indicative only, they highlight the potential for future research, particularly in terms of identifying how vulnerabilities experienced by children and families combine to increase risk of death from particular causes.

171 These characteristics may pertain to the child themselves, a parent/carer or significant figure in their life, or to the perpetrator of the fatal incident, regardless of their relationship to the deceased child.

Chapter 5—Vulnerable populations

There is general consensus that some groups of children are more vulnerable to experiencing adversity—including adverse experiences that increase risk of death—than others.

Groups of vulnerable children may include those:

- in need of protection, including those in out-of-home care, transitioning to adulthood after leaving out-of-home care and those in youth detention[172]
- with high physical health needs, disability or mental health issues
- experiencing economic hardship, including poverty and homelessness
- from families experiencing difficulties, including those with young parents, experiencing parental separation or parental substance abuse issues
- who have disengaged from education
- displaying offending or anti-social behaviour
- who have experienced abuse or neglect
- who are missing or absent (including from out-of-home care)[173]
- who are from a minority cultural background.[174]

All these vulnerable groups are represented within the data captured by the Queensland Child Death Register (the register) in some way. For a variety of reasons, Aboriginal and Torres Strait Islander children and those children who are known to the child protection system often experience multiple vulnerabilities and are consistently and significantly over-represented in child mortality statistics. For this reason, these two groups of Queensland children are the focus of this chapter.

5.1 Aboriginal and Torres Strait Islander children

Many Aboriginal and Torres Strait Islander families experience comparatively high levels of social and economic disadvantage due to a complex interplay of multiple factors. These include the legacy of colonisation and forced removals resulting in the loss of land-based cultural traditions, language and family structure, and the intergenerational effects of trauma.[175]

Historical and continued marginalisation of Indigenous culture and knowledge systems have created persistent socio-economic and educational inequalities. These contribute to higher rates of social risk factors for current generations including unemployment, poverty, substance misuse, family violence, residential instability and ill health.[176] Together, these factors can increase the risk of childhood injury and death.

Aboriginal and Torres Strait Islander children in Queensland are over-represented in child mortality statistics, as shown in **Figure 5.1**. During the most recent five-year period (2015–2019), Aboriginal and Torres Strait Islander children died at 1.9 times the rate of non-Indigenous children.[177]

172 Out-of-home care is the provision of care outside of the family home for children who are, or may be, in need of protection. In Queensland, out-of-home care is provided by extended family (kinship carers), foster carers or residential care services—Department of Child Safety, Youth and Women 2020, *Glossary of Terms*, Department of Child Safety, Youth and Women, Brisbane, viewed 19 June 2020, https://www.csyw.qld.gov.au/child-family/our-performance/glossary-terms

173 This may refer to children who are 'hidden' or 'invisible' due to a lack of engagement with services and who are therefore not recognised as vulnerable. The QFCC also considers children who are missing or absent from out-of-home care a particularly vulnerable group. An absent child is one whose has left their placement without permission, but whose location is known or can be readily established. A child who is missing is one whose location is unknown and there are fears for the child's safety or welfare—Queensland Family and Child Commission 2019, *When a Child is Missing: Post-implementation review*, Queensland Family and Child Commission, Brisbane, viewed 8 July 2020, https://www.qfcc.qld.gov.au/sites/default/files/When%20a%20Child%20Missing%20Post%20Implementation%20review%20summary%20report.pdf

174 Children's Commissioner for England 2017, *Defining Child Vulnerability: Definitions, frameworks and groups*, Children's Commissioner for England, London, pp. 15–19, viewed 27 April 2020, https://www.childrenscommissioner.gov.uk/wp-content/uploads/2017/07/CCO-TP2-Defining-Vulnerability-Cordis-Bright-2.pdf

175 McNamara B, Gubhaju L, Jorm L et al. 2018, 'Exploring factors impacting early childhood health among Aboriginal and Torres Strait Islander families and communities: Protocol for a population-based cohort study using data linkage (the 'Defying the Odds' study)', *BMJ Open*, 8, viewed 8 June 2020, https://bmjopen.bmj.com/content/8/3/e021236

176 ibid; Arefadib, N & Moore, TG 2017, *Reporting the Health and Development of Children in Rural and Remote Australia*, The Centre for Community Child Health at the Royal Children's Hospital and the Murdoch Children's Research Institute, viewed 8 June 2020, https://www.royalfarwest.org.au/wp-content/uploads/2017/12/Murdoch-Report.pdf

177 For the purpose of analysis, the non-Indigenous category includes 19 children and young people whose Aboriginal and Torres Strait Islander status was listed as 'Not stated'.

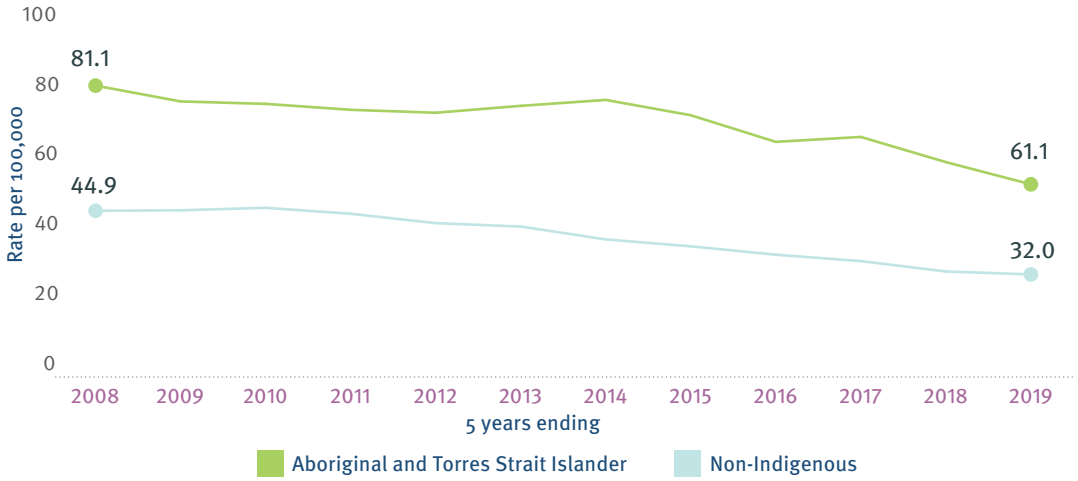

Figure 5.1: Child deaths by Aboriginal and Torres Strait Islander status, 2004–2008 to 2015–2019
Note: Rates calculated per 100,000 Aboriginal and Torres Strait Islander and non-Indigenous children aged 0–17 years, averaged over five-year periods.

There was evidence of a significant downward trend in the annual death rate for both Indigenous and non-Indigenous children. The rate of death for Aboriginal and Torres Strait Islander children decreased by 2.3 per cent per year on average[178], while the non-Indigenous child death rate decreased by an average of 3.1 per cent per year.[179]

Given the historical and contemporary context in which this over-representation occurs, the accepted principles for working with Aboriginal and Torres Strait Islander families in a child protection context (section 5.2.3 below) are equally relevant to addressing higher rates of Indigenous child mortality. These principles refer to the rights of a child to be raised within their own family and community, to retain connection to their culture, traditions and language, and to participate in decision-making about matters that impact their lives. The trends and patterns evident across 16 years of data from the the register cannot be addressed without active and meaningful engagement with Aboriginal and Torres Strait Islander people to identify practical, culturally appropriate measures to target the factors leading to this over-representation.

This is an area the QFCC is dedicated to pursuing through its broad mandate to consider the views of Aboriginal and Torres Strait Islander children and families and to monitor Queensland's performance in improving outcomes for Aboriginal and Torres Strait Islander children in the child protection system. Indigenous over-representation within child mortality statistics will be a particular area of focus for the QFCC, in collaboration with relevant stakeholders, as it works to further explore the findings of the 16-year review.

5.1.1 Age and sex

Aboriginal and Torres Strait Islander children are over-represented across all age groups. Differences between rates of death for infants are of particular interest. Infant mortality rates are used as a measure of a population's overall health, as they are seen to provide insight into the circumstances into which a child is born (including pre-conception factors such as maternal health) as well as the effectiveness of healthcare systems.[180]

While Indigenous infants remain over-represented, there has been an encouraging downward trend, with the annual rate of Aboriginal and Torres Strait Islander infant deaths decreasing, on average, 4.7 per cent per year.[181] Non-Indigenous infant mortality also decreased by an average of 2.6 per cent per year.[182] As shown in **Figure 5.2**, the five-year rolling average mortality rate for Aboriginal and Torres Strait Islander infants decreased from 10.3 per 1,000 live births in 2004–2008 to 6.5 per 1,000 in 2014–2018.

178 $p = 0.001$.
179 $p < 0.001$.
180 Australian Institute of Health and Welfare 2018, 'Infant mortality', *Children's Headline Indicators*, Australian Institute of Health and Welfare, Canberra, viewed 30 March 2020, https://www.aihw.gov.au/reports/children-youth/childrens-headline-indicators/contents/2-infant-mortality
181 $p < 0.001$.
182 $p < 0.001$.

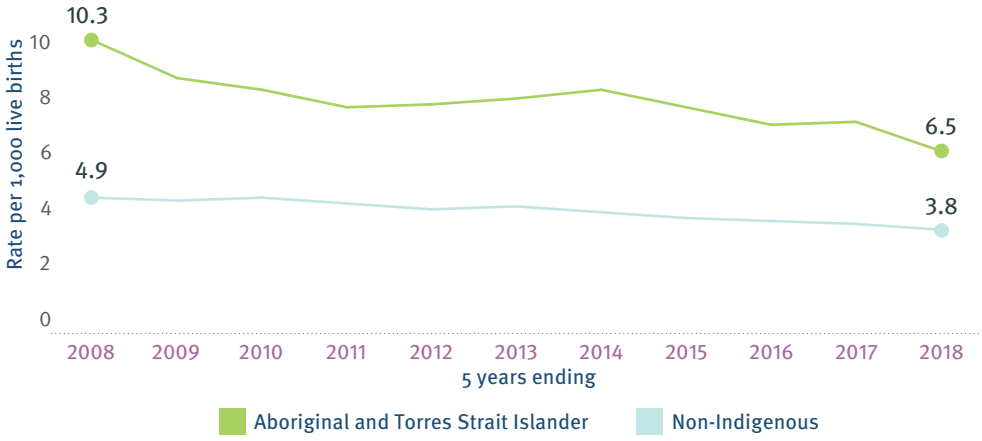

Figure 5.2: Infant mortality by Aboriginal and Torres Strait Islander status, 2004–2008 to 2014–2018

Notes: Rates calculated per 1,000 Aboriginal and Torres Strait Islander and non-Indigenous live births, averaged over five-year periods.
Data pertaining to the number of registered live births in 2019 were unavailable at the time of reporting. As such, the most recent five-year period analysed is 2014–2018.

The higher rates of infant and child mortality for Aboriginal and Torres Strait Islander children are influenced by a range of factors, including:

> *... higher rates of preterm birth and low birthweight, higher rates of maternal smoking during pregnancy, poorer pre-pregnancy maternal health, higher levels of social disadvantage, poorer access to antenatal and birthing services, and higher likelihood of living in overcrowded housing.*[183]

The Australian Government's Closing the Gap strategy has resulted in improvements in several key infant health indicators including:

- an increase in the number of Indigenous mothers accessing antenatal care in the first trimester
- a slight increase in Indigenous mothers attending five or more antenatal sessions, and
- a decrease in smoking rates.

However, this has not translated into a strong improvement in Indigenous infant mortality rates.[184] Further research is required to better understand why the gap between Indigenous and non-Indigenous infant and child mortality prevails.[185]

As shown in **Figure 5.3**, the proportion of deaths occurring in each age group was not markedly different between Aboriginal and Torres Strait Islander and non-Indigenous children. Although the mortality rate for Indigenous infants is higher than for non-Indigenous infants, children under 1 year of age made up approximately 63 per cent of all child deaths for both populations.

Figure 5.3: Child deaths by Aboriginal and Torres Strait Islander status and age category, 2004–2019

183 Australian Institute of Health and Welfare 2018, *Australia's Health 2018*, Australia's Health series no. 16, Australian Institute of Health and Welfare, Canberra, viewed 8 June 2020, https://www.aihw.gov.au/getmedia/ed34c67c-e1aa-4d4f-9ff2-366ea6f27b52/aihw-aus-221-chapter-6-3.pdf.aspx
184 Australian Government 2020, *Closing the Gap Report 2020*, Australian Government, Canberra, viewed 1 June 2020, https://ctgreport.niaa.gov.au/content/closing-gap-2020
185 ibid.

The proportions of male and female child deaths were also similar for Aboriginal and Torres Strait Islander and non-Indigenous children, as shown in **Figure 5.4**. Males comprised a greater proportion of deaths for both groups.

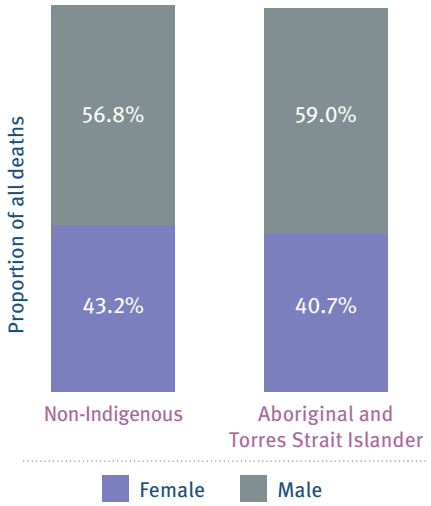

Figure 5.4: Child deaths by Aboriginal and Torres Strait Islander status and sex, 2004–2019
Notes: Excludes the deaths of six children whose sex was not able to be determined

5.1.2 Leading causes of death

Across the 16-year period, a greater proportion of Aboriginal and Torres Strait Islander deaths were due to external and unexplained causes than was the case for non-Indigenous children, as shown in **Figure 5.5**.

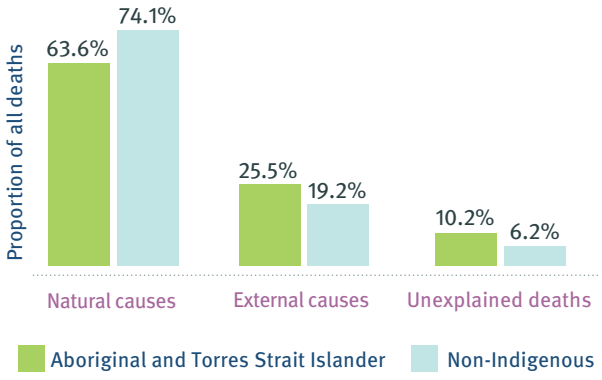

Figure 5.5: Child deaths by Aboriginal and Torres Strait Islander status and major cause grouping, 2004–2019
Note: Excludes 42 children whose cause of death had not yet been determined at the time of reporting.

However, considering the rate of child deaths across the most recent five-year period (2015–2019) highlights that Aboriginal and Torres Strait Islander children die of natural causes at 1.7 times the rate of non-Indigenous children. Indigenous children are also 2.5 times more likely to die from external causes and die of unexplained causes at 2.3 times the rate of non-Indigenous children, as shown in **Figure 5.6**.

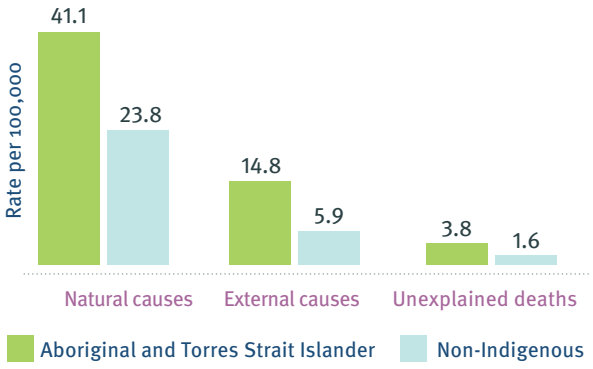

Figure 5.6: Child deaths by Aboriginal and Torres Strait Islander status and major cause grouping, 2015–2019
Note: Rates calculated per 100,000 Aboriginal and Torres Strait Islander and non-Indigenous children aged 0–17 years, averaged over the five-year period 2015–2019.

In relation to unexplained deaths, the higher rates of SIDS for Aboriginal and Torres Strait Islander infants is suggested to be influenced by socioeconomic disadvantage, associated with higher rates of a range of factors linked with sudden infant death such as prematurity, low birth weight, maternal smoking and co-sleeping.[186]

Over one-quarter of Indigenous child deaths were due to external causes. **Figure 5.7** shows the breakdown across different types of external cause deaths. This highlights that almost one-third of external cause deaths of Aboriginal and Torres Strait Islander children are due to suicide, compared with 21 per cent of non-Indigenous children. Another third of Indigenous child deaths over the 16-year period were attributable to transport incidents.

186 Mitchell E, Freemantle J, Young J, Byard R 2011, 'Scientific consensus forum to review the evidence underpinning the recommendations of the Australian SIDS and Kids Safe Sleeping Health Promotion Programme—October 2010', *Journal of Paediatrics and Child Health*, 48(8), pp. 626–33.

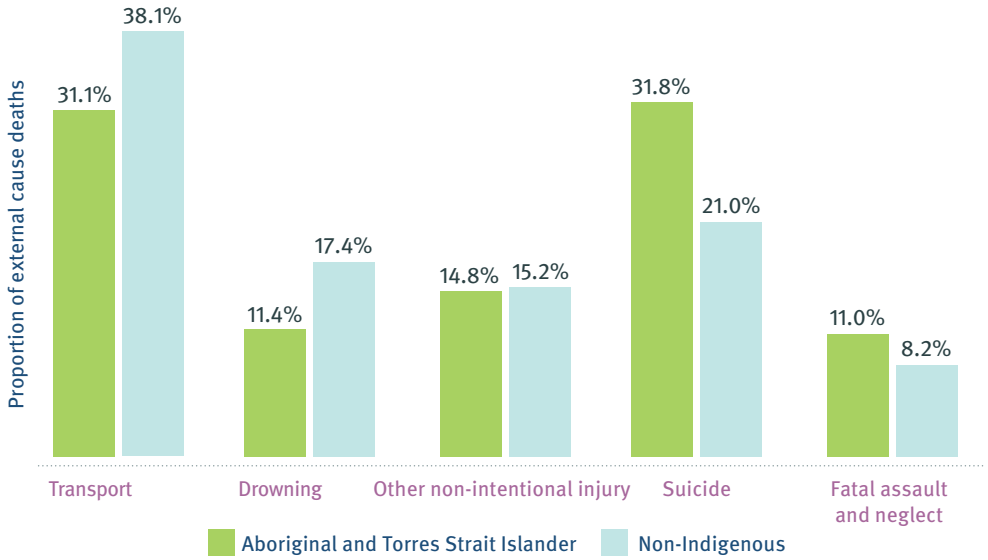

Figure 5.7: External cause deaths by Aboriginal and Torres Strait Islander status and primary cause (proportion), 2004–2019

Looking once more at the rate of death from external causes over the most recent five-year period, it is evident that Aboriginal and Torres Strait Islander children are disproportionately represented across almost all external causes of death. **Figure 5.8** shows that Aboriginal and Torres Strait Islander children died from suicide and transport incidents at 2.9 and 2.7 times the rate of non-Indigenous children, respectively.

Figure 5.8: External cause deaths by Aboriginal and Torres Strait Islander status and primary cause (rate), 2015–2019
Note: Rates calculated per 100,000 Aboriginal and Torres Strait Islander and non-Indigenous children aged 0–17 years, averaged over the five-year period 2015–2019.

While national data indicates that Aboriginal and Torres Strait Islander children make up 11.8 per cent of child homicide victims (2005–2006 to 2013–2014)[187], findings from the 16-year review indicate that this figure may be higher in Queensland. Twenty-three per cent of children who died of fatal assault and neglect between 2004 and 2019 were Aboriginal or Torres Strait Islander.[188] While this figure may be influenced by a single incident in which multiple children died, this finding requires further investigation.

187 Queensland Sentencing Advisory Council 2018, *Sentencing for Criminal Offences Arising from the Death of a Child: Final report*, Queensland Sentencing Advisory Council, Brisbane, pp. 12–13, viewed 11 June 2020, https://www.sentencingcouncil.qld.gov.au/__data/assets/pdf_file/0005/587669/Sentencing-for-criminal-offences-arising-from-the-death-of-a-child-Final-report.pdf .
188 It should be noted that the number of deaths from fatal assault and neglect are relatively small, even across the 16-year period. Twenty-nine of the 126 children and young people who died of fatal assault and neglect between 2004 and 2019 were Aboriginal or Torres Strait Islander.

The reasons behind the higher rate of suicide for Aboriginal and Torres Strait Islander children and young people include the history of colonisation and its aftermath, the burden of intergenerational trauma, and ongoing disadvantage and discrimination.[189] In addition, Aboriginal and Torres Strait Islander people often experience greater exposure to life stressors and limited access to culturally appropriate mental health and suicide prevention services.[190]

Aboriginal and Torres Strait Islander peoples are more likely to experience clusters of suicides, including among young people. Exposure to suicide, or suicidal threats or attempts within families, is a common factor in suicide clusters. In addition, 'cultural and family obligations to participate in relatively high numbers of funerals and grieving rituals may also magnify the cumulative impact of these distressing events' and overwhelm people's ability to recover from that trauma.[191]

Directions for future research

Addressing the disproportionate representation of Aboriginal and Torres Strait Islander children and young people among deaths from external causes, particularly suicide, in Queensland requires continued, coordinated and dedicated efforts. The QFCC would welcome opportunities to discuss the findings of the 16-year review with researchers and other stakeholders, including Aboriginal and Torres Strait Islander communities, to ensure that the wealth of information about the deaths of these children held within the register can be used in developing prevention initiatives in Queensland.

5.1.3 Vulnerability characteristics

As indicated in this chapter, Aboriginal and Torres Strait Islander children are one of Queensland's most vulnerable populations, by virtue of the disadvantages faced compared with non-Indigenous children.

While the register does not, and cannot, capture the full spectrum of advantage or disadvantage experienced by any individual child and their family, the vulnerability characteristics (described in **Chapter 4**) provide an indication of whether Aboriginal and Torres Strait Islander children who have died in Queensland have experienced significantly greater levels of vulnerability than their non-Indigenous counterparts.

Analysis of this information suggests a greater proportion of Aboriginal and Torres Strait Islander children than non-Indigenous children experience many of the vulnerability characteristics about which the QFCC collects data. This includes direct and indirect[192] experiences of issues such as alcohol and substance use, domestic and family violence, housing instability or a history of offending or detention. This initial analysis also suggests a greater proportion of Aboriginal and Torres Strait Islander children who died experienced multiple vulnerabilities compared with non-Indigenous children.

While not representative of the entire population, this reflects the greater level of disadvantage faced by Aboriginal and Torres Strait Islander children and families and of the risk factors that may contribute to the higher rates of death for Indigenous children in Queensland.

When examining the vulnerability characteristics experienced by Aboriginal and Torres Strait Islander children and their families, it is important to recognise the complex history of trauma, discriminatory government policies and racism—the impacts of which continue to be felt today.

> *The high rates of poor physical health, mental health problems, addiction, incarceration, domestic violence, self harm and suicide in Indigenous communities are directly linked to experiences of trauma. These issues are both results of historical trauma and causes of new instances of trauma which together can lead to a vicious cycle in Indigenous communities.*[193]

It should also be taken into account that greater proportions of Aboriginal and Torres Strait Islander children die of suicide and fatal assault and neglect than non-Indigenous children. Information collected about children and families for these causes of death are more likely to include information about vulnerability characteristics than deaths from transport incidents, drowning and non-intentional injury. This may affect findings comparing vulnerability characteristics identified for Aboriginal and Torres Strait Islander and non-Indigenous children.

Understanding experiences of vulnerability among Aboriginal and Torres Strait Islander children who have died in Queensland requires further detailed analysis to better target prevention efforts. In addition to differences in the way this information is collected across different causes of death, there may also be differences in how Aboriginal and Torres Strait Islander and non-Indigenous families report the vulnerabilities a child may have been experiencing.

189 Dudgeon P, Calma T & Holland C 2017, 'The context and causes of the suicide of Indigenous people in Australia', *Journal of Indigenous Wellbeing*, 2(2), pp. 5–15.
190 ibid.
191 ibid.
192 For example, within the child's household.
193 Australians Together 2020, *Intergenerational Trauma*, Australians Together, Fullarton, viewed 8 June 2020, https://australianstogether.org.au/discover/the-wound/intergenerational-trauma/

5.2 Children known to the child protection system

In Queensland, the Department of Child Safety, Youth and Women (Child Safety) is responsible for protecting children who have experienced significant harm, or are at unacceptable risk of significant harm, and who do not have a parent able and willing to protect them. It is also responsible for providing a range of services to families to help them address issues before they escalate to a point where departmental intervention is required.[194]

Children known to the child protection system

Children 'known to the child protection system' are a cohort of children from a wide variety of backgrounds and experiences. It includes children who have had concerns raised with Child Safety on their behalf, those who have been the subject of an investigation by Child Safety (whether the allegations were substantiated or not), children whose families worked with Child Safety while the child remained at home as well as children living in out-of-home care.[195]

The terms 'known to the child protection system' and 'known to Child Safety' are used interchangeably here.

Child protection in Queensland is governed by the *Child Protection Act 1999*. Under this legislation, when a child known to the child protection system dies, Child Safety must undertake a review of the service provided to the child and their family. This is done to ensure the system is open and transparent and subject to continual improvement.[196]

Prior to 1 July 2014, Child Safety was required to conduct these reviews if a child was known to the child protection system within the three years prior to their death. Amendments to the *Child Protection Act 1999* (as part of broader reforms to the child and family support system arising from the Queensland Child Protection Commission of Inquiry) changed this timeframe to one year from 2014 onwards.

Between 2004 and 2019, 934 children and young people died who were known to the child protection system and whose involvement with Child Safety was subject to review. For the 657 children whose deaths occurred prior to 1 July 2014, their involvement occurred at some time during the three years prior to their deaths. The remaining 278 children (whose deaths occurred between 2014 and 2019) were known to the child protection system in the one year before they died.[197]

Child Death Review Board

In 2017, the Queensland Government committed to a revised external and independent model for reviewing the deaths of children known to the child protection system.

This arose from the Queensland Family and Child Commission (QFCC's) report, *A Systems Review of Individual Agency Findings Following the Death of a Child*, which recommended the government: 'consider a revised external and independent model for reviewing the deaths of children known to the child protection system.'[198]

From 1 July 2020, in addition to the existing review requirements for children known to Child Safety who die or suffer a serious physical injury:

- Internal reviews must also be conducted by Queensland Health, the Department of Education, the Queensland Police Service and the Department of Youth Justice if these agencies had involvement with the child in the 12 months prior to their death.
- A new, external and independent Child Death Review Board, hosted by the QFCC, will carry out a review of systems following the death of a child connected to the child protection system to identify:
  - opportunities for continuous improvement in systems, legislation, policies and practices
  - preventative mechanisms to help children and prevent deaths that may be avoidable.[199]

194 Department of Child Safety, Youth and Women 2018, *Child and Family*, Department of Child Safety, Youth and Women, Brisbane, viewed 2 April 2020, https://www.csyw.qld.gov.au/child-family

195 A child is deemed to have been known to the child protection system if, within one year before their death: Child Safety was notified of concerns of alleged harm or risk of harm; Child Safety was notified of concerns before the birth of a child and reasonably suspected the child might be in need of protection after their birth; Child Safety took action under the *Child Protection Act 1999*; or the child was in the custody or guardianship of Child Safety. See Appendix 1 for further details.

196 Department of Child Safety, Youth and Women 2020, *System and Practice Reviews—Child deaths*, Department of Child Safety, Youth and Women, Brisbane, viewed 2 April 2020, https://www.csyw.qld.gov.au/child-family/our-performance/system-practice-reviews-child-deaths

197 A further 58 children were known to the child protection system, but their involvement with Child Safety occurred outside the statutory period for review (either one or three years prior to death, depending on when the death occurred). These children have been counted as 'not known to the child protection system' for the purpose of this review.

198 Queensland Family and Child Commission 2017, *A Systems Review of Individual Agency Findings Following the Death of a Child*, Queensland Family and Child Commission, Brisbane, viewed 6 July 2020, https://www.qfcc.qld.gov.au/sites/default/files/For%20professionals/death-of-a-child-report-march-2017.pdf

199 *Child Death Review Legislation Amendment Act 2020*.

5.2.1 Numbers and rates of death for children known to the child protection system

In July 2012, a Commission of Inquiry into child protection was launched in Queensland (the Queensland Child Protection Commission of Inquiry). Part of the reason for this was growing concern over the increasing number of children known to the child protection system and the number in out-of-home care.

Between 2004 and 2014 the proportion of the Queensland child population known to Child Safety rose steeply, sitting at approximately 15 per cent from 2011 onwards. Following the broad child protection reforms across the state, which included the change to review criteria, this figure has remained relatively stable at between seven and eight per cent.

The number of children who died who were known to the child protection system during the 16-year period (using a three-year rolling average to even out year-to-year differences), is shown in **Figure 5.9**. The average number of deaths per year has been relatively stable since 2015–2017.

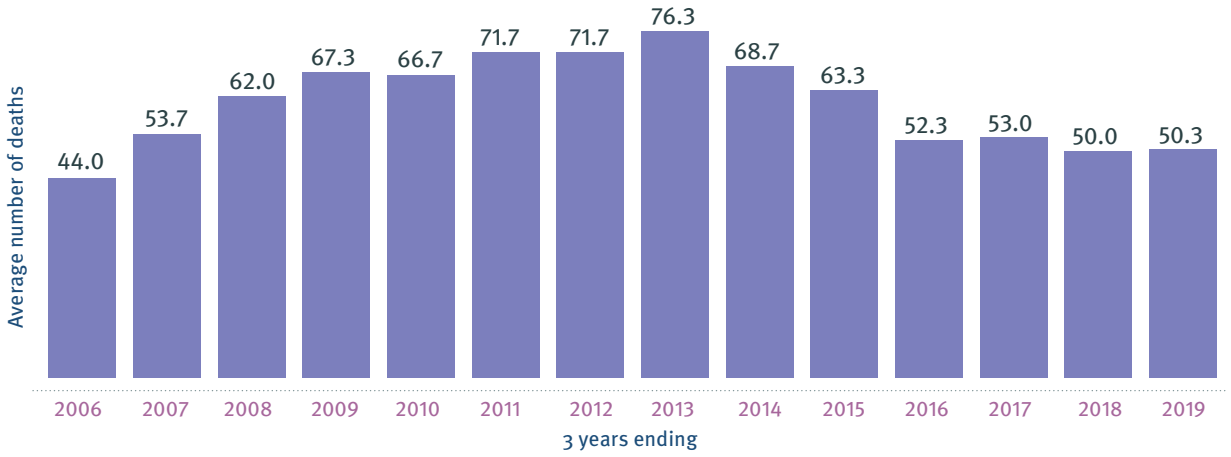

Figure 5.9: Deaths of children known to the child protection system, 2004–2006 to 2017–2019
Note: Numbers averaged over three-year periods.

The rate of death for children known to Child Safety between 2004 and 2014 is not directly comparable to that of children who died between 2014 and 2019 due to the criteria for conducting reviews changing from 1 July 2014.

Rates of death have only been calculated for the period 2015 to 2019, as the only full five-year period during which the population of children known to the child protection system has been consistently measured (that is, within one year prior to death). This reveals that, during this most recent five-year period, children known to Child Safety died at a higher rate than that for the general child population in Queensland, as shown in **Figure 5.10**.

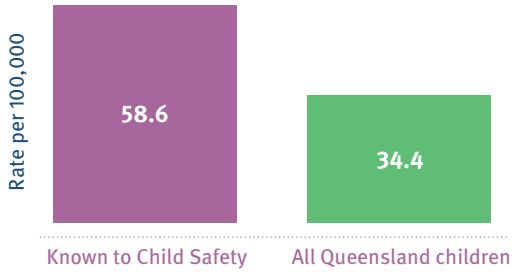

Figure 5.10: Child deaths by child protection system status, 2015–2019
Note: Rates calculated per 100,000 children known to Child Safety in the one year prior to 30 June and per 100,000 children aged 0–17 years in Queensland, averaged over the five-year period 2015–2019.

In comparing rates of death for children known to the child protection system with the rate of death for all Queensland children, it should be taken into consideration that these calculations use population data derived by different methods—that is, the number of individual children who are known to Child Safety in the preceding year, compared with the estimated resident child population of Queensland at 30 June each year. As such, these rates are not strictly comparable. However, this is the best available estimate of the elevated risk of death for children known to the child protection system in Queensland.

5.2.2 Leading causes of death

As shown in **Figure 5.11** below, external causes accounted for almost half of all deaths of children known to the child protection system in the five-year period between 2015 and 2019, compared with only 15.2 per cent of children who were not known to the system.

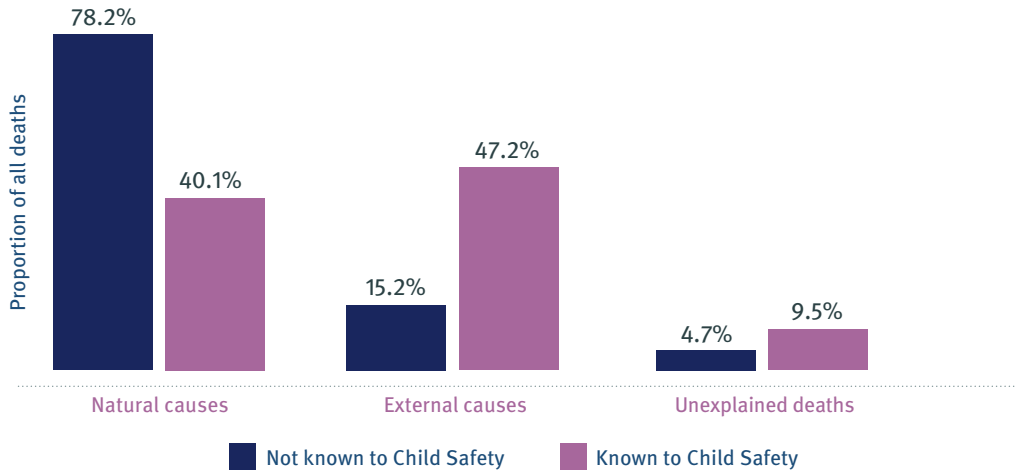

Figure 5.11: Child deaths by child protection system status and major cause grouping (proportion), 2015–2019
Notes: Excludes 41 children whose cause of death had not yet been determined at the time of reporting.

Focusing on rates of death for this most recent five-year period shows that children known to the child protection system died of natural causes at about the same rate as all Queensland children, but were significantly over-represented for deaths from external and unexplained causes. Children known to the child protection system died of external causes at 4.2 times the rate of all Queensland children and 3.1 times the rate for unexplained deaths, as shown in **Figure 5.12**.

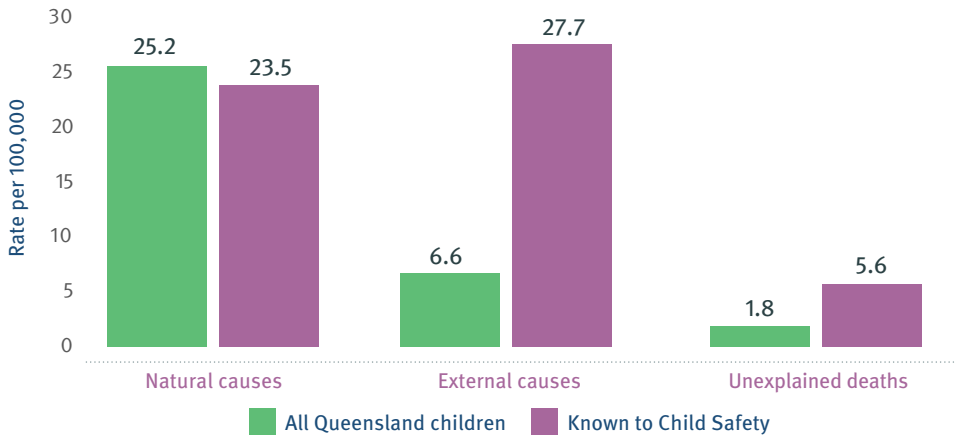

Figure 5.12: Child deaths by child protection system status and major cause grouping (rate), 2015–2019
Note: Rates calculated per 100,000 children known to Child Safety in the one year to 30 June and per 100,000 children aged 0–17 years in Queensland, averaged over the five-year period 2015–2019.

External causes

The following graph (**Figure 5.13**) illustrates the proportion of deaths from each external cause that were of children known to the child protection system.[200]

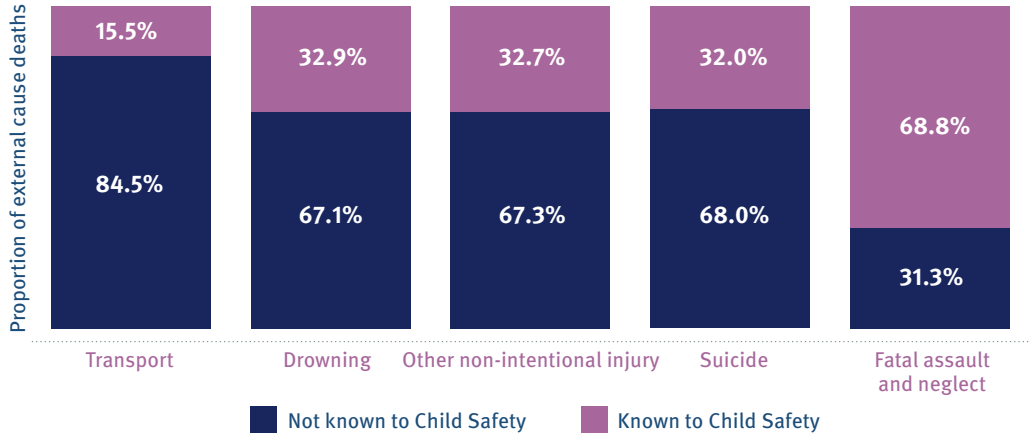

Figure 5.13: External cause deaths by child protection system status and primary cause (proportion), 2015–2019

This highlights that while children known to child protection made up between 7.1 and 7.8 per cent of the total child population in Queensland between 2015 and 2019, during this timeframe they accounted for 15.5 per cent of transport deaths; around one-third of deaths from drowning, non-intentional injury and suicide; and more than two-thirds of deaths from assault and neglect.

When looking at rates of death over this most recent five-year period, the elevated risk of death for children known to the child protection system becomes even more apparent, as shown in **Figure 5.14**.

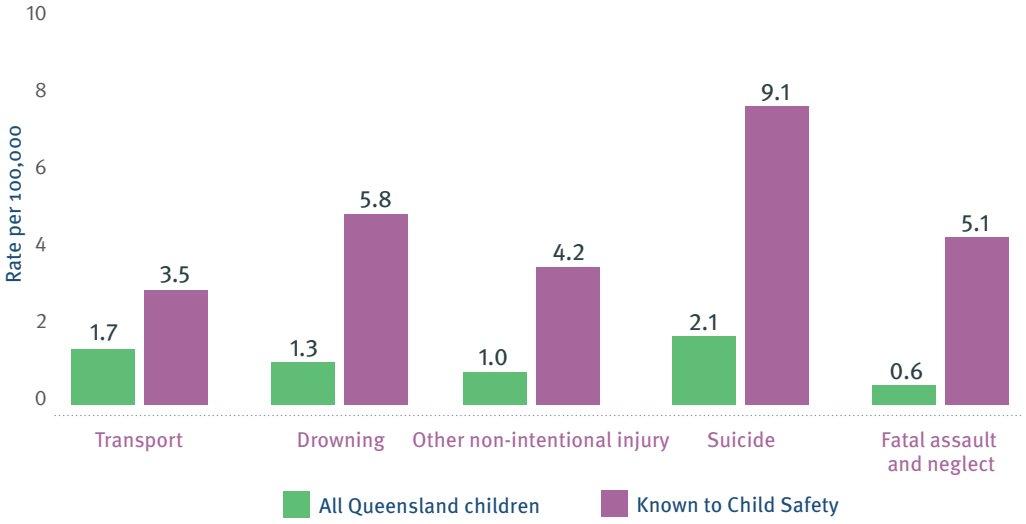

Figure 5.14: External cause deaths by child protection system status and primary cause (rate), 2015–2019

Note: Rates calculated per 100,000 children known to Child Safety in the one year prior to 30 June and per 100,000 children aged 0–17 years in Queensland, averaged over the five-year period 2015–2019.

200 Children who had contact with the child protection system more than one year prior to their death and were therefore not subject to an internal review by Child Safety, have been counted as 'not known to the child protection system' for the purpose of this review. Figures presented also include some cases where the child only became known to the child protection system as a result of the incident leading to their death.

Children known to Child Safety are particularly over-represented among suicide deaths (4.3 times the rate for the general child population in Queensland). The particular vulnerabilities experienced by children who become known to child protection authorities, and the associated increased risk of suicide, has been the subject of inquiry in other Australian jurisdictions.[201] Under the current Queensland Suicide Prevention Plan, the QFCC is leading an initiative to conduct a systemic review of suicides of young people known to the child protection system, aiming to improve system responses to these vulnerable young people.[202]

Death as a result of assault or neglect is also far more prevalent among children known to the child protection system. Between 2015 and 2019, 22 children known to Child Safety were fatally assaulted or neglected, making up almost 69 per cent of the total fatal assault and neglect cases in Queensland during this time. Children known to Child Safety died from assault and neglect during this period at 9.2 times the rate of all Queensland children. These findings may be influenced by several incidents during this five-year period in which multiple children died.

Identifying 'red flags' for fatal assault and neglect, including risk factors associated with being known to Child Safety, is the subject of a separate body of work being led by the QFCC in conjunction with research partners.

Patterns in external cause deaths over time have not been analysed due to the shorter time period available for review (that is, 2015–2019 only) and the small number of deaths from each cause occurring each year.

5.2.3 Aboriginal and Torres Strait Islander status

Aboriginal and Torres Strait Islander children are disproportionately represented among children known to the child protection system. Of the children known to Child Safety in the year ending 30 June 2019, just over one quarter were Aboriginal or Torres Strait Islander,[203] despite making up only 8 per cent of the child population in Queensland.[204]

During the most recent five-year period (2015–2019), 26.9 per cent of Aboriginal and Torres Strait Islander children who died were known to the child protection system. This compares with only 10.3 per cent of non-Indigenous child deaths, as shown in **Figure 5.15** below.

Figure 5.15: Child deaths by Aboriginal and Torres Strait Islander status and child protection system status, 2015–2019

This finding highlights both the over-representation of Aboriginal and Torres Strait Islander children within the child protection system in Queensland, and their disproportionate representation in child mortality. It also reinforces the need for a continued focus on reducing this through addressing the underlying historical and contemporary factors that bring children into contact with the system in the first place. Queensland's Our Way strategy has established a goal of eliminating Aboriginal and Torres Strait Islander over-representation in out-of-home care within a generation through targeting issues such as physical and emotional health, housing, early childhood education, domestic and family violence, employment and financial resilience. At the heart of this lies the concept of self-determination, 'empowering Aboriginal and Torres Strait Islander people to exercise opportunities to live well, according to Aboriginal and Torres Strait islander values and beliefs'.[205]

An important element of reducing Aboriginal and Torres Strait Islander over-representation in the child protection system is the *Child Placement Principle*, which provides guidelines for making decisions about Aboriginal and Torres Strait Islander children under the *Child Protection Act 1999* and which champions the concepts of prevention and self-determination.

201 Commission for Children and Young People Victoria 2019, *Lost, Not Forgotten: Inquiry into children who died by suicide and were known to Child Protection*, Commission for Children and Young People Victoria, Melbourne, viewed 30 April 2020, https://ccyp.vic.gov.au/assets/Publications-inquiries/CCYP-Lost-not-forgotten-web-final.PDF
202 Queensland Mental Health Commission 2019, *Every Life: The Queensland suicide prevention plan 2019–2029: Phase one*, Queensland Government, Brisbane, viewed 20 April 2020, https://www.qmhc.qld.gov.au/sites/default/files/every_life_the_queensland_suicide_prevention_plan_2019-2029_web.pdf
203 Department of Child Safety, Youth and Women 2020, *Children Known to Child Safety Services in a 12 month Period, by Age Group and Aboriginal and Torres Strait Islander Status, Queensland, Year Ending 30 June 2019*. Information provided by the Department of Child Safety, Youth and Women, 1 May 2020.
204 Queensland Government Statistician's Office, Queensland Treasury 2020, *Population estimates by Indigenous Status, Age, Sex, Statistical Area Level 2 (SA2), Queensland, 2006 to 2018 (2016 Australian Statistical Geography Standard)*, unpublished data. Information provided by the Queensland Government Statistician's Office 3 June 2020.
205 Department of Communities, Child Safety and Disability Services 2017, *Our Way: A generational strategy for Aboriginal and Torres Strait Islander children and families, 2017–2037*, The State of Queensland, Brisbane, p. 4, viewed 6 July 2020, https://www.communities.qld.gov.au/resources/campaign/supporting-families/our-way.pdf

History of the Aboriginal and Torres Strait Islander Child Placement Principle

The Child Placement Principle has been an accepted basis for working with Aboriginal and Torres Strait Islander families in the Australian child protection system since 1984, with each state and territory responsible for implementing it within relevant legislation and policy.[206] It was developed to address the growing number of Aboriginal and Torres Strait Islander children placed into out-of-home care with, or adopted by, non-Indigenous carers and to ensure that where a child is unable to remain with their family, their connections with family, culture and community were maintained.[207]

In Queensland, the *Child Protection Act 1999* originally provided for decisions about Aboriginal and Torres Strait Islander children to be made in consultation with a recognised Aboriginal or Torres Strait Islander agency. The views of the recognised agency or of members of the child's community were to be taken into account, and the Act operated under the general principle that a child should be cared for within an Aboriginal and Torres Strait Islander community.[208]

These principles were strengthened in 2010 to ensure that a child be allowed to develop and maintain connections with family and culture and that the long term effects of decisions on this connection must be considered.[209]

The *Child Protection Reform Amendment Act 2017* replaced these with an expanded set of principles for working with Aboriginal and Torres Strait Islander children, families and communities.[210]

Today, the Aboriginal and Torres Strait Islander Child Placement Principle, as enshrined in the *Child Protection Act 1999*, encompasses five elements:

1. **Prevention** – a child has the right to be brought up within their own family and community.
2. **Partnership** – Aboriginal or Torres Strait Islander peoples have the right to participate in child protection decisions about Aboriginal and Torres Strait Islander children, including being involved in the design and delivery of programs and services.
3. **Placement** – a child has a right to be placed with a member of their family or community group wherever possible, if they are not able to remain at home.
4. **Participation** – children and family members have the right to participate in decision-making about the child.
5. **Connection** – a child has the right to be supported to develop and/or maintain connection with their family, community, culture, traditions and language.

206 Tilbury C, Burton J, Sydenham E, Boss R, & Louw T 2013, *Aboriginal and Torres Strait Islander Child Placement Principle: Aims and core elements*. Secretariat of National Aboriginal and Islander Child Care (SNAICC), viewed 17 June 2020, https://www.snaicc.org.au/wp-content/uploads/2015/12/03167.pdf
207 ibid.
208 *Child Protection Act 1999* (as passed 30 March 1999), s. 6.
209 *Child Protection and Other Acts Amendment Act 2010*, s. 5C.
210 *Child Protection Reform Amendment Act 2017*, s. 5C.

5.2.4 Vulnerability characteristics

Children become known to the child protection system as a result of community concern that they have suffered, or are at risk of suffering, significant harm. Under the *Child Protection Act 1999*, 'harm' is defined as a detrimental effect on a child's physical, psychological or emotional wellbeing.[211] It therefore follows that children known to Child Safety are more likely than those in the general child population to have experienced vulnerability, particularly the types of vulnerabilities analysed here, which are typically associated with suffering harm.

Analysis of available information from the register confirms that the occurrence of all recorded vulnerability characteristics was significantly higher among children known to the child protection system than among those who were not. In particular, experiences of domestic and family violence, mental health issues and alcohol and substance use appear to be much more common among children known to the child protection system.

These broad findings should, however, be interpreted with caution. By virtue of these children's engagement with the child protection system, a greater level of information is collected (and routinely provided to the QFCC) about their adverse experiences over the course of their lives. While it is expected that children known to Child Safety would be over-represented in terms of their experienced vulnerabilities, it is possible that the presence of vulnerability characteristics within the general population is under-counted.

It is not the fact that these children are known to the child protection system that increases their risk of death, but the significant disadvantage, abuse and neglect they experienced before they came to the attention of Child Safety and the multiple complex risk factors present in their lives.

Children who are at increased risk of child maltreatment are often from families with higher levels of economic disadvantage, poor parental mental health and problematic substance misuse and social instability, all of which are risk factors for adverse childhood outcomes—including death.[212]

Vulnerabilities experienced by vulnerable populations

The QFCC's findings in relation to the prevalence of vulnerabilities experienced by children and young people in Queensland prior to their deaths are indicative only and subject to limitations. Particularly when analysing vulnerabilities experienced by vulnerable populations, such as Aboriginal and Torres Strait Islander children or children known to the child protection system, there are multiple factors about the way in which vulnerabilities are identified, collected and reported that may affect the findings.

However, the indicative findings presented in this report raise a number of questions about how children in Queensland experience vulnerability, and the influence this may have on their risk of death and injury, that are worthy of further, detailed investigation by researchers.

211 *Child Protection Act 1999*, s. 9.
212 Doidge J, Higgins D, Delfabbro P & Segal L 2017, 'Risk factors for child maltreatment in an Australian population-based birth cohort', *Child Abuse & Neglect*, 64, pp. 47–60.

Chapter 6—Counting lives, changing patterns and improving systems

The *Counting lives, changing patterns* report has summarised key findings from the analysis of 16 years of data held within the Queensland Child Death Register and has identified a range of statistically significant trends and patterns in child mortality in Queensland over time. These findings highlight the importance of maintaining the register and the value of the information it contains, particularly when analysed over significant periods, from which patterns and trends can be established.

Significant findings of the 16-year review

The QFCC worked closely with the Queensland Government Statistician's Office in undertaking analysis to identify statistically significant trends and patterns in child mortality over the 16-year review period.

This has identified the following significant trends.

- There has been a decrease in the overall child mortality rate in Queensland, with the annual rate decreasing by an average of 3 per cent per year.
- Natural cause deaths decreased by an average of 2.9 per cent per year.
- An increase in the rate of unexplained infant deaths between 2004 and 2011 was detected, followed by a strong downward trend where annual rates decreased by an average of 13.2 per cent per year.
- In particular, the annual rate of Sudden Infant Death Syndrome decreased by 17.4 per cent per year, on average, between 2011 and 2019.
- External cause deaths decreased by an average of 4.1 per cent per year, with significant changes in the rate of different types of external cause deaths identified, including:
  - a 7.9 per cent per year average decrease in transport deaths between 2004 and 2019
  - a 2.8 per cent per year average decrease in drowning deaths
  - other non-intentional injury deaths decreasing by an average of 6.1 per cent per year
  - deaths as a result of assault and neglect decreasing by 3.9 per cent per year, on average.
- Rates of youth suicide have increased over time, by 2.6 per cent per year, on average.
- Suicides of young people aged 15–17 years have increased by an average of 3.5 per cent per year.
- While Aboriginal and Torres Strait Islander children and young people continue to be considerably over-represented in suicide deaths, this has not changed significantly over time. The rate of death for non-Indigenous children, however, has increased significantly, by an average of 3.3 per cent per year.
- Aboriginal and Torres Strait Islander children die at around twice the rate of non-Indigenous children. However, the annual rate of death for Aboriginal and Torres Strait Islander children has decreased significantly over time, by an average of 2.3 per cent per year (compared with an average annual decrease of 3.1 per cent per year for non-Indigenous children).
- Infant mortality, a key marker of population health, has declined for both Aboriginal and Torres Strait Islander and non-Indigenous children (an annual average decrease of 4.7 and 2.6 per cent per year, respectively).

While these findings have established some encouraging downward trends in the rate of death for Queensland children, there remains room for improvement. There is more work to be done to learn from the deaths of these children, to reduce the over-representation of Aboriginal and Torres Strait Islander children among mortality statistics, as well as the deaths of children known to the child protection system. It is vital that the findings of the Queensland Family and Child Commission's (QFCC) 16-year review of child deaths in Queensland continue to inform and focus efforts to generate system change and reduce and prevent the likelihood of future deaths.

The findings of this review will influence the ongoing work program of the QFCC, as well as broader research, policy and program development initiatives of stakeholders.

6.1 QFCC priorities

6.1.1 Legislative child death prevention functions

In addition to maintaining the Queensland Child Death Register, from which the findings of this report have been drawn, the QFCC has a legislative responsibility to analyse and report on the information it holds; identify areas for future research to be conducted by the QFCC, alone or in collaboration with other entities; and to make recommendations based on the findings of these activities for improvements to laws, policies, practices and services.

In performing these functions, the QFCC currently undertakes a range of activities, including:

- releasing factsheets and resources on specific topics of interest
- collaborating with members of the Australian and New Zealand Child Death Review and Prevention group to improve consistency in child mortality data
- working with custodians of administrative datasets to improve the collection of child death information
- sharing information with stakeholders to assist in developing evidence-based policy and programs
- contributing to policy submissions
- participating in state and national advisory groups
- providing genuine researchers with access to data on child deaths to support the generation of new findings aimed at preventing future child death and injury.[213]

Priorities for the QFCC's child death prevention function will include:

- using the findings from this report to inform requirements for the planned upgrade of the Queensland Child Death Register IT system
- migrating information about vulnerabilities experienced by children who have died into this new system
- continuing to closely monitor the circumstances in which young children drown in swimming pools and working with stakeholders to reinforce the importance of age-appropriate adult supervision
- continuing to work with the Queensland Paediatric Quality Council to improve the classification of sudden unexpected infant deaths and the associated public guidelines on safe sleep practices
- implementing the actions from the whole-of-government Suicide Prevention Plan
- further promoting the value of the register as a source of information for research, policy and program development.

6.1.2 Oversight, Research and Evaluation

The QFCC is responsible for overseeing the child protection and family support systems in Queensland. The QFCC's *Oversight Strategy 2020–2022* outlines an ongoing program to provide timely and independent oversight of how well the system upholds and protects children's rights, wellbeing and safety and generates outcomes for all Queensland communities.

The results of this report will help inform the future direction of the Oversight Strategy. This includes existing priorities, such as oversight of the system's implementation of the *Aboriginal and Torres Strait Islander Child Placement Principle* or the planned review of system responses to young people's mental health needs.

This report has also highlighted a number of areas requiring further research or investigation. These will be considered in identifying future oversight priorities, as well as within updates to the QFCC's Research Agenda and its ongoing evaluation of the reforms to the child and family support system in Queensland.

213 Under section 28(7) of the *Family and Child Commission Act 2014*, a genuine researcher is a person granted access to health information under the *Public Health Act 2005* (Chapter 6, Part 4); a member of a quality assurance committee established under the *Hospital and Health Boards Act 2011* (s. 82); or another person the Principal Commissioner considers is conducting genuine research.

6.1.3 Policy and Advocacy

The results of this report will provide information about child deaths in Queensland to influence the development of evidence-based laws, policies, practices and services, through the QFCC's Policy and Advocacy functions.

The QFCC will advocate for legal, policy and practice changes that may assist in reducing and preventing future preventable deaths.

6.1.4 Children and Young People's Perspectives

Hearing the voices of children and young people in Queensland is a priority for the QFCC. This is exercised through its *Growing Up in Queensland* project, which engaged with young Queenslanders through surveys, postcards and art activities about their dreams, hopes for the future and the issues that are important to them.

The results of the 16-year review will inform future engagement with children and young people, specifically in relation to their experiences of the types of vulnerability highlighted throughout this report, such as mental health or alcohol and substance use.

6.2 Collaboration with external stakeholders

In performing its legislative functions, the QFCC collaborates with a wide range of stakeholders who either contribute to, or benefit from, the data housed within the register. These include other government agencies, professional bodies committed to reducing child death and injury and improving data quality (such as the Queensland Paediatric Quality Council and the Consumer Product Injury Research Advisory Group) and researchers across the state.

The *Counting lives, changing patterns* report has identified a range of high-level findings that require further in-depth investigation for future prevention initiatives. Examples include:

- exploring reasons behind the significant changes in the rate of death from Sudden Infant Death Syndrome over time
- exploring how experiencing multiple vulnerabilities may impact the risk of death from particular causes
- better understanding how to influence the disparity between Indigenous and non-Indigenous infant and child mortality rates
- further exploring the impacts of geographic isolation and socio-economic disadvantage on deaths from particular causes
- examining why the rate of suicide in Queensland young people aged 15–17 years has increased, despite continued initiatives to raise awareness of mental health and youth suicide in the community.

The QFCC has also recently assumed responsibility for supporting the independent Child Death Review Board, a panel of experts established to identify opportunities for system improvements following the death of a child known to the child protection system. The findings of the 16-year review will provide critical context to this new function and highlight areas in which system responses to vulnerable children and families could be improved.

The QFCC is eager to collaborate with its stakeholders in undertaking this work and invites interested parties to make contact to discuss opportunities to build upon the findings of the 16-year review and to help improve outcomes for all Queensland children and young people.

Appendix 1—Methodology

This appendix provides an overview of the methodology the Queensland Family and Child Commission (QFCC) employed in analysing 16 years of data from the Queensland Child Death Register (the register), and in preparing the *Counting lives, changing patterns* report. It also identifies a number of limitations and considerations that should be taken into account when assessing the findings of this review.

Information sources

The register, from which the data analysed in this report is drawn, brings together information from a number of sources and presents it in a way that allows for consideration of the risk factors associated with the deaths of children and young people in Queensland. It also allows for comparisons to be made between different population subgroups, such as Aboriginal or Torres Strait Islander children and children known to the child protection system.

As the register relies on a variety of administrative data sources, a small margin of error is possible. For example, absence of information about a vulnerability characteristic does not necessarily mean it wasn't present for that child. Rather, it may mean that the data sources did not capture it.

Likewise, the QFCC is reliant on the assessments made by frontline staff in many instances and is unable to confirm whether the threshold applied in identifying risk factors by these officers is similar to that employed by the QFCC. There are no mechanisms available to formally verify the complete accuracy of the data provided to the QFCC.

Registry of Births, Deaths and Marriages

The information in the 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 that the registrar must give notice of the registration of all child deaths to the Principal Commissioner.[214]

The data provided includes:

- 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 child's last illness, if any
- date and place of death
- cause of death
- mode of dying.

To the extent practicable, this information is provided within 30 days after the death is registered. If the death is not reported to a coroner (that is, a natural cause death for which a cause of death certificate is issued by a medical practitioner), only death registration information is available for analysis. Additional information is available for coronial cases.

Coroners Court of Queensland

The *Coroners Act 2003* provides for the Principal Commissioner to be notified by the State Coroner of all reportable child deaths. Reportable deaths are those where:

- the identity of the person is unknown
- the death was violent or otherwise unnatural
- the death happened in suspicious circumstances
- the death was healthcare related
- a cause of death certificate has not been issued and is unlikely to be issued
- the death occurred in care
- the death occurred in custody
- the death occurred in the course of police operations.[215]

214 *Births, Deaths and Marriages Registration Act 2003*, s. 48A. Details of stillborn children are not included in the information given to the QFCC.
215 *Coroners Act 2003*, s. 8.

The information provided to the QFCC by the State Coroner includes:

- the Police Report of Death to a Coroner (Form 1), which includes a summary of the circumstances of the death
- autopsy and toxicology reports
- the coroner's findings and comments.[216]

The information included within these documents allows the QFCC to identify risk factors for all external cause deaths as well as for sudden unexpected deaths in infancy (SUDI).

Access to other data sources

The QFCC has established information-sharing agreements with the following agencies:

- Registry of Births, Deaths and Marriages[217]
- Coroners Court of Queensland[218]
- Department of Child Safety, Youth and Women (records relating to Child Safety)
- Queensland Police Service
- Queensland Ambulance Service
- Workplace Health and Safety Queensland
- Australian Bureau of Statistics
- Queensland Health
- Department of Education
- National Coronial Information System.

Information provided by these agencies provides contextual information and allows the QFCC to better classify and categorise child deaths.

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 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),[219] or

(b) recklessly disclose the information to anyone.

Coding causes of death

The QFCC uses the World Health Organization's *International Statistical Classification of Diseases and Related Health Problems, 10th revision* (ICD-10) to code underlying and multiple causes of death.

QFCC staff trained in ICD-10 mortality coding, in close consultation with mortality coders from the Australian Bureau of Statistics (ABS), are responsible for coding external cause deaths. The qualified mortality coders from the ABS undertake coding for natural cause deaths (that is, those from diseases and morbid conditions).

The underlying cause of death refers to the condition, event or circumstances without which the person would not have died. Natural cause deaths are reported based on their underlying cause of death. The underlying cause of death is also a primary factor in categorising deaths from external causes (that is, those due to transport incidents, drowning, other non-intentional injury, suicide or fatal assault).

The ICD-10 carries certain inherent limitations for coding external cause deaths, particularly in recognising the contextual subtleties of cases. It is particularly limited in its ability to adequately capture deaths from:

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

To help overcome these limitations, the QFCC primarily classifies external cause deaths according to their circumstances. This enables discussion about deaths occurring in similar circumstances—even if an official cause of death has not yet been established or if ICD-10 coding does not accurately reflect the circumstances of death.

As a result, the data reported by the QFCC may not match data reported by ICD-10 codes alone.

Deaths for which an official cause was not available at the time of reporting, and for which there was insufficient information about the circumstances to enable the QFCC to classify them as an external cause death are categorised as 'Not yet determined' throughout the report. The 42 children to whom this applies within the 16-year review period are generally excluded from analysis, unless otherwise stated.

216 *Coroners Act 2003*, ss. 45, 46
217 In accordance with the Births, *Deaths and Marriages Registration Act 2003*, s. 48B.
218 In accordance with the *Coroners Act 2003*, s. 54A.
219 Subsection 3 permits 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.

Deaths of Aboriginal and Torres Strait Islander children

Historically, the identification of Indigenous status on death registration forms has often been incomplete or inaccurate, leading to an under-count of the actual numbers of deaths of Aboriginal and 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 likely continues to some degree.

The register keeps a record of each child's Aboriginal and Torres Strait Islander status as noted in the death registration data, on the Form 1 (Police Report of Death to a Coroner) and in other official records. There are instances of inconsistent reporting across official records.

In cases where there has been inconsistent reporting of Aboriginal and Torres Strait Islander status across official records, a guideline is used by the QFCC to determine which status will be used for reporting purposes. While this may not always accurately reflect the Aboriginal and Torres Strait Islander status of the individual child, the QFCC attempts in each case to identify which sources of information are most likely to contain the correct information about whether the child and their family identified as being Aboriginal or Torres Strait Islander.

For the purpose of analysis, children who identify as Aboriginal, Torres Strait Islander or both Aboriginal and Torres Strait Islander are considered together. Children whose Aboriginal and Torres Strait Islander status is listed as 'Unknown' or 'Not stated' in official records are grouped together with non-Indigenous child deaths (19 of the 7,175 child deaths analysed in this report).

Deaths of children known to the child protection system

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 Department of Child Safety, Youth and Women (Child Safety) and an independent review by an external panel. These reviews are undertaken to facilitate learning, improve service delivery and promote accountability.[220]

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

- Child Safety was notified of concerns of alleged harm or risk of harm, or
- Child Safety 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
- Child Safety took action under the *Child Protection Act 1999*, or
- the child was in the custody or guardianship of Child Safety.[221]

Prior to 1 July 2014, a review was required if the child was known to the department in the three years before their death. The timeframe was reduced to one year, following recommendations arising from the 2013 final report of the Queensland Child Protection Commission of Inquiry. This change was made to focus the reviews on recent service delivery (that is, on policies and procedures that were likely to still be in place) and to enhance opportunities for in-depth exploration of the various decisions and issues.[222] The scope of these reviews was also expanded to include children who suffered serious physical injuries.[223]

Analysis and reporting

Review period

This report analyses records relating to 7,175 children aged between 0 and 17 years whose deaths occurred between 1 January 2004 and 31 December 2019.

This differs from the method by which the QFCC and other state and national datasets (such as those managed by the ABS, the Australian Institute of Health and Welfare, and child death review mechanisms in other states and territories) usually report findings. These datasets, and the QFCC Annual Report on the deaths of children and young people, report by the date of death registration.

Date of death has been used as the basis of the 16-year review in recognition of the fact that death registration may occur months, or in a small number of cases even years, after the child's death. Reporting by date of death allows for better representation of trends and patterns in child mortality over time.

220 *Child Protection Act 1999*, s. 245(3).
221 ibid., s. 246A.
222 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*.
223 *Child Protection Act 1999*, s. 246.

Place of residence

The register records information about all children whose deaths occur in Queensland, irrespective of whether they are usual residents of the state. The deaths of interstate or international residents may be excluded from some analysis (such as those relating to geographic distribution).

The deaths of Queensland children that occur in other jurisdictions are not recorded in the register.

Population data used in the calculation of child death rates

Child death rates are calculated per 100,000 children (for each sex/age category/Indigenous status/child protection status/remoteness area/socio-economic area) in Queensland. When reporting on the deaths of infants, rates are calculated per 1,000 registered live births.

This report uses the most up-to-date estimated resident population (ERP) data to calculate these rates. It is provided to the QFCC by the Queensland Government Statistician's Office (QGSO).[224]

The ERP as at 30 June of each year 2004–2019, as well as the number of registered live births each year, is provided in Table A.1.

Table A.1: Estimated resident population and registered live births, 2004–2019

Year	Estimated resident population, 0–17 years	Registered live births
2004	952,436	49,940
2005	969,030	51,707
2006	986,029	52,695
2007	1,007,893	61,306
2008	1,029,978	63,168
2009	1,050,390	66,149
2010	1,062,099	64,523
2011	1,072,571	63,253
2012	1,090,874	63,837
2013	1,105,676	63,354
2014	1,116,411	63,066
2015	1,125,457	61,745
2016	1,137,851	61,841
2017	1,152,267	61,158
2018	1,165,471	61,931
2019	1,176,568	Not yet available

Source: Queensland Government Statistician's Office, Queensland Treasury

Remoteness in this report is measured using the Accessibility/Remoteness Index of Australia Plus (ARIA+) while socio-economic status is measured by the Socio-Economic Indexes for Areas (SEIFA)–Advantage/Disadvantage quintiles derived from the 2016 Census. Estimated resident populations for remoteness areas and socio-economic quintiles were provided by the QGSO for the years 2011 to 2018, incorporating the 2016 Australian Statistical Geography Standard (ASGS).

In comparison, addresses for deaths recorded in the register are accorded an ARIA+ region and SEIFA quintile using geographies based on the 2011 ASGS. While differences between the boundaries for remoteness and socio-economic areas between the 2011 and 2016 Censuses and ASGS versions affect only a subset of addresses, it should be noted that the numerator and denominator data used in the calculation of ARIA+ and SEIFA rates are based on geographic information that may not be strictly comparable.

Caution must be exercised when interpreting child mortality rates. Even when using a substantial dataset over a 16-year period, some analyses and breakdowns are based on a relatively small numbers of deaths.

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. Rates are not calculated for numbers of less than four deaths because of the unreliability of such calculations.

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 the number of distinct (individual) children known to Child Safety in the 12-month period before 30 June of the relevant year.

The data used in these calculations represents the number of distinct children (aged 0–17 years) who have had any of the following forms of contact with Child Safety in the preceding year:

- Child Concern Report (a record of child protection concerns received by Child Safety that are not considered to meet the requirements for a notification)
- Child Protection Notification (recorded when there is a reasonable suspicion that a child is in need of protection, that is, a child has been significantly harmed, is being significantly harmed, or is at risk of significant harm, and does not have a parent able and willing to protect them)
- Investigation and assessment (the process of assessing a child's need for protection if a notification has been recorded)

224 These estimates have been revised as at May 2020. Queensland Government Statistician's Office, Queensland Treasury 2020, *Population estimates by Indigenous Status, Age, Sex, Statistical Area Level 2 (SA2), Queensland, 2006 to 2018 (2016 Australian Statistical Geography Standard)*, unpublished data. Information provided by the Queensland Government Statistician's Office 3 June 2020.

- Ongoing intervention (intervention by Child Safety that occurs following an investigation and assessment, when a child is in need of protection, an unborn child is in need of protection following birth, or there is a high level of risk in the family)
- Child Protection Order (made by the Childrens Court when a child is assessed as being in need of protection)
- Placement in care (when a child is placed in an approved care arrangement, under the authority of the *Child Protection Act 1999*).

This data was provided to the QFCC by the Department of Child Safety, Youth and Women (Child Safety). Rates of death were only calculated for the period 2015–2019 due to the break in the data series caused by the change in the criteria for internal review following the death of a child (that is, from known within the preceding three years to known within the preceding one year).

Table A.2 lists the data provided by Child Safety for the period 2015–2019.

Table A.2: Distinct children known to Child Safety in the 12 months prior to 30 June, 2015–2019

Year	Number of distinct children known to Child Safety
2015	84,262
2016	80,510
2017	84,597
2018	88,824
2019	92,040

Analysis of trends over time

Three-year rolling average rates are used to show trends in child mortality over time. This approach smooths year-to-year fluctuations that occur by chance and allows patterns and trends to be more easily identified. When reporting on trends over time that involve breakdowns of child deaths into smaller groups (for example when comparing rates of different external causes of death), five-year rolling averages are used to minimise the impacts of relatively small numbers in year-to-year counts.

In some areas of the report an aggregate five-year rate over the most recent five-year period has been used to compare rates of deaths for different groups. This approach has been used where a change in data capture over time does not allow for comparison across the full 16-year period. It has also been used where the change that has occurred over time is not accurately represented by a single mid-point rate, and examining the most recent five-year period provides a snapshot of the current situation.

Where trends have been reported, annual rates over the 16-year period have been analysed using either Poisson regression, or where required, a negative bionomial model. Trends are reported as the annual average percentage change over time.

Comparison with previously published data

The QFCC publishes a report annually on the deaths of children in Queensland in the preceding financial year. Data relating to the deaths of children since 2004 is available on the QFCC website at **https://www.qfcc.qld.gov.au/keeping-kids-more-safe/preventing-child-injury-death/child-death-reports-data/annual-report-deaths**

As outlined previously, this information published by the QFCC has been analysed by date of death registration. It is therefore not directly comparable to the findings in this report, which have been analysed by date of death.

Appendix 2—Abbreviations and definitions

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
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 examination.
Child	A person aged from birth up to, but not including, 18 years.
Child known to Child Safety	A child is deemed to have been known to Child Safety if, within one year before their death: • Child Safety was notified of concerns of alleged harm or risk of harm, or • Child Safety 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 • Child Safety took action under the *Child Protection Act 1999*, or • the child was in the custody or guardianship of Child Safety.[225] Prior to 1 July 2014, a three-year timeframe was applicable. The data used to calculate rates of death for children known to Child Safety each year is based on the distinct number of children and young people known to Child Safety in the 12 months ending 30 June of the year prior. This includes all children 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 17, Congenital malformations, deformations and chromosomal abnormalities) are cognitive and physical conditions present at birth that are either hereditary or caused by environmental factors.
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 usual residence and the place of death.
Diseases and morbid conditions	See also 'natural causes'. 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.
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.

225 *Child Protection Act 1999*, s. 246A.

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 natural causes.
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.
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.
Known to be in or on water	When a child aged under 5 years is known by the carer to be actively swimming, paddling, wading, playing, bathing in water or on a watercraft.
Known to be around water	When the carer of a child aged under 5 years is aware of the existence of a nearby water hazard and a reasonable person could foresee that the child could quickly or easily gain access to it (i.e. no barrier or a defective barrier). Examples include where a carer leaves a child playing on the floor of the bathroom while the bath is filling up, or the carer leaves the child playing in the backyard but has propped open the pool gate.
Natural cause	A natural cause death is one caused by a disease or morbid condition.
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.
Neoplasms (cancers and tumours)	The term 'neoplasm' (ICD-10 Chapter 2) 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.
Not known to be around water	When the carer of a child aged under 5 years is not aware the child is exposed to a water hazard (i.e. the carer thinks the water hazard is appropriately restricted and is not aware that the child has gained access to it) or the presence of the water hazard is 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.

Other non-intentional injury deaths	Other non-intentional injury deaths include those resulting from a fall, electrocution, poisoning, suffocation, strangulation and choking, fire, and other non-intentional injury-related deaths outside of drowning and transport incidents.
Perinatal condition	Perinatal conditions (ICD-10 Chapter 16, Certain conditions originating in the perinatal period) are diseases and conditions that originated during pregnancy or the neonatal period (0–27 days), 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.
Place of death	The address at which the child was officially declared deceased.
Place of usual residence	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 aged between 28 and 364 days. This is the definition used by the ABS in all cause-of-death publications.
QFCC	Queensland Family and Child Commission—enacted by the *Family and Child Commission Act 2014* on 1 July 2014.
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 • a cause of death certificate was not issued and is not likely to be issued • death occurred in care • death occurred in custody • death occurred in the course of, or as a result of, police operations.
SEIFA	Socio-Economic Indexes for Areas 2016. Developed by the ABS using data from the 2016 Census of Population and Housing, SEIFA 2016 provides a range of measures to rank areas based on their relative social and economic wellbeing.
Self-harm	The non-socially or culturally sanctioned deliberate destruction of one's own body tissue. It can be suicidal or non-suicidal in intent. Generally, it does not include self-harm that is done for a religious or cultural purpose, such as rites of passage.
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. The sudden, unexpected death of an infant under 1 year of age, occurring during sleep, where no cause of death can be determined, even after a thorough investigation.

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 1 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 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 people 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 rural plant • bicycles, skateboards, scooters and other small-wheel devices • watercraft and aircraft, and • horses and other animals used for transportation.
WHO	World Health Organization

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