Australian and New Zealand child death statistics 2018

Queensland Family & Child Commission

Australian and New Zealand Child Death Review and Prevention Group

This paper presents information on child mortality from all eight Australian states/territories and New Zealand. The data has been provided by members of the Australian and New Zealand Child Death Review and Prevention Group (ANZCDR&PG) who conduct child death reviews and reporting within their own jurisdictions.[1] It should be noted the child death review functions throughout Australia and New Zealand have individual legislative bases, functions, roles and reporting requirements. The data prepared by these agencies currently differs in some respects and these differences are noted in the methodology section.

Key findings

Comparative statements exclude jurisdictions where a rate could not be calculated. This is particularly relevant for New Zealand as neonatal deaths data was not available. Analysis of child deaths during 2018 has shown:

- Infants (children under one year) had the highest rates of child deaths in all jurisdictions, accounting for 60% of all child deaths in Australia. Child mortality rates decreased substantially after infancy and continued to decrease until the teenage years, when they increased again.
- Queensland had the third highest child mortality rate (30.9 per 100,000 population) and the fourth highest infant mortality rate (3.5 per 1000 live births). Child mortality rates varied between 24.1 and 67.1 per 100,000. Infant mortality rates varied between2.4 and 7.2 per 1000 live births.
- Indigenous child mortality rates were higher than the non-Indigenous rates within all jurisdictions.
- Indigenous child mortality rates varied between 54.3 and 114.8 per 100,000 and non-Indigenous child mortality rates varied between 22.2 and 32.9 per 100,000.
- Queensland had the second lowest Indigenous child mortality rate (56.4 per 100,000) and the second highest non-Indigenous child mortality rate (28.6 per 100,000). Indigenous children constituted 8.2% of the Queensland child population yet accounted for 15.0% of the child deaths.
- Deaths from diseases and morbid conditions accounted for 70.7% of all child deaths in Australia in 2018.
- Queensland had the third highest child mortality rate from diseases and morbid conditions (21.1 per 100,000), with rates varying between 14.6 and 44.7 per 100,000.
- Suicide was the leading external cause of death in Queensland, Victoria and New Zealand. Suicide and transport were equal leading external causes in South Australia. Transport was the leading external cause of death in New South Wales and Western Australia.
- Queensland had the fourth highest child mortality rate for external-cause deaths (7.4 per 100,000), with rates varying between 3.6 and 9.7 per 100,000.
- Queensland had the third highest rate of infant deaths from Sudden Infant Death Syndrome (SIDS) and undetermined causes (0.4 per 1000 live births), with rates varying between 0.2 and 1.0 per 1000 live births.

[1] Information on the ANZCDR&PG including links to member home pages can be found at https://www.ombo.nsw.gov.au/what-we-do/coordinating-responsibilities/child-death-review-team/australian-and-new-zealand-child-death-review-and-prevention-group

Australian and New Zealand child death statistics 2018

The Queensland Family and Child Commission (QFCC) would like to acknowledge the contribution of data from the agencies and committees which perform child death review functions in the Australian states and territories and in New Zealand.

The analysis covers deaths that occurred during the period 1 January 2018 to 31 December 2018. For Australian jurisdictions, deaths were counted based on the jurisdiction in which they occurred, not the residency of the deceased child. For New Zealand, neonatal deaths (0–27 days) were unavailable at the time of reporting. Further, only deaths of New Zealand residents within New Zealand are included.

Excepting New Zealand, all jurisdictions provided raw numbers of the deaths of all children from birth up to, but not including, 18 years of age occurring in 2018, independent of when these deaths were registered with the Registry of Births, Deaths and Marriages.

It is important to note that caution must be exercised when comparing rates between jurisdictions. Although the rates are based on a population rather than a sample, common practice is to consider death a random event; and hence, have an associated sampling error. This is particularly important when comparing rates from low numbers. Current methodology calculates the crude rates for 2018 and should not be used to infer the general probability of death for specific cohorts.

There is considerable variation between jurisdictions in the proportion of the population identified as Indigenous (Aboriginal and Torres Strait Islander in Australia or Māori in New Zealand). As there is considerable disparity between Indigenous and non-Indigenous child mortality rates, this affects the comparability of overall child mortality rates. This highlights the value of presenting child death data, disaggregated by Indigenous status.

Child mortality numbers and rates presented here may differ from those published in the reports of individual agencies due to differences in methodology or population estimates used.

The methodology used in compiling the data is outlined towards the end of this paper.

All child deaths

Table 1 provides the numbers and rates of all child deaths for each age category in each jurisdiction during 2018. The mortality rates for all children (aged 0–17 years) in each jurisdiction are also presented in Figure 1.

Table 1: Number and rate of child deaths by age and jurisdiction 2018

Jurisdiction		Age category					Total
		Under 1 year	1–4 years	5–9 years	10–14 years	15–17 years	
NSW	Number	272	58	37	48	57	**472**
	Rate per 1000 births	2.5	–	–	–	–	–
	Rate per 100,000	–	14.4	7.3	10.0	20.8	**26.8**
VIC	Number	241	35	19	27	41	**363**
	Rate per 1000 births	3.1	–	–	–	–	–
	Rate per 100,000	–	10.7	4.7	7.2	19.0	**25.9**
QLD	Number	217	39	18	32	54	**360**
	Rate per 1000 births	3.5	–	–	–	–	–
	Rate per 100,000	–	15.2	5.4	9.8	29.0	**30.9**
WA	Number	79	22	16	12	27	**156**
	Rate per 1000 births	2.4	–	–	–	–	–
	Rate per 100,000	–	15.8	9.3	7.4	29.8	**26.1**
SA	Number	56	13	8	12	15	**104**
	Rate per 1000 births	2.9	–	–	–	–	–
	Rate per 100,000	–	15.9	7.6	11.8	25.1	**28.4**
TAS	Number	20	1	0	2	4	**27**
	Rate per 1000 births	3.6	–	–	–	–	–
	Rate per 100,000	–	*	0.0	*	21.5	**24.1**
ACT	Number	22	6	<5	6	N/A	**41**
	Rate per 1000 births	4.1	–	–	–	–	–
	Rate per 100,000	–	26.3	N/A	25.1	N/A	**43.9**
NT	Number	29	2	1	4	6	**42**
	Rate per 1000 births	7.2	–	–	–	–	–
	Rate per 100,000	–	*	*	24.3	64.8	**67.1**
NZ	Number	77[a]	54	28	44	79	**282[a]**
	Rate per 1000 births	1.3[a]	–	–	–	–	–
	Rate per 100,000	–	22.0	8.5	14.0	41.9	**24.8[a]**

Data source: Australian and New Zealand Child Death Review and Prevention Group; Western Australia Department of Health (2020)

* Rates have not been calculated for numbers less than 4.

– Rate not applicable for this category.

N/A Results fewer than five are not reported for the Australian Capital Territory. Variables are suppressed as, from reported results, the suppressed value can be calculated.

a New Zealand data excludes neonatal deaths (0–27 days).

1. Refer to the methodology section for jurisdictional methodological differences and additional issues.
2. Rates for under 1 year are calculated per 1000 births and use as a denominator live births in each jurisdiction in 2018. Rates for all other age groups and the total are calculated per 100,000 children in each age category using the Estimated Resident Population (ERP) as at 30 June 2018.
3. Caution should be exercised when comparing rates between jurisdictions. Although the rates are based on a population rather than a sample, common practice is to consider death a random event; and hence, have an associated sampling error. This is particularly important when comparing rates from low numbers. Current methodology calculates the crude rates for 2018 and should not be used to infer the general probability of death for specific cohorts.

Figure 1: Rate of child deaths (aged 0–17 years) by jurisdiction 2018

Data source: Australian and New Zealand Child Death Review and Prevention Group; Western Australia Department of Health (2020)

a New Zealand data excludes neonatal deaths (0–27 days).

1. Refer to the methodology section for jurisdictional methodological differences and additional issues.
2. Rates are calculated per 100,000 children aged 0–17 years in each jurisdiction and use as a denominator the ERP as at 30 June 2018.
3. Caution should be exercised when comparing rates between jurisdictions. Although the rates are based on a population rather than a sample, common practice is to consider death a random event; and hence, have an associated sampling error. This is particularly important when comparing rates from low numbers. Current methodology calculates the crude rates for 2018 and should not be used to infer the general probability of death for specific cohorts.

In 2018, infants (children under one year) had the highest rates of child deaths in all jurisdictions. Infants accounted for 60% of all child deaths in Australia, varying between 51% (Western Australia) and 74% (Tasmania). In general, child mortality rates decreased substantially after infancy and continued to decrease until the teenage years, when they increased again. In all jurisdictions, the second highest mortality rates were for young people aged 15–17 years.

In 2018, the Northern Territory had the highest child mortality rate (67.1 per 100,000), followed by the Australian Capital Territory (43.9 per 100,000). Tasmania had the lowest child mortality rate (24.1 per 100,000) and Victoria had the second lowest (25.9 per 100,000).

In 2018, Queensland had the third highest child mortality rate (30.9 per 100,000), compared to the other jurisdictions.

Indigenous status

There is considerable variation between jurisdictions in the proportion of the population identified as Indigenous (Aboriginal and Torres Strait Islander in Australia or Māori in New Zealand), from 1.7% in Victoria to 41.7% in the Northern Territory. Table 10 in the Methodology section provides the proportions for each jurisdiction.

Table 2 provides the numbers and rates of child death for Indigenous and non-Indigenous children in each jurisdiction during 2018. The corresponding mortality rates in each jurisdiction are also presented in Figure 2.

It should be noted that, historically, the identification of Indigenous status on death registration forms was often incomplete or inaccurate, leading to an undercount of the actual numbers of deaths of Indigenous peoples. The identification of the deaths of Indigenous people has improved considerably in recent years; however, the extent of any continued under-reporting is not known and it is likely some undercount of the number of deaths

registered as Aboriginal and Torres Strait Islander continues. Some agencies providing the child death data access additional sources of information on Indigenous status, such as child protection, coronial and health records, which may reduce limitations in relying on a single source. Differences in sources available and in approaches taken to link the data may affect death data counted by Indigenous status, and the numbers and rates presented in Table 2 should therefore be interpreted with caution.

Table 2: Number and rate of child deaths (aged 0–17 years) by Indigenous status and jurisdiction 2018

Jurisdiction		Indigenous status	
		Indigenous	Non-Indigenous
NSW	Number	70	402
	Rate per 100,000	62.9	24.4
VIC	Number	13	350
	Rate per 100,000	54.3	25.4
QLD	Number	54	306
	Rate per 100,000	56.4	28.6
WA	Number	32	124
	Rate per 100,000	79.4	22.2
SA	Number	12	92
	Rate per 100,000	68.4	26.3
TAS	Number	2	25
	Rate per 100,000	*	24.8
ACT	Number	<5	N/A
	Rate per 100,000	*	N/A
NT	Number	30	12
	Rate per 100,000	114.8	32.9
NZ	Number	122[a]	160[a]
	Rate per 100,000	40.4[a]	19.2[a]

Data source: Australian and New Zealand Child Death Review and Prevention Group; Western Australia Department of Health (2020)

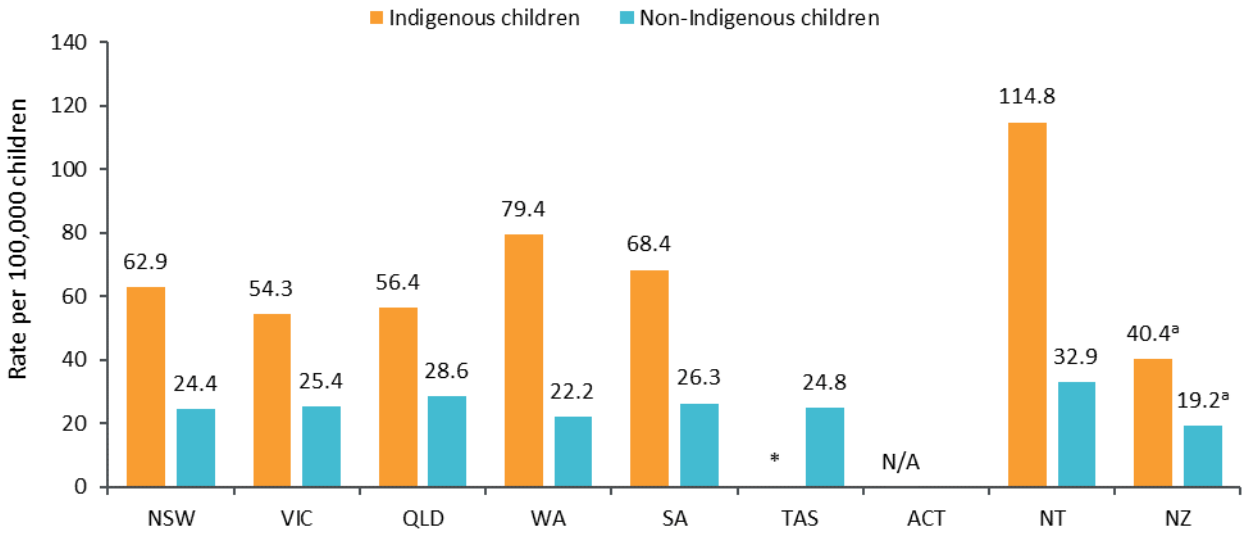
* Rates have not been calculated for numbers less than 5.

N/A Results fewer than five are not reported for the Australian Capital Territory. Variables are suppressed as, from reported results, the suppressed value can be calculated.

a New Zealand data excludes neonatal deaths (0–27 days).

1. Refer to the methodology section for jurisdictional methodological differences and additional issues.
2. Rates are calculated per 100,000 Indigenous children aged 0–17 years and per 100,000 non-Indigenous children aged 0–17 years in each jurisdiction and use as a denominator the ERP as at 30 June 2018.
3. Caution should be exercised when comparing rates between jurisdictions. Although the rates are based on a population rather than a sample, common practice is to consider death a random event, and hence have an associated sampling error. This is particularly important when comparing rates from low numbers. Current methodology calculates the crude rates for 2018 and should not be used to infer the general probability of death for specific cohorts.

Figure 2: Rate of child deaths (aged 0–17 years) by Indigenous status and jurisdiction 2018



Data source: Australian and New Zealand Child Death Review and Prevention Group; Western Australia Department of Health (2020)

* Rates have not been calculated for numbers less than 5.

N/A Results fewer than five are not reported for the Australian Capital Territory. Variables are suppressed as, from reported results, the suppressed value can be calculated.

a New Zealand data excludes neonatal deaths (0–27 days).

1. Refer to the methodology section for jurisdictional methodological differences and additional issues.
2. Rates are calculated per 100,000 Indigenous children aged 0–17 years and per 100,000 non-Indigenous children aged 0–17 years in each jurisdiction and use as a denominator the ERP as at 30 June 2016.
3. Caution should be exercised when comparing rates between jurisdictions. Although the rates are based on a population rather than a sample, common practice is to consider death a random event, and hence have an associated sampling error. This is particularly important when comparing rates from low numbers. Current methodology calculates the crude rates for 2018 and should not be used to infer the general probability of death for specific cohorts.

In 2018, Indigenous child mortality rates were higher than the non-Indigenous rates, within all jurisdictions, where both rates could be calculated. Within Australia, Aboriginal and Torres Strait Islander children constituted 5.9% of the child population, yet accounted for 13.6% of the child deaths (213 of 1565 deaths). Within New Zealand, Māori children constituted 26.6% of the child population, yet accounted for 43.3% of the child deaths (122 of 282 deaths, excluding neonatal).

In 2018, the Northern Territory had the highest Indigenous child mortality rate (114.8 per 100,000), followed by Western Australia (79.4 per 100,000). Victoria had the lowest Indigenous child mortality rate (54.3 per 100,000) and Queensland had the second lowest (56.4 per 100,000).

The Northern Territory had the highest non-Indigenous child mortality rate (32.9 per 100,000), followed by Queensland (28.6 per 100,000). Western Australia had the lowest non-Indigenous child mortality rate (22.2 per 100,000).

Sex

Table 3 provides the numbers and rates of child death for females and males in each jurisdiction during 2018. The mortality rates for female and male children in each jurisdiction are also presented in Figure 3.

Table 3: Number and rate of child deaths (aged 0–17 years) by sex and jurisdiction 2018

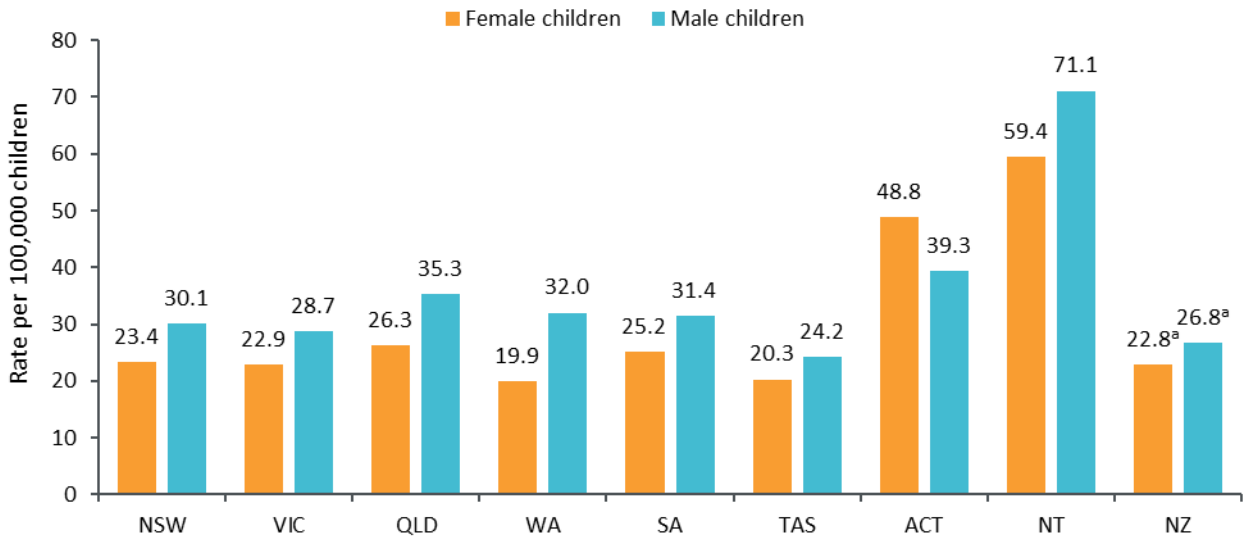
Jurisdiction		Sex	
		Female	Male
NSW	Number	200	272
	Rate per 100,000	23.4	30.1
VIC	Number	156	207
	Rate per 100,000	22.9	28.7
QLD	Number	149	211
	Rate per 100,000	26.3	35.3
WA	Number	58	98
	Rate per 100,000	19.9	32.0
SA	Number	45	59
	Rate per 100,000	25.2	31.4
TAS	Number	11	14
	Rate per 100,000	20.3	24.2
ACT	Number	22	19
	Rate per 100,000	48.8	39.3
NT	Number	18	23
	Rate per 100,000	59.4	71.1
NZ	Number	126[a]	156[a]
	Rate per 100,000	22.8[a]	26.8[a]

Data source: Australian and New Zealand Child Death Review and Prevention Group; Western Australia Department of Health (2020)

a New Zealand data excludes neonatal deaths (0–27 days).

1. There were two child deaths in Tasmania and one in Northern Territory where the sex was intersex/indeterminate.
2. Refer to the methodology section for jurisdictional methodological differences and additional issues.
3. Rates are calculated per 100,000 females and per 100,000 males aged 0–17 years in each jurisdiction and use as a denominator the ERP as at 30 June 2018.
4. Caution should be exercised when comparing rates between jurisdictions. Although the rates are based on a population rather than a sample, common practice is to consider death a random event, and hence have an associated sampling error. This is particularly important when comparing rates from low numbers. Current methodology calculates the crude rates for 2018 and should not be used to infer the general probability of death for specific cohorts.

Figure 3: Rate of child deaths (aged 0–17 years) by sex and jurisdiction 2018



Data source: Australian and New Zealand Child Death Review and Prevention Group; Western Australia Department of Health (2020)

a New Zealand data excludes neonatal deaths (0–27 days).

1. There were two child deaths in Tasmania and one in Northern Territory where the sex was intersex/indeterminate.
2. Refer to the methodology section for jurisdictional methodological differences and additional issues.
3. Rates are calculated per 100,000 females and per 100,000 males aged 0–17 years in each jurisdiction and use as a denominator the ERP as at 30 June 2018.
4. Caution should be exercised when comparing rates between jurisdictions. Although the rates are based on a population rather than a sample, common practice is to consider death a random event, and hence have an associated sampling error. This is particularly important when comparing rates from low numbers. Current methodology calculates the crude rates for 2018 and should not be used to infer the general probability of death for specific cohorts.

In 2018, there were higher child mortality rates for males compared to females in all jurisdictions except the Australian Capital Territory.

In 2018, the male child mortality rate in Queensland was 1.3 times the rate for females.

Deaths from diseases and morbid conditions

Deaths from diseases and morbid conditions are those deaths whose underlying cause is an infection, disease, congenital anomaly or other naturally occurring condition. This category excludes deaths from sudden infant death syndrome (SIDS) and undetermined causes.

Table 4 provides the numbers and rates of child deaths from diseases and morbid conditions for each age category in each jurisdiction during 2018. The mortality rates from diseases and morbid conditions for all children (aged 0–17 years) in each jurisdiction are also presented in Figure 4.

In 2018, infants (children under one year) exhibited the highest mortality rate from diseases and morbid conditions in all jurisdictions. Infants accounted for 73.1% of all child deaths from diseases and morbid conditions in Australia (excluding the Australian Capital Territory), varying between 64.8% for South Australia and 85.7% for the Northern Territory.

In 2018, the Northern Territory had the highest child mortality rate from diseases and morbid conditions (44.7 per 100,000). Western Australia had the lowest child mortality rate from diseases and morbid conditions (14.6 per 100,000).

In 2018, Queensland had the second highest infant mortality rate and the third highest child mortality rate from diseases and morbid conditions (respectively 3.1 per 1000 live births and 21.1 per 100,000).

Deaths from diseases and morbid conditions accounted for 70.7% of all child deaths in 2018 (excluding New Zealand).

Table 4: Number and rate of child deaths from diseases and morbid conditions by age and jurisdiction 2018

Jurisdiction		Age category					Total
		Under 1 year	1–4 years	5–9 years	10–14 years	15–17 years	
NSW	Number	242	36	28	30	15	**351**
	Rate per 1000 births	2.3	–	–	–	–	**–**
	Rate per 100,000	–	9.0	5.5	6.3	5.5	**20.0**
VIC	Number	215	17	13	17	17	**279**
	Rate per 1000 births	2.7	–	–	–	–	**–**
	Rate per 100,000	–	5.2	3.2	4.5	7.9	**19.9**
QLD	Number	189	22	9	17	9	**246**
	Rate per 1000 births	3.1	–	–	–	–	**–**
	Rate per 100,000	–	8.6	2.7	5.2	4.8	**21.1**
WA	Number	59	9	11	8		**87**
	Rate per 1000 births	1.8	–	–	–		**–**
	Rate per 100,000	–	6.5	6.4	3.2		**14.6**
SA	Number	46	8	7	7	3	**71**
	Rate per 1000 births	2.4	–	–	–	–	**–**
	Rate per 100,000	–	9.8	6.6	6.9	*	**19.4**
TAS	Number	17	0	0	1	4	**22**
	Rate per 1000 births	3.1	–	–	–	–	**–**
	Rate per 100,000	–	0.0	0.0	*	21.5	**19.6**
ACT	Number	23					**23**
	Rate per 1000 births	–					**–**
	Rate per 100,000	24.6					**24.6**
NT	Number	24	1	1	1	1	**28**
	Rate per 1000 births	5.9	–	–	–	–	**–**
	Rate per 100,000	–	*	*	*	*	**44.7**
NZ	Number	36[a]	37	22	21	17	**133[a]**
	Rate per 1000 births	0.6[a]	–	–	–	–	**–**
	Rate per 100,000	–	15.1	6.7	6.7	9.0	**11.7[a]**

Data source: Australian and New Zealand Child Death Review and Prevention Group; Western Australia Department of Health (2020)

* Rates have not been calculated for numbers less than 4.

– Rate not applicable for this category.

a New Zealand data excludes neonatal deaths (0–27 days).

1. In some jurisdictions, the Coroner is yet to determine the official cause of death for some cases and these deaths are not included in Tables 4, 5 or 6. In some instances these deaths have been included on the basis of general information regarding the circumstances of death. Hence, the overall numbers and rates are subject to change.
2. Refer to the methodology section for jurisdictional methodological differences and additional issues.
3. Rates for under 1 year are calculated per 1000 births and use as a denominator live births in each jurisdiction in 2018. Rates for all other age groups and the total are calculated per 100,000 children in each age category using the Estimated Resident Population (ERP) as at 30 June 2018.
4. Caution should be exercised when comparing rates between jurisdictions. Although the rates are based on a population rather than a sample, common practice is to consider death a random event; and hence, have an associated sampling error. This is particularly important when comparing rates from low numbers. Current methodology calculates the crude rates for 2018 and should not be used to infer the general probability of death for specific cohorts.

Figure 4: Rate of child deaths (aged 0–17 years) from diseases and morbid conditions by jurisdiction 2018

Data source: Australian and New Zealand Child Death Review and Prevention Group; Western Australia Department of Health (2020)

a New Zealand data excludes neonatal deaths (0–27 days).

1. In some jurisdictions, the Coroner is yet to determine the official cause of death for some cases and these deaths are not included in Tables 4, 5 or 6. In some instances these deaths have been included on the basis of general information regarding the circumstances of death. Hence, the overall numbers and rates are subject to change.
2. Refer to the methodology section for jurisdictional methodological differences and additional issues.
3. Rates are calculated per 100,000 children aged 0–17 years in each jurisdiction and use as a denominator the ERP as at 30 June 2018.
4. Caution should be exercised when comparing rates between jurisdictions. Although the rates are based on a population rather than a sample, common practice is to consider death a random event, and hence have an associated sampling error. This is particularly important when comparing rates from low numbers. Current methodology calculates the crude rates for 2018 and should not be used to infer the general probability of death for specific cohorts.

External-cause deaths

External-cause deaths are those resulting from environmental events and circumstances causing injury, poisoning and other adverse effects. Table 5 provides the numbers and rates of child deaths from various external causes in each jurisdiction during 2018. The child mortality rates from all external causes in each jurisdiction are also presented in Figure 5.

Table 5: Number and rate of child deaths (aged 0–17 years) from external causes by jurisdiction 2018

Jurisdiction		Cause of death					Total
		Transport-related	Drowning	Other non-intentional injury-related	Suicide	Fatal assault and neglect	
NSW	Number	31	5	17	23	7	**83**
	Rate per 100,000	1.8	0.3	1.0	1.3	0.4	**4.7**
VIC	Number	12	<8	11	19	<5	**50**
	Rate per 100,000	0.9	*	0.8	1.4	*	**3.6**
QLD	Number	22	11	12	37	4	**86**
	Rate per 100,000	1.9	0.9	1.0	3.2	0.3	**7.4**
WA	Number	13	6	7	11	9	**46**
	Rate per 100,000	2.2	1.0	1.2	1.8	1.5	**7.7**
SA	Number	9	0	5	9	0	**23**
	Rate per 100,000	2.5	0.0	1.4	2.5	0.0	**6.3**
TAS	Number	0	0	1	1	0	**2[a]**
	Rate per 100,000	0.0	0.0	*	*	0.0	*
ACT	Number	<5					**<5**
	Rate per 100,000	*					*
NT	Number	1	0	2	2	2	**5**
	Rate per 100,000	*	0.0	*	*	*	**8.0**
NZ	Number	36	6	23	38	7	**110[a]**
	Rate per 100,000	3.2	0.5	2.0	3.3	0.6	**9.7[a]**

Data source: Australian and New Zealand Child Death Review and Prevention Group (2020)

N/A Results fewer than five are not reported for Victoria. Variables are suppressed as, from reported results, the suppressed value can be calculated.

* Rates have not been calculated for numbers less than 4, except for the Australian Capital Territory and Victoria, where rates were not calculated for suppressed numbers.

a New Zealand and Tasmanian data exclude neonatal deaths (0–27/28 days).

1. Classification of external-cause deaths may differ from state to state. The methodology section in this report provides further details.
2. In some jurisdictions, the Coroner is yet to determine the official cause of death for some cases and these deaths are not included in Tables 4, 5 or 6. In some instances these deaths have been included on the basis of general information regarding the circumstances of death. Hence, the overall numbers and rates are subject to change.
3. Refer to the methodology section for jurisdictional methodological differences and additional issues.
4. Rates are calculated per 100,000 children aged 0–17 years in each jurisdiction and use as a denominator the ERP as at 30 June 2018.
5. Caution should be exercised when comparing rates between jurisdictions. Although the rates are based on a population rather than a sample, common practice is to consider death a random event; and hence, have an associated sampling error. This is particularly important when comparing rates from low numbers. Current methodology calculates the crude rates for 2018 and should not be used to infer the general probability of death for specific cohorts.

Figure 5: Rate of child deaths (aged 0–17 years) from external causes by jurisdiction 2018

Data source: Australian and New Zealand Child Death Review and Prevention Group (2020)

* Rates have not been calculated for numbers less than 5.

a New Zealand and Tasmanian data exclude neonatal deaths (0–27/28 days).

1. Classification of external-cause deaths may differ from state to state. The methodology section in this report provides further details.
2. In some jurisdictions, the Coroner is yet to determine the official cause of death for some cases and these deaths are not included in Tables 4, 5 or 6. In some instances these deaths have been included on the basis of general information regarding the circumstances of death. Hence, the overall numbers and rates are subject to change.
3. Refer to the methodology section for jurisdictional methodological differences and additional issues.
4. Rates are calculated per 100,000 children aged 0–17 years in each jurisdiction and use as a denominator the ERP as at 30 June 2018.
5. Caution should be exercised when comparing rates between jurisdictions. Although the rates are based on a population rather than a sample, common practice is to consider death a random event, and hence have an associated sampling error. This is particularly important when comparing rates from low numbers. Current methodology calculates the crude rates for 2018 and should not be used to infer the general probability of death for specific cohorts.

In 2018, suicide was the leading external cause of death in Victoria, Queensland and New Zealand. Suicide and transport were the equal leading external causes in South Australia and transport was the leading external cause of death in New South Wales and Western Australia.

In 2018, the New Zealand had the highest rate of external-cause deaths (9.7 per 100,000), followed by Northern Territory (8.0 per 100,000). Victoria had the lowest rate of external-cause deaths (3.6 per 100,000).[2]

In 2018, Queensland had the fourth highest rate of external-cause deaths (7.4 per 100,000), compared to the other jurisdictions. Queensland exhibited the second highest mortality rates for suicide deaths (3.2 per 100,000).

Deaths from SIDS and undetermined causes

Table 6 provides the numbers and rates of child deaths from sudden infant death syndrome (SIDS) and undetermined causes by age in each jurisdiction during 2018. The rates of death for infants (children under one year) from SIDS and undetermined causes in each jurisdiction are also presented in Figure 6.

[2] Comparative statements exclude jurisdictions where a rate could not be calculated.

Table 6: Number and rate of child deaths from SIDS and undetermined causes by age and jurisdiction 2018

Jurisdiction		Age category		Total
		Under 1 year	1–17 years	
NSW	Number	19	3	**22**
	Rate per 1000 births	0.2	–	**–**
	Rate per 100,000	–	*	**1.3**
VIC	Number	25	9	**34**
	Rate per 1000 births	0.3	–	**–**
	Rate per 100,000	–	0.7	**2.4**
QLD	Number	24	2	**26**
	Rate per 1000 births	0.4	–	**–**
	Rate per 100,000	–	*	**2.2**
WA	Number	11	0	**11**
	Rate per 1000 births	0.3	–	**–**
	Rate per 100,000	–	0.0	**1.8**
SA	Number	6	1	**7**
	Rate per 1000 births	0.3	–	**–**
	Rate per 100,000	–	*	**1.9**
TAS	Number	3	0	**3**
	Rate per 1000 births	*	–	**–**
	Rate per 100,000	–	0.0	*****
ACT	Number	<5		**<5**
	Rate per 1000 births	–		**–**
	Rate per 100,000	*		*****
NT	Number	4	0	**4**
	Rate per 1000 births	1.0	–	**–**
	Rate per 100,000	–	0.0	**21.8**
NZ	Number	28[a]	10	**38[a]**
	Rate per 1000 births	0.5[a]	–	**–**
	Rate per 100,000	–	0.9	**3.3[a]**

Data source: Australian and New Zealand Child Death Review and Prevention Group (2020)

* Rates have not been calculated for numbers less than 4, except for the Australian Capital Territory, where rates were not calculated for numbers less than 5.

a New Zealand data excludes neonatal deaths (0–27 days).

1. Classification of SIDS and undetermined-cause deaths may differ from state to state. The methodology section in this report provides further details.
2. In some jurisdictions, the Coroner is yet to determine the official cause of death for some cases and these deaths are not included in Tables 4, 5 or 6. In some instances these deaths have been included on the basis of general information regarding the circumstances of death. Hence, the overall numbers and rates are subject to change.
3. Refer to the methodology section for jurisdictional methodological differences and additional issues.
4. Rates are calculated per 1000 births in 2018 (for deaths under 1 year) and per 100,000 ERP as at 30 June 2018 in each jurisdiction (for 1–17 years and total).
5. Caution should be exercised when comparing rates between jurisdictions. Although the rates are based on a population rather than a sample, common practice is to consider death a random event; and hence, have an associated sampling error. This is particularly important when comparing rates from low numbers. Current methodology calculates the crude rates for 2018 and should not be used to infer the general probability of death for specific cohorts.

Figure 6: Rate of infant deaths (under 1 year) from SIDS and undetermined causes by jurisdiction 2018

Data source: Australian and New Zealand Child Death Review and Prevention Group (2020)

* Rates have not been calculated for numbers less than 4, except for the Australian Capital Territory, where rates were not calculated for numbers less than 5.

a New Zealand data excludes neonatal deaths (0–27 days).

1. Classification of SIDS and undetermined-cause deaths may differ from state to state. The methodology section in this report provides further details.
2. In some jurisdictions, the Coroner is yet to determine the official cause of death for some cases and these deaths are not included in Tables 4, 5 or 6. In some instances these deaths have been included on the basis of general information regarding the circumstances of death. Hence, the overall numbers and rates are subject to change.
3. Refer to the methodology section for jurisdictional methodological differences and additional issues.
4. Rates are calculated per 1000 live births in each jurisdiction in 2018.
5. Caution should be exercised when comparing rates between jurisdictions. Although the rates are based on a population rather than a sample, common practice is to consider death a random event, and hence have an associated sampling error. This is particularly important when comparing rates from low numbers. Current methodology calculates the crude rates for 2018 and should not be used to infer the general probability of death for specific cohorts.

Of specific interest in the study of infant deaths are those certified as due to SIDS or where the cause of death cannot be determined.

SIDS is defined as follows:

> *The sudden, unexpected death of an infant under one year of age, with onset of the fatal episode apparently occurring during sleep, that remains unexplained after a thorough investigation including performance of a complete autopsy and review of the circumstances of death and the clinical history.*[3]

In 2018, Northern Territory had the highest rate of infant death from SIDS and undetermined causes and New Zealand had the second highest rate (1.0 per 1000 live births and 0.5 per 1000 live births respectively).[4]

[3] Krous, HF, Beckwith, JB, Byard, RW, Rognum TO, Bajanowski, T, Corey, T, Cutz, E, Hanzlick, R, Keens, TG & Mitchell, EA (2004) 'Sudden infant death syndrome and unclassified sudden infant deaths: a definitional and diagnostic approach'. *Paediatrics*, 114(1), 234–238.

[4] New Zealand data excludes neonatal deaths (0–27 days).

Cause of death pending

Classification methodologies may vary across jurisdictions in relation to categorising cause of death. Where official cause of death information has not yet been received to enable classification, where there is no immediately obvious cause of death (such as a transport incident), or where an investigation has not been finalised by a coroner, deaths may be categorised as 'cause of death pending'. The numbers and rates shown in Tables 4, 5 and 6 are therefore subject to change until further cause of death information is received.

Table 7 below shows the number of deaths where a cause had not yet been allocated at the time of reporting.

Table 7: Number child deaths pending a cause of death by jurisdiction 2018

Jurisdiction		Case status		Total
		Cause of death allocated	Cause of death pending	
NSW	Number	456	16	**472**
VIC	Number	363	0	**363**
QLD	Number	358	2	**360**
WA	Number	144	12	**156**
SA	Number	101	3	**104**
TAS	Number	27	0	**27**
ACT	Number	41		**41**
NT	Number	26	12	**38**
NZ	Number	281[a]	1[a]	**282[a]**

Data source: Australian and New Zealand Child Death Review and Prevention Group; Western Australia Department of Health (2020)

a New Zealand data excludes neonatal deaths (0–27 days).

1. Refer to the methodology section for jurisdictional methodological differences and additional issues.

Methodology

Data sources

Jurisdictional mortality statistics have been provided by the following member teams and committees of the ANZCDR&PG:

- New South Wales Child Death Review Team, NSW Ombudsman
- Victorian Consultative Council on Obstetric and Paediatric Mortality and Morbidity
- Queensland Family and Child Commission
- Ombudsman, Western Australia (external causes, SIDS and undetermined causes)
- South Australian Child Death and Serious Injury Review Committee
- Tasmanian Council of Obstetric and Paediatric Mortality and Morbidity
- Australian Capital Territory Children and Young People Death Review Committee
- Northern Territory Child Deaths Review and Prevention Committee
- New Zealand Child and Youth Mortality Review Committee.

The Department of Health, Western Australia, provided mortality data on deaths from all causes and deaths from diseases and morbid conditions.

Analysis period

The analysis covers deaths that occurred during the period 1 January 2018 to 31 December 2018.

Date of death and place of residence

Jurisdictions provided raw numbers of the deaths of all children from birth up to, but not including, 18 years of age occurring in 2018, independent of when these deaths were registered with the Registry of Births, Deaths and Marriages. New Zealand data for 2018, however, excludes deaths in the neonatal period (0–27 days).

Recording deaths based on the jurisdiction in which they occurred can have an impact on rates of deaths. Rates of death in South Australia, for example, may be artificially inflated by the number of deaths of residents from surrounding areas of the Northern Territory occurring within South Australian boundaries. A similar situation is also known to occur between the Australian Capital Territory and New South Wales.

New Zealand data relates to the deaths of New Zealand residents (identified by usual place of residence, rather than legal status as a New Zealand resident) that occur within New Zealand.

Population data

The population figures used in the analysis are estimated resident populations (ERP) for each jurisdiction as at June 2018. To ensure comparability of child death rates between jurisdictions, all rates have been calculated using these population data, and therefore may differ from those previously published in the reports of individual agencies.

It is important to note that caution should be exercised when comparing rates between jurisdictions. Although the rates are based on a population rather than a sample, common practice is to consider death a random event; and hence, have an associated sampling error. This is particularly important when comparing rates from low numbers. Current methodology calculates the crude rates for 2018 and should not be used to infer the general probability of death for specific cohorts.[5]

Tables 8 and 9 provide details of the child ERP of each jurisdiction as sourced from the ABS[6] and Statistics New Zealand.[7]

[5] Rates presented here are crude rates rather than adjusted rates as used in some jurisdictions and may also account for some differences between the rates published here and those published in other reports.

[6] Australian Bureau of Statistics (2020), 'National, state and territory population' Tables 51-58 [dataset], *Estimated Resident Population by Single Year of Age, States and territories*, accessed 19 November 2020.

[7] Statistics New Zealand (2020), *Estimated Resident Population by Age and Sex (1991+) (Annual-Jun)* [dataset], accessed 19 November 2020.

Table 8: Estimated resident population by age category and jurisdiction, as at June 2018

Jurisdiction	Age category					Total
	Under 1 year	1–4 years	5–9 years	10–14 years	15–17 years	
New South Wales	97,235	401,898	508,280	477,946	273,424	**1,758,783**
Victoria	78,100	328,323	404,434	375,253	215,435	**1,401,545**
Queensland	61,002	255,867	336,264	326,351	185,987	**1,165,471**
Western Australia	33,767	139,270	171,858	162,291	90,730	**597,916**
South Australia	18,874	81,532	105,273	101,292	59,743	**366,714**
Tasmania	5,391	24,084	32,036	32,081	18,637	**112,229**
Australian Capital Territory	5,335	22,843	27,766	23,942	13,466	**93,352**
Northern Territory	3,667	14,873	18,338	16,492	9,261	**62,631**
New Zealand	59,530	245,500	327,910	313,500	188,370	**1,134,810**

Data source: ABS (2020); Statistics New Zealand (2020)

Table 9: Estimated resident population aged 0–17 years by sex and jurisdiction, as at June 2018

Jurisdiction	Sex	
	Female	Male
New South Wales	854,998	903,785
Victoria	681,170	720,375
Queensland	567,619	597,852
Western Australia	291,719	306,197
South Australia	178,786	187,928
Tasmania	54,291	57,938
Australian Capital Territory	45,049	48,303
Northern Territory	30,287	32,344
New Zealand	552,110	582,700

Data source: ABS (2020); Statistics New Zealand (2020)

Indigenous population data

Estimates for the Australian Aboriginal and Torres Strait Islander child population for each jurisdiction[8] and the New Zealand Māori population[9] as at June 2018 were used to calculate Indigenous and non-Indigenous mortality rates. Estimates of the non-Indigenous child populations for each jurisdiction were obtained by subtracting the estimated Indigenous population from the overall child ERP in 2018. Table 10 provides these population estimates, and the percentage of the child population identified as Indigenous.

Table 10: Estimated resident population aged 0–17 years by Indigenous status and jurisdiction, as at June 2018

Jurisdiction	Indigenous status		Indigenous %
	Indigenous children	Non-Indigenous children	
New South Wales	111,300	1,647,483	**6.3%**
Victoria	23,939	1,377,606	**1.7%**
Queensland	95,813	1,069,658	**8.2%**
Western Australia	40,319	557,597	**6.7%**
South Australia	17,550	349,164	**4.8%**
Tasmania	11,563	100,666	**10.3%**
Australian Capital Territory	2,905	90,447	**3.1%**
Northern Territory	26,135	36,496	**41.7%**
New Zealand	301,990	832,820	**26.6%**

Data source: ABS (2019); Statistics New Zealand (2020)

Challenges are faced in obtaining accurate population data for Indigenous people. Some jurisdictions also experience difficulty with the collection of Indigenous status in child death data. Problems in collecting Indigenous status data for death registrations may result in an undercount of Indigenous deaths, limiting the comparability of the data. Therefore, mortality rates for Indigenous and non-Indigenous children should be interpreted with caution.

Indigenous people constitute a greater proportion of the child population than found in the overall population. For example, Aboriginal and Torres Strait Islanders represent 4.6% of the overall Queensland population but 8.2% of the child population. This is due to different age profiles for Indigenous populations, compared to non-Indigenous populations—contributing factors include different fertility patterns and life expectancies.

[8] Australian Bureau of Statistics (2019) 'Estimated resident and projected population, Aboriginal and Torres Strait Islander Australians, Series B, single year of age, Australia, states and territories, 2006 to 2031' [dataset] *Estimates and Projections, Aboriginal and Torres Strait Islander Australians*, accessed 14 January 2021.

[9] Statistics New Zealand (2020), 'Māori Ethnic Group Estimated Resident Population by Age and Sex (1991+) (Annual-Jun)' [dataset], *Population Estimates - DPE*, accessed 14 January 2021.

Live births data

The data used as a denominator for the 'under 1 year' mortality rate, is the number of live births registered in each jurisdiction in the calendar year 2018. Using live births as the denominator for infant mortality is the internationally accepted standard.

Table 11 provides data on registered live births in each jurisdiction as sourced from the ABS[10] and Statistics New Zealand.[11]

Table 11: Live births by jurisdiction, 2018

Jurisdiction	Births
New South Wales	107,343
Victoria	78,488
Queensland	61,931
Western Australia	33,257
South Australia	19,113
Tasmania	5,547
Australian Capital Territory	5,374
Northern Territory	4,050
New Zealand	58,020

Data source: ABS (2020); Statistics New Zealand (2020)

Data extraction and methodological differences

To assist with comparative research regarding the prevention of child deaths, the ANZCDR&PG has agreed to report under a number of research categories based on the circumstances of death. These categories are diseases and morbid conditions (sometimes called natural causes of death) and the major external causes of death—transport, drowning, suicide, other non-intentional injury (accidental and fire-related deaths), and fatal assault and neglect.

However, it is important to recognise deaths are categorised by each particular agency as per their individual classification rules. In many cases, agencies have multiple sources of information available concerning children (including health, welfare and education records) and are not limited to the causes of death recorded in post-mortem reports or death certificates. Accordingly, a team or committee's classification for a particular death may vary from classifications within the World Health Organization's (WHO) International statistical classification of diseases and related health problems, tenth revision (ICD-10).

Most jurisdictions access multiple sources of information on Indigenous status to improve the quality of the data and reduce the limitations in relying on a single source. Sources available vary but can include birth and death registrations, coronial records, and child protection and patient records. Differences may also exist in approaches

[10] Australian Bureau of Statistics (2020) 'Births, summary, by state' [dataset], *Births Australia*, accessed 13 January 2021.

[11] Statistics New Zealand (2020), 'Population summary figures' [dataset], *Population*, accessed 13 January 2021.

taken to link the data which may in turn affect death data counted by Indigenous status. Further information on sources and data linkage methodologies may be found in the respective source agency publications.

Individual jurisdictions noted the following:

- The Victorian Consultative Council on Obstetric and Paediatric Mortality and Morbidity (CCOPMM) apply coding of neonatal (0–27 days) deaths according to PSANZ-PDC[12] and PSANZ-NDC[13] rather than ICD-10. However, Victorian data provided by the Council for this report have been recoded into the ICD-10.
- Victorian figures exclude neonatal deaths as a result of terminations of pregnancy (for congenital anomaly or maternal psychosocial indication), and those born less than 20 weeks gestation, or, if the gestation is unknown, less than 400 grams birth weight.
- Victorian figures exclude deaths of Victorian residents that occurred interstate or overseas. The data will ordinarily only include all deaths of children occurring in Victoria regardless of their usual place of residence.
- We are grateful to CCOPMM for providing access to the de-identified data used for this project and for the assistance of the staff at the Consultative Councils Unit, Safer Care Victoria. The conclusions, findings, opinions and views or recommendations expressed in this paper are strictly those of the author(s). They do not necessarily reflect those of CCOPMM.
- South Australian figures do not include deaths of infants who were born spontaneously before 20 weeks gestation, or deaths of infants as a result of planned termination of pregnancy, irrespective of whether they showed signs of life after birth and irrespective of whether they were registered at Births, Deaths and Marriages as a live birth. The data presented here does not include cases pending a decision by the Coroner.
- The methodology for classification of external cause deaths by the South Australian Child Death and Serious Injury Review Committee is available in the Committee's Annual report at www.cdsirc.sa.gov.au.
- In New Zealand, the ICD-10 code W75 (Accidental suffocation and strangulation in bed) has been used increasingly to code SUDI deaths. The coding schema for this report means that many of the New Zealand SUDI deaths are included in 'External causes', as 'Other non-intentional injury-related'.

A number of additional issues affecting data for particular jurisdictions should also be noted:

- Victoria data is taken from the CCOPMM held database and is also published in the Victoria's mothers, babies and children 2018 report, available at https://www.bettersafercare.vic.gov.au/publications/mothers-babies-and-children-2018.
- Raw figures that are less than five (5) are suppressed for Victoria and the Australian Capital Territory. These are represented by the figure <5 throughout this report.
- Australian Capital Territory data does not include deaths of children and young people awaiting the Coroner's findings.
- Data for Western Australia for all child deaths, deaths by Indigenous status, sex and deaths due to diseases and morbid conditions are provided by the state's Department of Health. Data for external causes and SIDS and undetermined causes are provided by the Ombudsman, Western Australia.

[12] Perinatal Society of Australia and New Zealand—Perinatal Death Classification.

[13] Perinatal Society of Australia and New Zealand—Neonatal Death Classification.

- The data provided by the Ombudsman Western Australia is based on the child death notification received by the Ombudsman which includes general information on the circumstances of death. This is an initial indication of how the child may have died but is not the cause of death, which can only be determined by the Western Australian Coroner.

The New Zealand Child and Youth and Perinatal and Maternal Mortality Committees note that:

- Data on neonatal deaths (0–27 days) was not available at the time of reporting.
- Data on deaths from 28 days to 17 years is from the NZ Mortality Review Database, which collects and stores data for the Child and Youth, and Perinatal and Maternal Mortality Review Committees. The data is provisional.
- Data relates to deaths occurring in the age range of 20 weeks gestation (or birth weight 400 grams) up to but not including the 18th birthday and exclude stillbirths and terminations.
- Only deaths of New Zealand residents are included in these analyses (deaths of non-residents within New Zealand are excluded).

List of abbreviations

ABS	Australian Bureau of Statistics.
ANZCDR&PG	Australian and New Zealand Child Death Review and Prevention Group.
CCOPMM	Consultative Council on Obstetric and Paediatric Mortality and Morbidity, Victoria.
ERP	Estimated resident population.
ICD-10	International statistical classification of diseases and related health problems, tenth revision.
PMMRC	Perinatal & Maternal Mortality Review Committee, New Zealand.
PSANZ-NDC	Perinatal Society of Australia and New Zealand—Neonatal Death Classification.
PSANZ-PDC	Perinatal Society of Australia and New Zealand—Perinatal Death Classification.
QFCC	Queensland Family and Child Commission.
SIDS	Sudden Infant Death Syndrome.
WHO	World Health Organization.

More information

The QFCC is a member of the ANZCDR&PG and prepares this report on behalf of the ANZCDR&PG members. The QFCC's annual reports on child deaths in Queensland, 16-year data tables and the latest Australian states and territories and New Zealand child death statistics can be found at www.qfcc.qld.gov.au/keeping-kids-more-safe/preventing-child-injury-death/child-death-reports-data/annual-report-deaths

Data for prevention activities

The QFCC works with researchers and government agencies to raise community awareness and develop prevention programs and policies, by identifying risk factors, trends and emerging safety hazards. The QFCC can provide detailed Queensland child death data to researchers and organisations at no cost. **Email** child_death_prevention@qfcc.qld.gov.au