

Queensland
Family & Child
Commission

SUPPLEMENTARY CHAPTER

Australian and New Zealand child death statistics

2016

ANNUAL REPORT

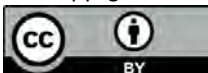
Deaths of children and young people
Queensland

2017–18

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Key findings

This chapter presents information on child mortality from all eight Australian states/territories and New Zealand. Due to small numbers and limitations for some categories, rates were not calculated for some jurisdictions. Analysis of child deaths during 2016 has shown:

- Infants (children aged under 1 year) had the highest rates of child deaths in all jurisdictions, accounting for 60% of all child deaths in Australia and New Zealand. Child mortality rates decreased substantially after infancy and continued to decrease until the teenage years, when they increased again.
- Queensland had the fourth-highest child mortality rate (34.6 per 100 000) and the third-highest infant mortality rate (397.8 per 100 000). Child mortality rates varied between 26.9 per 100 000 and 55.8 per 100 000. Infant mortality rates varied between 255.9 and 563.3 per 100 000.
- Indigenous child mortality rates were higher than the non-Indigenous rates within all jurisdictions.¹
- Indigenous child mortality rates varied between 42.9 and 103.8 per 100 000 and non-Indigenous child mortality rates varied between 22.3 and 37.4 per 100 000.¹
- Queensland had the second-lowest Indigenous child mortality rate (53.9 per 100 000) and the second-highest non-Indigenous child mortality rate (33.0 per 100 000).¹ Indigenous children constituted 7.8% of the Queensland child population, yet accounted for 12.2% of the child deaths.
- Deaths from diseases and morbid conditions accounted for 72% of all child deaths (excluding Western Australia) in 2016.
- Queensland had the second-highest child mortality rate from diseases and morbid conditions (26.2 per 100 000), with rates varying between 18.9 and 39.9 per 100 000.
- Suicide was the leading external cause of death in Queensland and Victoria. Transport was the leading external cause of death in the other jurisdictions.
- Queensland had the third-lowest rate of external-cause deaths (6.2 per 100 000), with rates varying between 4.3 and 11.2 per 100 000.¹
- Queensland had the third-highest rate of infant deaths from sudden infant death syndrome (SIDS) and undetermined causes (28.8 per 100 000), with rates varying between 11.8 and 41.9 per 100 000.

¹ Comparative statements exclude jurisdictions where a rate could not be calculated.

Australian and New Zealand child death statistics

This supplementary chapter 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 review and reporting within their own jurisdictions and the Department of Health, Western Australia. 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 of this chapter.

The stated aim of the ANZCDR&PG is to identify, address and potentially decrease the numbers of infant, child and youth deaths by sharing information on issues in the review and reporting of child deaths, and to work collaboratively towards national and international reporting. The Queensland Family and Child Commission (QFCC) greatly appreciates the efforts of all agencies who contribute to this chapter and looks forward to continued collaboration.

Child death data

The analysis covers deaths that occurred during the period 1 January 2016 to 31 December 2016. For Australian jurisdictions, deaths were counted based on the jurisdiction in which they occurred, not the residency of the deceased child. For New Zealand, the data only includes deaths of New Zealand residents within 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 2016, 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 2016, 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 rates in this chapter may differ from those previously published in the reports of individual agencies, as this chapter used the most recent population estimates from the Australian Bureau of Statistics (ABS) and Statistics New Zealand.

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

All child deaths

Table 1 provides the numbers and rates of all child deaths for each age category in each jurisdiction during 2016. The mortality rates for all children (aged 0–17 years) in each jurisdiction are also presented in Figure 1.

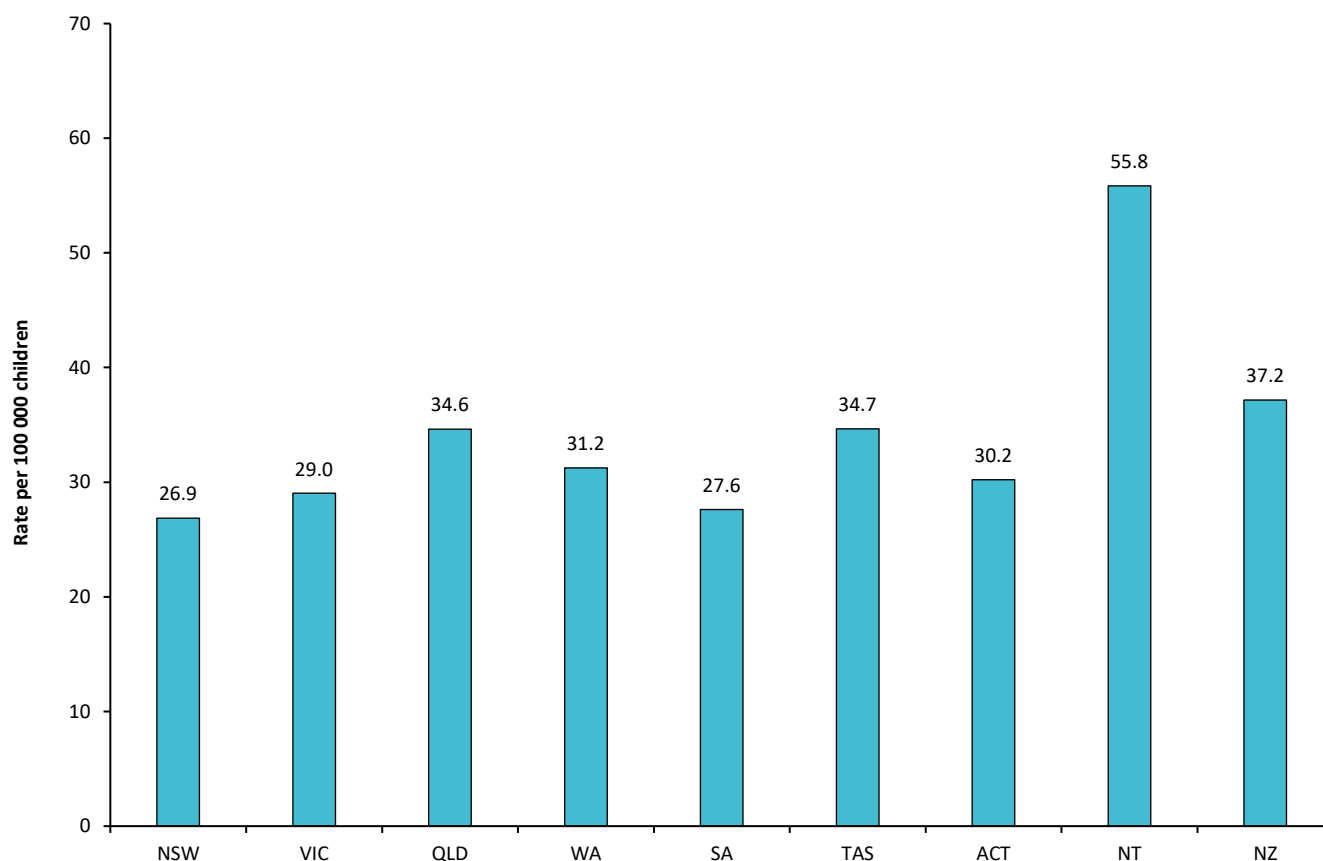
Table 1: Number and rate of child deaths by age and jurisdiction 2016

Jurisdiction		Age category					Total
		Under 1 year	1–4 years	5–9 years	10–14 years	15–17 years	
NSW	<i>n</i>	260	77	29	39	59	464
	Rate per 100 000	255.9	19.3	5.8	8.6	21.5	26.9
VIC	<i>n</i>	257	43	28	21	44	393
	Rate per 100 000	311.9	13.5	7.2	6.0	20.6	29.0
QLD	<i>n</i>	249	48	19	38	40	394
	Rate per 100 000	397.8	18.8	5.7	12.4	21.8	34.6
WA	<i>n</i>	111	11	18	16	28	184
	Rate per 100 000	310.7	8.0	10.6	10.4	30.3	31.2
SA	<i>n</i>	57	12	8	11	13	101
	Rate per 100 000	275.7	14.6	7.7	11.3	21.3	27.6
TAS	<i>n</i>	25	3	3	1	7	39
	Rate per 100 000	414.3	*	*	*	36.3	34.7
ACT	<i>n</i>	19	8				27
	Rate per 100 000	333.6	9.6				30.2
NT	<i>n</i>	23	6	3	1	2	35
	Rate per 100 000	563.3	39.3	*	*	*	55.8
NZ	<i>n</i>	233	44	35	33	67	412
	Rate per 100 000	390.1	17.9	10.9	11.2	35.8	37.2

Data source: Australian and New Zealand Child Death Review and Prevention Group (2018); Department of Health, Western Australia (2018)

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

1. Refer to the methodology section for jurisdictional methodological differences and additional issues.
2. Rates are calculated per 100 000 children in each age category in each jurisdiction.
3. Rates are based on the most up-to-date denominator data available and use the Estimated Resident Population (ERP) data as at 30 June 2016.
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 2016, 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 2016

Data source: Australian and New Zealand Child Death Review and Prevention Group (2018); Department of Health, Western Australia (2018)

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.
3. Rates are based on the most up-to-date denominator data available and use the ERP data as at 30 June 2016.
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 2016, and should not be used to infer the general probability of death for specific cohorts.

In 2016, infants (children aged under 1 year) had the highest rates of child deaths in all jurisdictions. Infants accounted for 60% of all child deaths in Australia and New Zealand, varying between 56% (for New South Wales and South Australia) and 70% (for the Australian Capital Territory). 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 are for young people aged 15–17 years.²

In 2016, the Northern Territory had the highest child mortality rate (55.8 per 100 000), followed by New Zealand (37.2 per 100 000). New South Wales had the lowest child mortality rate (26.9 per 100 000) and South Australia had the second-lowest (27.6 per 100 000).

In 2016, Queensland had the fourth-highest child mortality rate (34.6 per 100 000), compared to the other jurisdictions. Queensland had the third-highest mortality rate for infants (397.8 per 100 000) and the fourth-highest rate for young people aged 15–17 years (21.8 per 100 000).

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

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 1.6% in Victoria to 42.7% in the Northern Territory. Table 9 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 2016. The mortality rates for Indigenous and non-Indigenous children in each jurisdiction are also presented in Figure 2. This graph includes the total child mortality rates, as a reference point (initially presented in Figure 1).

It is noted that some jurisdictions experience difficulty with the collection of child death data regarding Indigenous status. Problems in collecting Indigenous status data for death registrations may result in an undercount in the Indigenous death rates, limiting the comparability of the data on this aspect. Therefore, the rates presented in Table 2 should be interpreted with caution.

Table 2: Number and rate of child deaths (aged 0–17 years) by Indigenous status and jurisdiction 2016

Jurisdiction		Indigenous status	
		Indigenous	Non-Indigenous
NSW	<i>n</i>	54	410
	Rate per 100 000	58.2	25.1
VIC	<i>n</i>	15	378
	Rate per 100 000	69.9	28.4
QLD	<i>n</i>	48	346
	Rate per 100 000	53.9	33.0
WA	<i>n</i>	39	145
	Rate per 100 000	103.8	26.3
SA	<i>n</i>	7	94
	Rate per 100 000	42.9	26.9
TAS	<i>n</i>	1	38
	Rate per 100 000	*	37.4
ACT	<i>n</i>	<5	N/A
	Rate per 100 000	*	N/A
NT	<i>n</i>	27	8
	Rate per 100 000	101.0	22.3
NZ	<i>n</i>	177	235
	Rate per 100 000	63.2	28.3

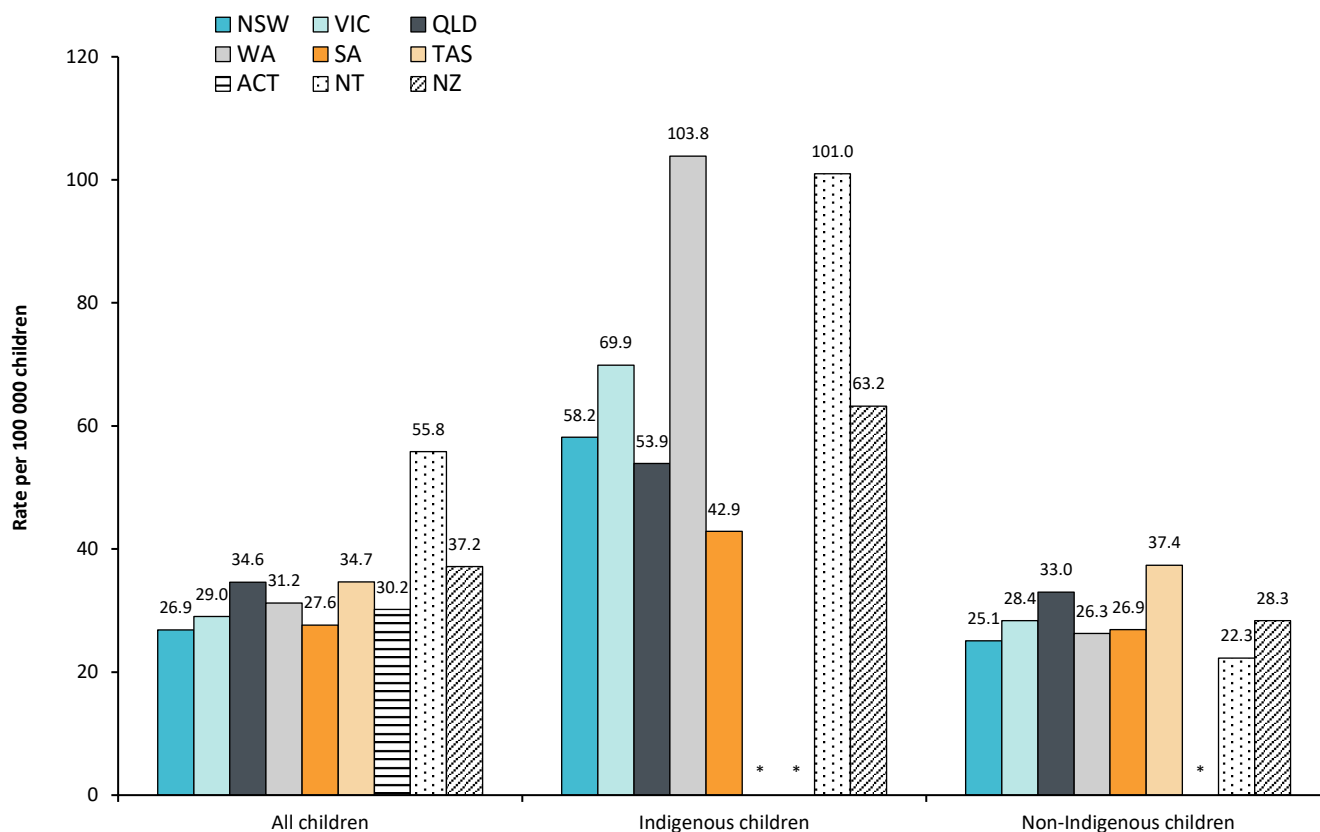
Data source: Australian and New Zealand Child Death Review and Prevention Group (2018); Department of Health, Western Australia (2018)

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

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

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.
3. Rates are based on the most up-to-date denominator data available and use the ERP data as at 30 June 2016.
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 2016, 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 2016



Data source: Australian and New Zealand Child Death Review and Prevention Group (2018); Department of Health, Western Australia (2018)

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

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.
3. Rates are based on the most up-to-date denominator data available and use the ERP data as at 30 June 2016.
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 2016, and should not be used to infer the general probability of death for specific cohorts.

In 2016, 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 5.4% of the child population, yet accounted for at least 8.6% of the child deaths (at least 176 of 2049 deaths).³ Within New Zealand, Māori children constituted 25.1% of the child population, yet accounted for 43.0% of the child deaths (177 of 412 deaths).

In 2016, Western Australia had the highest Indigenous child mortality rate (103.8 per 100 000), followed by the Northern Territory (101.0 per 100 000). South Australia had the lowest Indigenous child mortality rate (42.9 per 100 000) and Queensland had the second-lowest (53.9 per 100 000).⁴

Tasmania had the highest non-Indigenous child mortality rate (37.4 per 100 000), followed by Queensland (33.0 per 100 000). The Northern Territory had the lowest non-Indigenous child mortality rate (22.3 per 100 000) and New South Wales had the second-lowest (25.1 per 100 000).⁴

In 2016, Queensland had the fifth-highest Indigenous child mortality rate (53.9 per 100 000) and the second-highest non-Indigenous child mortality rate (33.0 per 100 000), compared to the other jurisdictions. Aboriginal and Torres Strait Islander children constituted 7.8% of the child population, yet accounted for 12.2% of the child deaths (48 of 346 deaths).

³ Numbers of Indigenous deaths not provided for the Australian Capital Territory.

⁴ Comparative statements exclude jurisdictions where a rate could not be calculated.

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.

Sex

Table 3 provides the numbers and rates of child death for females and males in each jurisdiction during 2016. The mortality rates for female and male children in each jurisdiction are also presented in Figure 3.

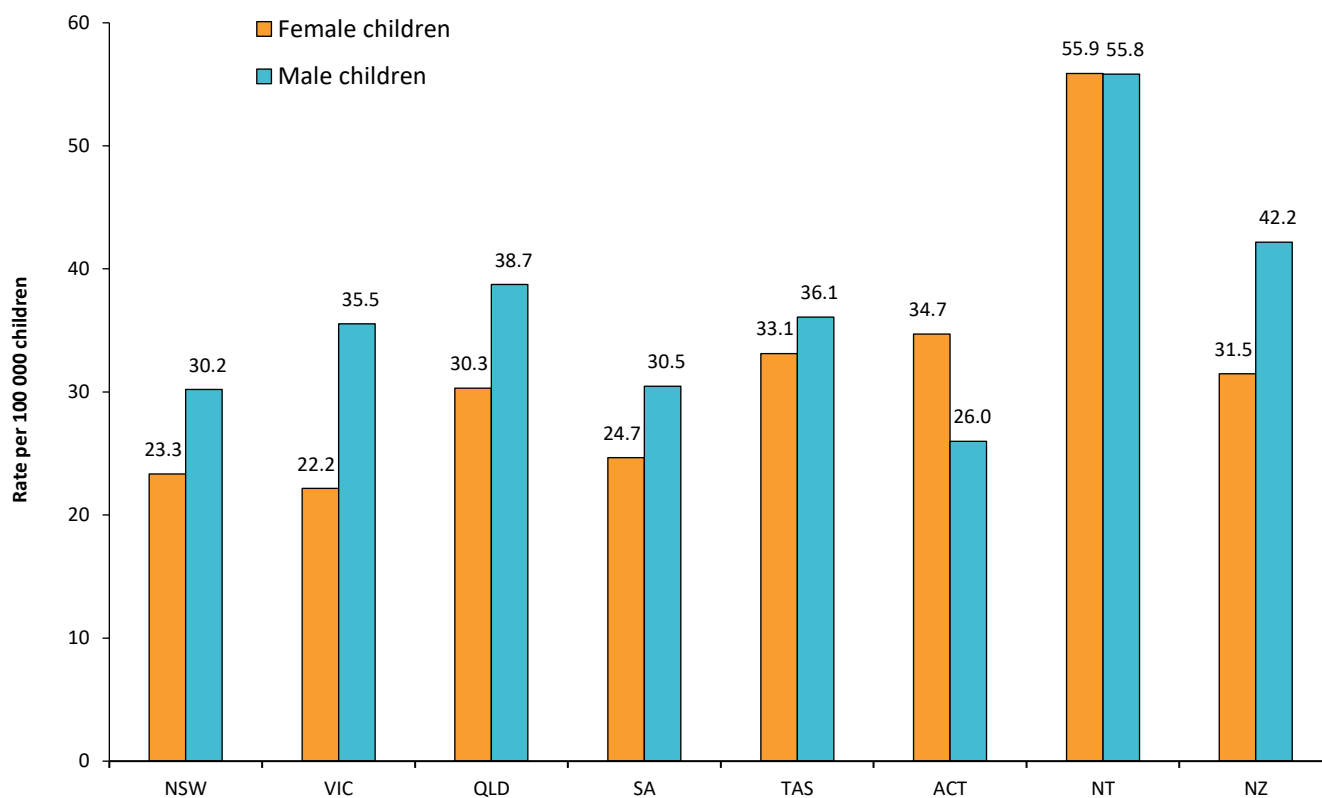
Table 3: Number and rate of child deaths (aged 0–17 years) by sex and jurisdiction 2016

Jurisdiction		Sex	
		Female	Male
NSW	<i>n</i>	196	268
	Rate per 100 000	23.3	30.2
VIC	<i>n</i>	146	247
	Rate per 100 000	22.2	35.5
QLD	<i>n</i>	168	226
	Rate per 100 000	30.3	38.7
WA	<i>n</i>	67	117
	Rate per 100 000	23.3	38.8
SA	<i>n</i>	44	57
	Rate per 100 000	24.7	30.5
TAS	<i>n</i>	18	21
	Rate per 100 000	33.1	36.1
ACT	<i>n</i>	15	12
	Rate per 100 000	34.7	26.0
NT	<i>n</i>	17	18
	Rate per 100 000	55.9	55.8
NZ	<i>n</i>	170	240
	Rate per 100 000	31.5	42.2

Data source: Australian and New Zealand Child Death Review and Prevention Group (2018); Department of Health, Western Australia (2018)

1. There were two child deaths in New Zealand where the sex was 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.
4. Rates are based on the most up-to-date denominator data available and use the ERP data as at 30 June 2016.
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 2016, 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 2016



Data source: Australian and New Zealand Child Death Review and Prevention Group (2018); Department of Health, Western Australia (2018)

1. There was two child deaths in New Zealand where the sex was 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.
4. Rates are based on the most up-to-date denominator data available and use the ERP data as at 30 June 2016.
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 2016, and should not be used to infer the general probability of death for specific cohorts.

In 2016, there were higher child mortality rates for males compared to females in all jurisdictions except the Australian Capital Territory and Northern Territory.

In 2016, male child mortality rates were more than 1.5 times the rate for females in Victoria and Western Australia.

In 2016, 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 (within this supplementary chapter only).⁵

Table 4 provides the numbers and rates of child deaths from diseases and morbid conditions for each age category in each jurisdiction during 2016. The mortality rates from diseases and morbid conditions for all children (aged 0–17 years) in each jurisdiction are also presented in Figure 4.

Table 4: Number and rate of child deaths from diseases and morbid conditions by age and jurisdiction 2016

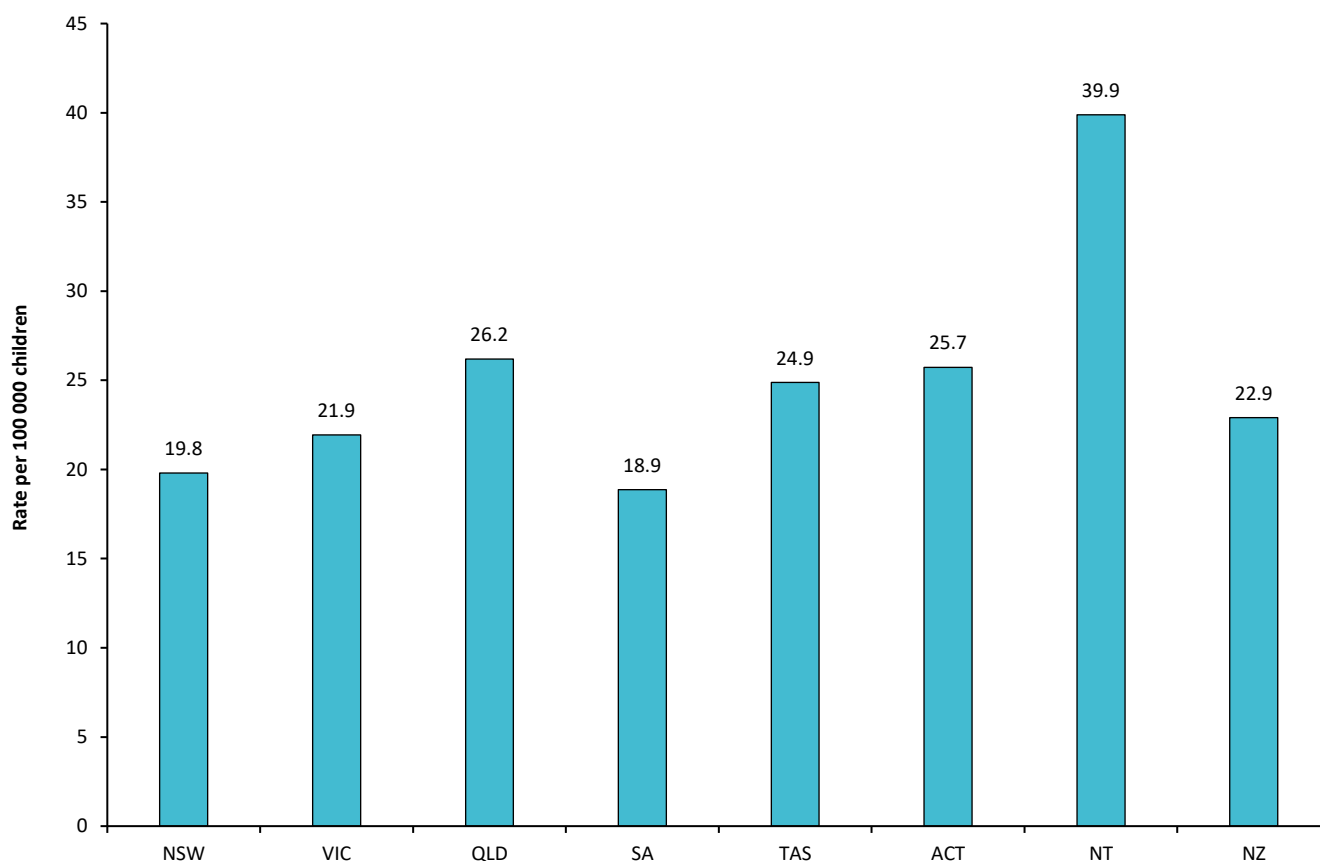
Jurisdiction		Age category					Total
		Under 1 year	1–4 years	5–9 years	10–14 years	15–17 years	
NSW	<i>n</i>	232	53	25	20	12	342
	Rate per 100 000	228.3	13.3	5.0	4.4	4.4	19.8
VIC	<i>n</i>	225	26	22	14	10	297
	Rate per 100 000	273.1	8.2	5.7	4.0	4.7	21.9
QLD	<i>n</i>	224	26	14	18	16	298
	Rate per 100 000	357.9	10.2	4.2	5.9	8.7	26.2
SA	<i>n</i>	51	6	3	5	4	69
	Rate per 100 000	246.7	7.3	*	5.1	6.6	18.9
TAS	<i>n</i>	21	2	3	1	1	28
	Rate per 100 000	348.0	*	*	*	*	24.9
ACT	<i>n</i>	18	5				23
	Rate per 100 000	316.0	6.0				25.7
NT	<i>n</i>	21	2	2	0	0	25
	Rate per 100 000	514.3	*	*	0.0	0.0	39.9
NZ	<i>n</i>	172	23	25	17	17	254
	Rate per 100 000	288.0	9.4	7.8	5.8	9.1	22.9

Data source: Australian and New Zealand Child Death Review and Prevention Group (2018)

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

1. Cause of death information was not available for Western Australia.
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, but the data is based on 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 in each age category in each jurisdiction.
5. Rates are based on the most up-to-date denominator data available and use the ERP data as at 30 June 2016.
6. 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 2016, and should not be used to infer the general probability of death for specific cohorts.

⁵ The QFCC normally include SIDS and undetermined causes within diseases and morbid conditions (classified as unexplained diseases and morbid conditions). For inter-jurisdictional comparability of data in this supplementary chapter, deaths from SIDS and undetermined causes have been excluded from deaths due to diseases and morbid conditions.

Figure 4: Rate of child deaths (aged 0–17 years) from diseases and morbid conditions by jurisdiction 2016

Data source: Australian and New Zealand Child Death Review and Prevention Group (2018)

1. Cause of death information was not available for Western Australia.
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, but the data is based on 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.
5. Rates are based on the most up-to-date denominator data available and use the ERP data as at 30 June 2016.
6. 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 2016, and should not be used to infer the general probability of death for specific cohorts.

In 2016, infants (children aged under 1 year) exhibited the highest mortality rate from diseases and morbid conditions in all jurisdictions. Infants accounted for 72.2% of all child deaths from diseases and morbid conditions in Australia and New Zealand, varying between 67.7% for New Zealand and 84.0% for the Northern Territory.

In 2016, the Northern Territory had the highest child mortality rate from diseases and morbid conditions (39.9 per 100 000). South Australia had the lowest child mortality rate from diseases and morbid conditions (18.9 per 100 000) and New South Wales had the second-lowest (19.8 per 100 000).

In 2016, Queensland had the second-highest infant mortality rate and the second-highest child mortality rate from diseases and morbid conditions (357.9 per 100 000 and 26.2 per 100 000, respectively).

Deaths from diseases and morbid conditions accounted for 65.2% of all child deaths in 2016. Hence the inter-jurisdictional differences for deaths from diseases and morbid conditions are similar to those observed for all child deaths.

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 2016. 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 2016

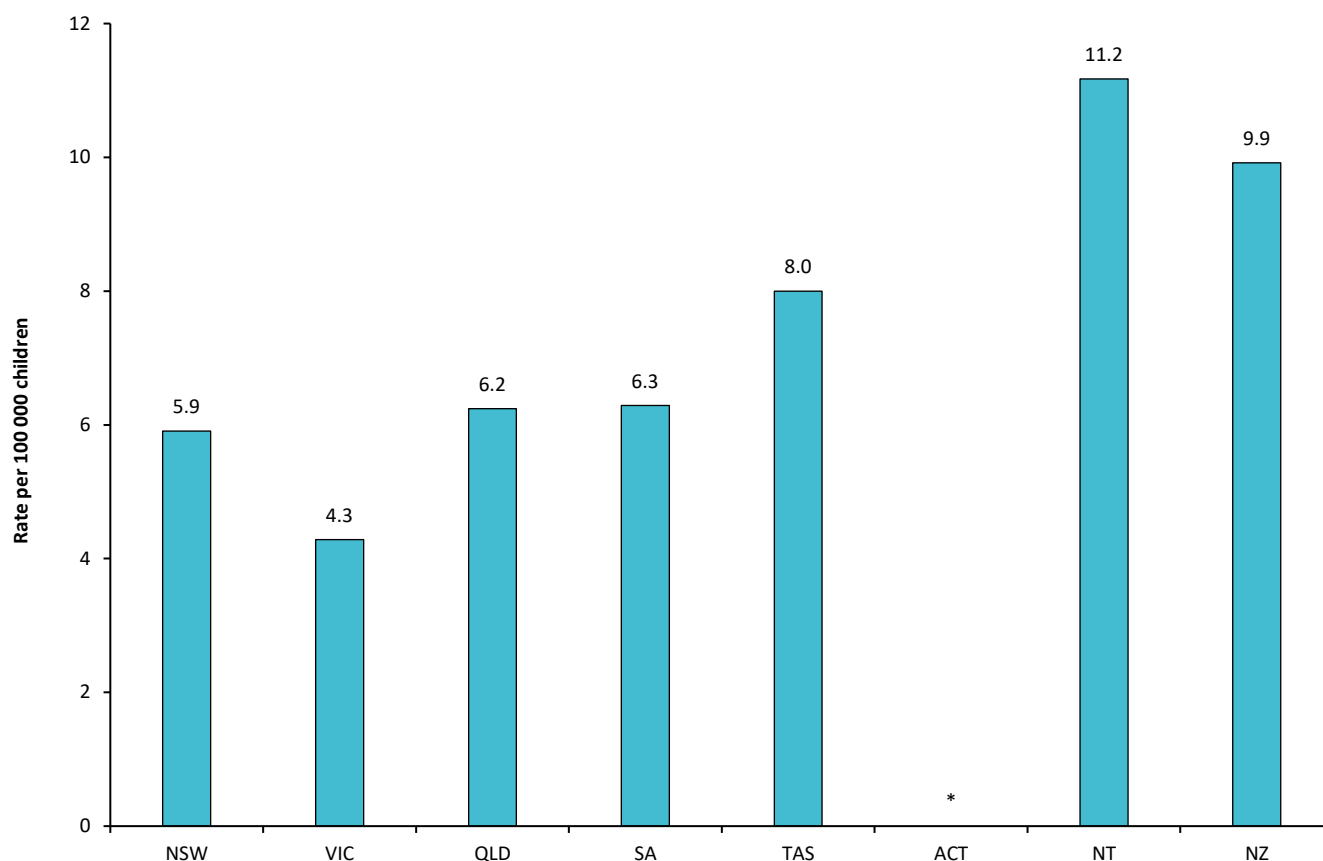
Jurisdiction		Cause of death					Total
		Transport	Drowning	Other non-intentional injury-related	Suicide	Fatal assault and neglect	
NSW	<i>n</i>	32	15	21	27	7	102
	Rate per 100 000	1.9	0.9	1.2	1.6	0.4	5.9
VIC	<i>n</i>	14	7	12	19	6	58
	Rate per 100 000	1.0	0.5	0.9	1.4	0.4	4.3
QLD	<i>n</i>	19	13	17	20	2	71
	Rate per 100 000	1.7	1.1	1.5	1.8	*	6.2
SA	<i>n</i>	7	5	2	4	5	23
	Rate per 100 000	1.9	1.4	*	1.1	1.4	6.3
TAS	<i>n</i>	6	0	0	2	1	9
	Rate per 100 000	5.3	0.0	0.0	*	*	8.0
ACT	<i>n</i>	<5					<5
	Rate per 100 000	*					*
NT	<i>n</i>	3	1	1	2	0	7
	Rate per 100 000	*	*	*	*	0.0	11.2
NZ	<i>n</i>	41	11	26	29	3	110
	Rate per 100 000	3.7	1.0	2.3	2.6	*	9.9

Data source: Australian and New Zealand Child Death Review and Prevention Group (2018)

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

1. Cause of death information was not available for Western Australia.
2. Classification of external-cause deaths may differ from state to state. The methodology section in this chapter provides further details.
3. 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, but the data is based on general information regarding the circumstances of death. Hence, the overall numbers and rates are subject to change.
4. Refer to the methodology section for jurisdictional methodological differences and additional issues.
5. Rates are calculated per 100 000 children aged 0–17 years in each jurisdiction.
6. Rates are based on the most up-to-date denominator data available and use the ERP data as at 30 June 2016.
7. 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 2016, 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 2016



Data source: Australian and New Zealand Child Death Review and Prevention Group (2018)

* Rates have not been calculated for the Australian Capital Territory, for numbers less than 5.

1. Cause of death information was not available for Western Australia.
2. Classification of external-cause deaths may differ from state to state. The methodology section in this chapter provides further details.
3. 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, but the data is based on general information regarding the circumstances of death. Hence, the overall numbers and rates are subject to change.
4. Refer to the methodology section for jurisdictional methodological differences and additional issues.
5. Rates are calculated per 100 000 children aged 0–17 years in each jurisdiction.
6. Rates are based on the most up-to-date denominator data available and use the ERP data as at 30 June 2016.
7. 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 2016, and should not be used to infer the general probability of death for specific cohorts.

In 2016, transport was the leading external cause of death in New South Wales, Tasmania, the Northern Territory, South Australia and New Zealand. Suicide was the leading external cause of death in Queensland and Victoria.

In 2016, the Northern Territory had the highest rate of external-cause deaths (11.2 per 100 000), followed by New Zealand (9.9 per 100 000). Victoria had the lowest rate of external-cause deaths (4.3 per 100 000).⁶

In 2016, Queensland had the second-lowest rate of external-cause deaths (6.2 per 100 000), compared to the other jurisdictions. Queensland exhibited the second-highest mortality rates for suicide and non-intentional injury-related deaths (1.8 and 1.5 per 100 000 respectively). For all other external cause deaths, Queensland exhibited mid-range child mortality rates, in terms of rank and value.

⁶ Comparative statements exclude jurisdictions where a rate could not be calculated.

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 for each age category in each jurisdiction during 2016. The rates of death for infants (children aged under 1 year) from SIDS and undetermined causes in each jurisdiction are also presented in Figure 6.

Table 6: Number and rate of child deaths from SIDS and undetermined causes by age and jurisdiction 2016

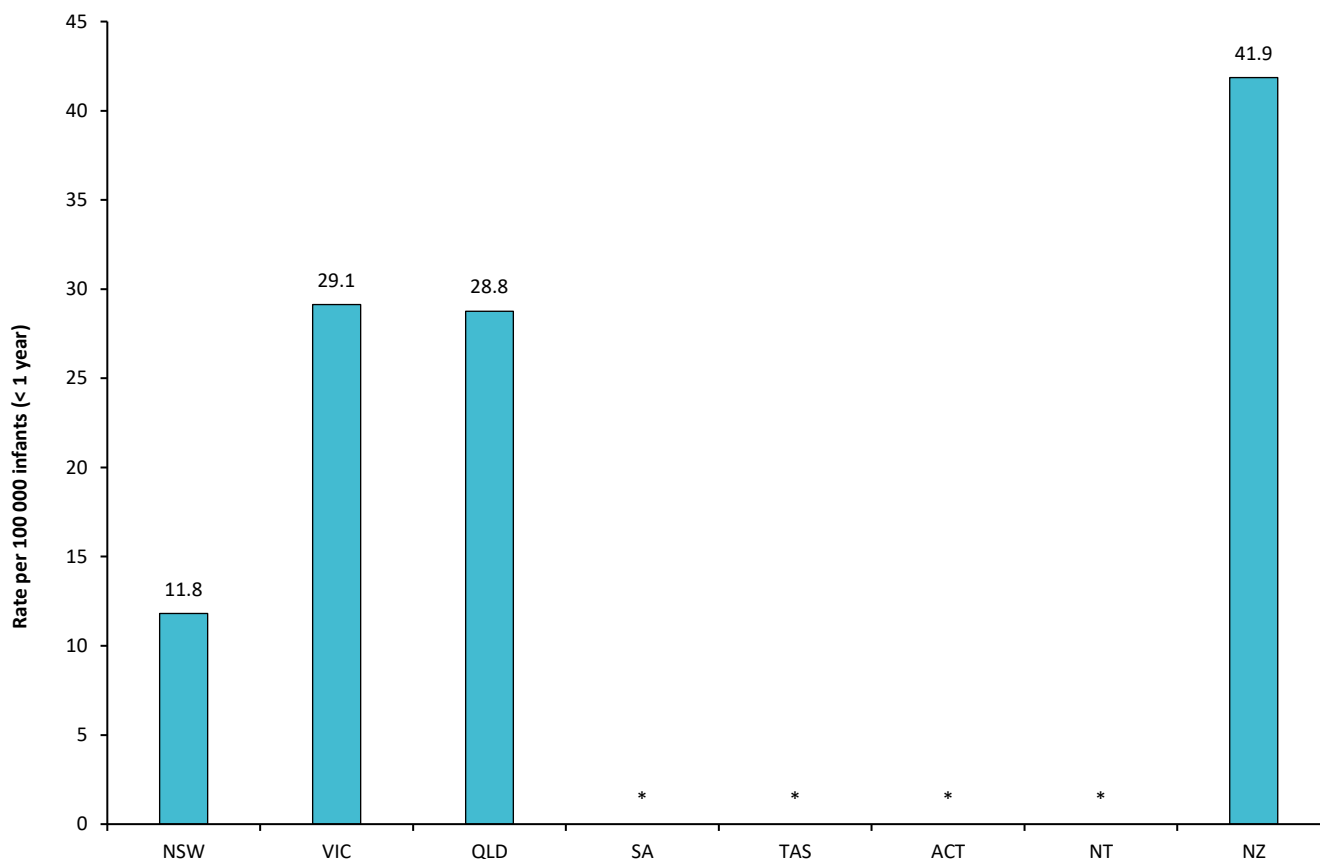
Jurisdiction		Age category						Total
		Under 1 year	1–4 years	5–9 years	10–14 years	15–17 years	1–17 years	
NSW	<i>n</i>	12	0	0	0	0	0	12
	Rate per 100 000	11.8	0.0	0.0	0.0	0.0	0.0	0.7
VIC	<i>n</i>	24	6	≤5	≤5	≤5	14	38
	Rate per 100 000	29.1	1.9	*	*	*	1.0	2.8
QLD	<i>n</i>	18	4	1	0	1	6	24
	Rate per 100 000	28.8	1.6	*	0.0	*	0.6	2.1
SA	<i>n</i>	3	1	0	0	0	1	4
	Rate per 100 000	*	*	0.0	0.0	0.0	*	1.1
TAS	<i>n</i>	2	0	0	0	0	0	2
	Rate per 100 000	*	0.0	0.0	0.0	0.0	0.0	*
ACT	<i>n</i>	<5						<5
	Rate per 100 000	*						*
NT	<i>n</i>	2	0	0	0	0	0	2
	Rate per 100 000	*	0.0	0.0	0.0	0.0	0.0	*
NZ	<i>n</i>	25	<5	<5	0	<5	7	32
	Rate per 100 000	41.9	*	*	0.0	*	0.7	2.9

Data source: Australian and New Zealand Child Death Review and Prevention Group (2018)

* Rates have not been calculated for numbers less than 4, with the exception of Victoria and New Zealand, where rates were not calculated for numbers less than or equal to 5.

1. Cause of death information was not available for Western Australia.
2. Classification of external-cause deaths may differ from state to state. The methodology section in this chapter provides further details.
3. 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, but the data is based on general information regarding the circumstances of death. Hence, the overall numbers and rates are subject to change.
4. Refer to the methodology section for jurisdictional methodological differences and additional issues.
5. Rates are calculated per 100 000 children in each age category in each jurisdiction.
6. Rates are based on the most up-to-date denominator data available and use the ERP data as at 30 June 2016.
7. 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 2016, and should not be used to infer the general probability of death for specific cohorts.

Figure 6: Rate of infant deaths (aged under 1 year) from SIDS and undetermined causes by jurisdiction 2016



Data source: Australian and New Zealand Child Death Review and Prevention Group (2018)

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

1. Cause of death information was not available for Western Australia.
2. Classification of external-cause deaths may differ from state to state. The methodology section in this chapter provides further details.
3. 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, but the data is based on general information regarding the circumstances of death. Hence, the overall numbers and rates are subject to change.
4. Refer to the methodology section for jurisdictional methodological differences and additional issues.
5. Rates are calculated per 100 000 infants (children aged 0–1 year) in each jurisdiction.
6. Rates are based on the most up-to-date denominator data available and use the ERP data as at 30 June 2016.
7. 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 2016, 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:⁷

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.

Infant deaths are certified as undetermined when:

- natural disease processes are detected that are not considered sufficient to cause death but preclude a diagnosis of SIDS
- there are signs of significant stress
- non-accidental but non-lethal injuries were present

⁷ Krous, H.F., Beckwith, J.B., Byard, R.W., Rognum, T.O., Bajjanowski, T., Corey, T., Cutz, E., Hanzlick, R., Keens, T.G. & Mitchell, E.A. (2004). Sudden infant death syndrome and unclassified sudden infant deaths: a definitional and diagnostic approach. *Paediatrics*, 114(1), 234–238.

- toxicology screening detects non-prescribed but non-lethal drugs.

In 2016, New Zealand had the highest rate of infant deaths from SIDS and undetermined causes (41.9 per 100 000), followed by Victoria (29.1 per 100 000). New South Wales had the lowest rate of infant deaths from SIDS and undetermined causes (11.8 per 100 000).⁸

In 2016, Queensland had the third-highest rate of infant deaths from SIDS and undetermined causes (28.8 per 100 000), compared to the other jurisdictions.

⁸ Comparative statements exclude jurisdictions where a rate could not be calculated.

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
- 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 and Perinatal & Maternal Mortality Review Committees.

The Department of Health, Western Australia also provided data.

Analysis period

The analysis covers deaths that occurred during the period 1 January 2016 to 31 December 2016.

Date of death and place of residence

All jurisdictions provided raw numbers of the deaths of all children from birth up to, but not including, 18 years of age occurring in 2016, independent of when these deaths were registered with the Registry of Births, Deaths and Marriages.

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 2016. To ensure comparability of child death rates between jurisdictions, all rates have been calculated on this 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 2016, and should not be used to infer the general probability of death for specific cohorts.⁹

⁹ 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.

Tables 7 and 8 provide details of the child ERP of each jurisdiction as sourced from the ABS¹⁰ and Statistics New Zealand.¹¹

Table 7: Estimated resident population by age category and jurisdiction, as at June 2016

Jurisdiction	Age category					Total
	Under 1 year	1–4 years	5–9 years	10–14 years	15–17 years	
New South Wales	101 604	399 527	498 455	453 745	273 897	1 717 228
Victoria	82 400	318 926	387 215	351 523	213 760	1 353 824
Queensland	62 587	254 742	330 526	306 564	183 432	1 137 851
Western Australia	35 730	137 268	170 150	153 380	92 340	588 868
South Australia	20 671	82 401	104 162	97 355	61 033	365 622
Tasmania	6 034	24 042	32 479	30 691	19 285	112 531
Australian Capital Territory	5 696	22 358	25 767	22 170	13 399	89 390
Northern Territory	4 083	15 273	18 238	16 004	9 071	62 669
New Zealand	59 730	245 280	322 270	294 320	187 360	1 108 960

Data source: ABS (2016); Statistics New Zealand (2018)

Table 8: Estimated resident population aged 0–17 years by sex and jurisdiction, as at June 2016

Jurisdiction	Sex	
	Female	Male
New South Wales	887 623	839 605
Victoria	694 976	658 848
Queensland	583 572	554 279
Western Australia	301 253	287 615
South Australia	187 145	178 477
Tasmania	58 200	54 331
Australian Capital Territory	46 158	43 232
Northern Territory	32 248	30 421
New Zealand	569 060	539 900

Data source: ABS (2016); Statistics New Zealand (2018)

¹⁰ Australian Bureau of Statistics (2017). *Australian Demographic Statistics June 2016*, 'Tables 51-58: Estimated Resident Population by Single Year of Age, States and territories', time series spreadsheets, cat. no. 3101.0.

¹¹ Statistics New Zealand (2018). *Estimated Resident Population by Age and Sex (1991+) (Annual-Jun 2016)*.

Indigenous population data

Estimates for the Australian Aboriginal and Torres Strait Islander child population for each jurisdiction¹² and the New Zealand Māori population¹³ as at June 2016 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. Table 9 provides these population estimates and the percentage of the child population identified as Indigenous.

Table 9: Estimated resident population aged 0–17 years by Indigenous status and jurisdiction, as at June 2016

Jurisdiction	Indigenous status		Indigenous %
	Indigenous children	Non-Indigenous children	
New South Wales	92 856	1 634 372	5.4%
Victoria	21 463	1 332 361	1.6%
Queensland	89 035	1 048 816	7.8%
Western Australia	37 558	551 310	6.4%
South Australia	16 322	349 300	4.5%
Tasmania	10 876	101 655	9.7%
Australian Capital Territory	2 470	86 920	2.8%
Northern Territory	26 731	35 938	42.7%
New Zealand	279 860	829 100	25.2%

Data source: ABS (2014); Statistics New Zealand (2016)

Challenges are faced in obtaining accurate population data for Indigenous people. Some jurisdictions also experience difficulty with the collection of child death data regarding Indigenous status. 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,^{14,15} but 7.8% 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.

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.

¹² Australian Bureau of Statistics (2014). *Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 2001 to 2026*, 'Tables 1-8: Estimated and projected population, Aboriginal and Torres Strait Islander Australians, Series B, Single year of age, Australia, states and territories', data cube: Excel spreadsheet, cat. no. 3238.0.

¹³ Statistics New Zealand (2016). *Māori Population Estimates: At 30 June 2016 – tables*.

¹⁴ Australian Bureau of Statistics (2014). *Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 2001 to 2026*, 'Table 3: Estimated and projected population, Aboriginal and Torres Strait Islander population, Series B, Single year of age, Queensland', data cube: Excel spreadsheet, cat. no. 3238.0.

¹⁵ Australian Bureau of Statistics (2018). *Australian Demographic Statistics, Dec 2016*. 'Table 3: Estimated resident Aboriginal and Torres Strait Islander and Non-Indigenous populations, Queensland, single year of age (to 65 and over) – 30 June 2016', data cube: Excel spreadsheet, cat. No. 3238.0.55.001.

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).

Notable differences include:

- The QFCC normally include SIDS and undetermined causes within diseases and morbid conditions (classified as unexplained diseases and morbid conditions). For inter-jurisdictional comparability of data in this supplementary chapter, deaths from SIDS and undetermined causes have been excluded from deaths due to diseases and morbid conditions.
- The Victorian Consultative Council on Obstetric and Paediatric Mortality and Morbidity (CCOPMM) apply coding of neonatal (0–27 days) deaths according to PSANZ-PDC¹⁶ and PSANZ-NDC¹⁷ rather than ICD-10. However, Victorian data provided by the Council for this chapter has been recoded into the ICD-10.
- Victorian figures exclude neonatal deaths as a result of terminations of pregnancy (for congenital anomaly or other 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. For 2016, however, there is one additional death provided in the Victorian data that did not occur in Victoria. It is included in the Victorian data as it is not included in the data provided by the jurisdiction in which the death occurred.
- 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 do 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, including a revision of the classification of fatal assault.
- 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 chapter 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:

- Victorian data in this table is taken from the CCOPMM held database and is also published in Victoria's mothers, babies and children 2016 report, available at <https://www2.health.vic.gov.au/hospitals-and-health-services/quality-safety-service/consultative-councils/council-obstetric-paediatric-mortality/mothers-babies-children-report>.
- The Victorian CCOPMM does not specify raw figures where these are less than, or equal to 5. These are represented by the figure ≤ 5 throughout this chapter.
- Cause of death information was not available for Western Australia.
- Australian Capital Territory Children and Young People Death Review Committee does not specify raw figures where counts are less than 5. These are represented by the figure < 5 throughout this chapter.
- The Australian Capital Territory data does not include deaths of children and young people awaiting the Coroner's findings.

¹⁶ Perinatal Society of Australia and New Zealand—Perinatal Death Classification.

¹⁷ Perinatal Society of Australia and New Zealand—Neonatal Death Classification.

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

- Data are 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 are provisional.
- The Perinatal & Maternal Mortality Review Committee (PMMRC) apply coding of neonatal (0–27 days) deaths according to PSANZ-PDC¹⁸ and PSANZ-NDC¹⁹ rather than ICD-10. However, New Zealand data provided by PMMRC for this report has been recoded into the ICD-10.
- 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 excludes stillbirths and terminations.
- There were 16 cases for whom no cause of death coding is available, and were therefore excluded from Tables 4, 5 and 6. These were predominantly early neonatal deaths.
- Only deaths of New Zealand residents are included in these analyses (deaths of non-residents within New Zealand are excluded).
- Infant mortality is usually calculated using live births in New Zealand, so the infant mortality rates in this chapter will differ from official New Zealand statistics.

¹⁸ Perinatal Society of Australia and New Zealand—Perinatal Death Classification.

¹⁹ Perinatal Society of Australia and New Zealand—Neonatal Death Classification.

List of abbreviations

ABS	Australian Bureau of Statistics.
ANZCDR&PG	Australian and New Zealand Child Death Review and Prevention Group.
ERP	Estimated resident population.
ICD-10	International statistical classification of diseases and related health problems, tenth revision.
QFCC	Queensland Family and Child Commission, enacted by the <i>Family and Child Commission Act 2014</i> on 1 July 2014.
SIDS	Sudden infant death syndrome.
WHO	World Health Organization.