

Queensland
Family & Child
Commission

SUPPLEMENTARY CHAPTER

Australian and New Zealand child death statistics

2015

ANNUAL REPORT

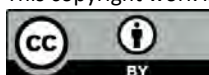
Deaths of children and young people
Queensland

2016 — 17

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Key findings

This chapter presents information on child mortality from all eight Australian states/territories and New Zealand. Analysis of child deaths during 2015 has shown:

- Infants (children aged under 1 year) had the highest rates of child deaths in all jurisdictions, accounting for 59% 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 third-highest child mortality rate (37.9 per 100 000) and the fifth-highest infant mortality rate (405.6 per 100 000). Child mortality rates varied between 25.5 per 100 000 and 59.8 per 100 000. Infant mortality rates varied between 254.3 and 576.4 per 100 000.
- Indigenous child mortality rates were higher than the non-Indigenous rates within all jurisdictions, where both rates could be calculated¹.
- Indigenous child mortality rates varied between 48.9 and 112.3 per 100 000 and non-Indigenous child mortality rates varied between 21.7 and 36.9 per 100 000.
- Queensland had the fourth-highest Indigenous child mortality rate (66.1 per 100 000) and the second-highest non-Indigenous child mortality rate (35.5 per 100 000). Indigenous children constituted 7.8% of the Queensland child population, yet accounted for 13.6% of the child deaths.
- Deaths from diseases and morbid conditions accounted for 70% of all child deaths in 2015.
- Queensland had the second-highest child mortality rate from diseases and morbid conditions (28.6 per 100 000), with rates varying between 15.4 and 31.5 per 100 000.
- Suicide was the leading external cause of death in Queensland and Tasmania. Transport was the leading external cause of death in most other jurisdictions. Other non-intentional injury-related deaths were the leading external cause of death in New Zealand, followed closely by suicide.
- Queensland had the third-highest rate of external-cause deaths (7.2 per 100 000), with rates varying between 4.2 and 11.4 per 100 000.
- Queensland had the fourth-highest rate of infant deaths from sudden infant death syndrome (SIDS) and undetermined causes (33.5 per 100 000), with rates varying between 17.4 and 125.3 per 100 000.

¹ Rates for the Australian Capital Territory were not calculated for numbers less than 5.

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 ANZCDR&PG who conduct child death review and reporting within their own jurisdictions, the Department of Health, Western Australia and the Ombudsman, 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 2015 to 31 December 2015. 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 2015, 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. The rates in this chapter should not be used to infer the general probability of death for specific cohorts. This is particularly important when comparing rates from low numbers. Current methodology calculates the crude rates for 2015, 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 2015. 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 2015

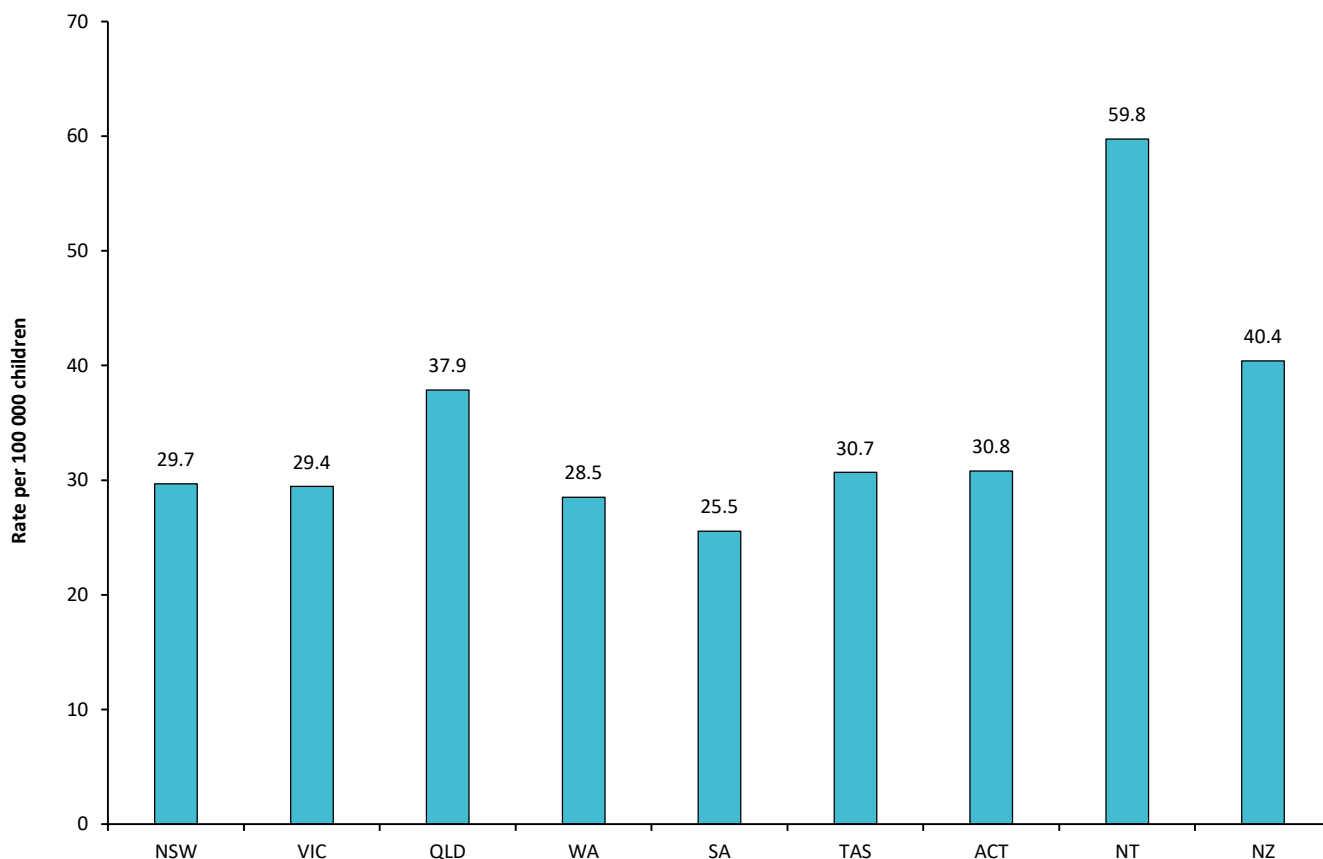
Jurisdiction		Age category					Total
		Under 1 year	1–4 years	5–9 years	10–14 years	15–17 years	
NSW	<i>n</i>	295	56	50	34	70	505
	Rate per 100 000	301.3	14.2	10.4	7.5	25.5	29.7
VIC	<i>n</i>	221	49	17	37	57	381
	Rate per 100 000	304.9	16.0	4.6	10.9	27.3	29.4
QLD	<i>n</i>	254	54	33	33	53	427
	Rate per 100 000	405.6	21.1	10.3	10.8	28.9	37.9
WA	<i>n</i>	89	20	11	20	29	169
	Rate per 100 000	254.3	14.4	6.5	12.9	30.6	28.5
SA	<i>n</i>	53	13	8	10	8	92
	Rate per 100 000	265.4	16.0	7.9	10.3	13.1	25.5
TAS	<i>n</i>	26	1	2	0	6	35
	Rate per 100 000	449.4	*	*	0.0	30.2	30.7
ACT	<i>n</i>	26	10				36
	Rate per 100 000	464.1	9.0				30.8
NT	<i>n</i>	23	3	1	6	5	38
	Rate per 100 000	576.4	*	*	35.3	52.1	59.8
NZ	<i>n</i>	259	54	32	36	64	445
	Rate per 100 000	438.2	21.9	10.2	12.3	34.3	40.4

Data source: Australian and New Zealand Child Death Review and Prevention Group (2017); Department of Health, Western Australia (2017)

* 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. Total rates are calculated per 100 000 children 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 2015.
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 2015, 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 2015



Data source: Australian and New Zealand Child Death Review and Prevention Group (2017); Department of Health, Western Australia (2017)

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 2015.
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 2015, and should not be used to infer the general probability of death for specific cohorts.

In 2015, infants (children aged under 1 year) had the highest rates of child deaths in all jurisdictions. Infants accounted for 59% of all child deaths in Australia and New Zealand, varying between 53% for Western Australia and 74% for Tasmania. In general, child mortality rates decreased substantially after infancy and continued to decrease until the teenage years, when they increased again. In most jurisdictions (with the exception of South Australia), the second-highest mortality rates (where calculable) are for young people aged 15–17 years.

In 2015, the Northern Territory had the highest child mortality rate (59.8 per 100 000), followed by New Zealand (40.4 per 100 000) and Queensland (37.9 per 100 000). South Australia had the lowest child mortality rate (25.5 per 100 000) and Western Australia had the second-lowest (28.5 per 100 000).

In 2015, Queensland had the third-highest child mortality rate (37.9 per 100 000), compared to the other jurisdictions. Queensland had the fifth-highest mortality rate for infants (405.6 per 100 000) and the fifth-highest rate for young people aged 15–17 years (28.9 per 100 000).

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 30.7% 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 2015. 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 2015

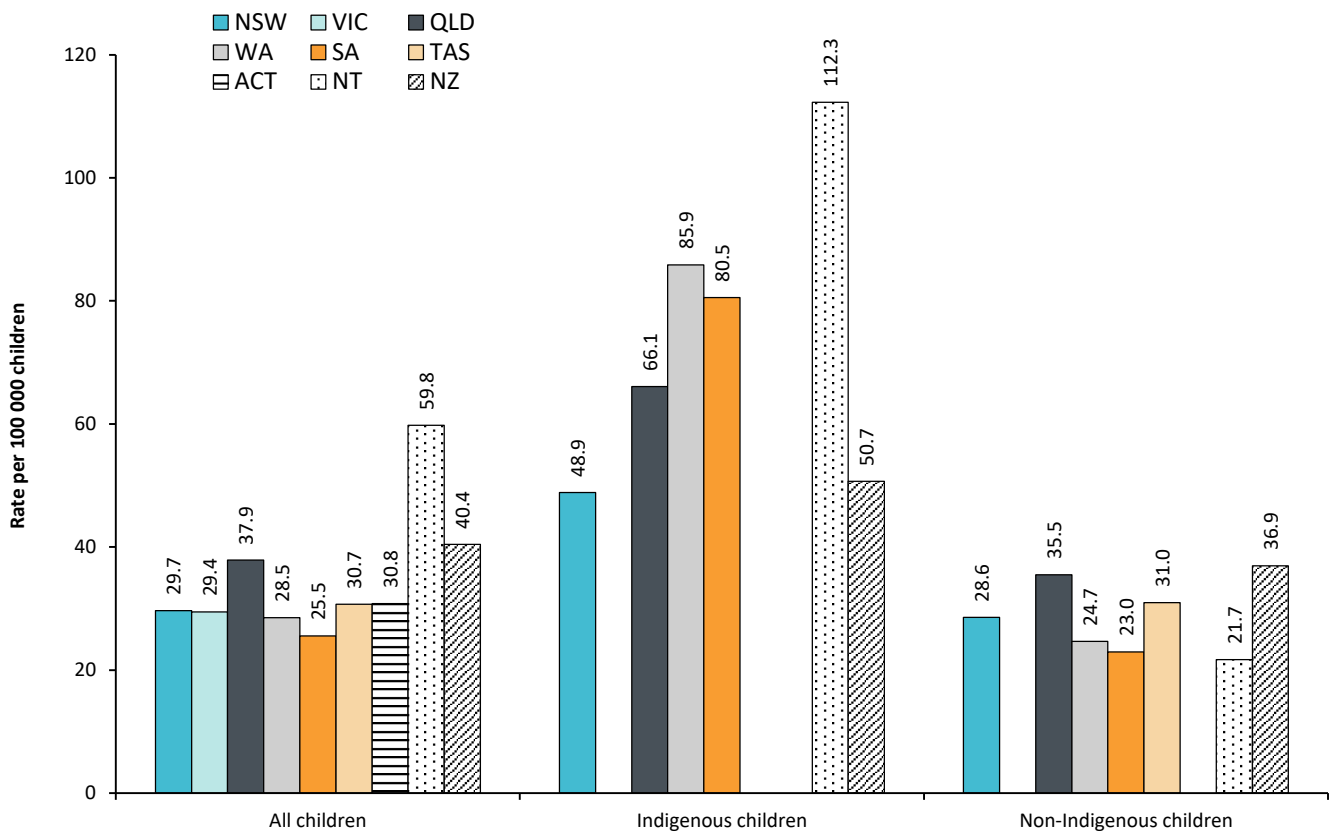
Jurisdiction		Indigenous status	
		Indigenous	Non-Indigenous
NSW	<i>n</i>	45	460
	Rate per 100 000	48.9	28.6
VIC	<i>n</i>	<10	N/A
	Rate per 100 000	*	*
QLD	<i>n</i>	58	369
	Rate per 100 000	66.1	35.5
WA	<i>n</i>	32	137
	Rate per 100 000	85.9	24.7
SA	<i>n</i>	13	79
	Rate per 100 000	80.5	23.0
TAS	<i>n</i>	3	32
	Rate per 100 000	*	31.0
ACT	<i>n</i>	<5	N/A
	Rate per 100 000	*	*
NT	<i>n</i>	30	8
	Rate per 100 000	112.3	21.7
NZ	<i>n</i>	141	304
	Rate per 100 000	50.7	36.9

Data source: Australian and New Zealand Child Death Review and Prevention Group (2017); Department of Health, Western Australia (2017)

* Rates have not been calculated for numbers less than 4, with the exception of the Australian Capital Territory for numbers less than 5 and Victoria for numbers less than, or equal to, 10.

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 2015.
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 2015, 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 2015



Data source: Australian and New Zealand Child Death Review and Prevention Group (2017); Department of Health, Western Australia (2017)

* Rates have not been calculated for numbers less than 4, with the exception of the Australian Capital Territory for numbers less than 5 and Victoria for numbers less than, or equal to, 10.

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 2015.
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 2015, and should not be used to infer the general probability of death for specific cohorts.

In 2015, 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 5.5% of the child population, yet accounted for at least 8.5% of the child deaths (at least 181 of 2128 deaths)². Within New Zealand, Māori children constituted 25.3% of the child population, yet accounted for 31.7% of the child deaths (141 of 445 deaths).

In 2015, the Northern Territory had the highest Indigenous child mortality rate (112.3 per 100 000), followed by Western Australia (85.9 per 100 000). New South Wales had the lowest calculated Indigenous child mortality rate (48.9 per 100 000) and New Zealand had the second-lowest (50.7 per 100 000).

New Zealand had the highest non-Indigenous child mortality rate (36.9 per 100 000), followed by Queensland (35.5 per 100 000). The Northern Territory had the lowest calculated non-Indigenous child mortality rate (21.7 per 100 000) and South Australia had the second-lowest (23.0 per 100 000).

In 2015, Queensland had the fourth-highest Indigenous child mortality rate (66.1 per 100 000) and the second-highest non-Indigenous child mortality rate (35.5 per 100 000), compared to the other jurisdictions. Aboriginal and Torres Strait Islander children constituted 7.8% of the child population, yet accounted for 13.6% of the child deaths (58 of 445 deaths).

² Numbers of Indigenous deaths not provided for Victoria and the Australian Capital Territory.

Sex

Table 3 provides the numbers and rates of child death for females and males in each jurisdiction during 2015. The mortality rates for female and male children in each jurisdiction are also presented in Figure 3.

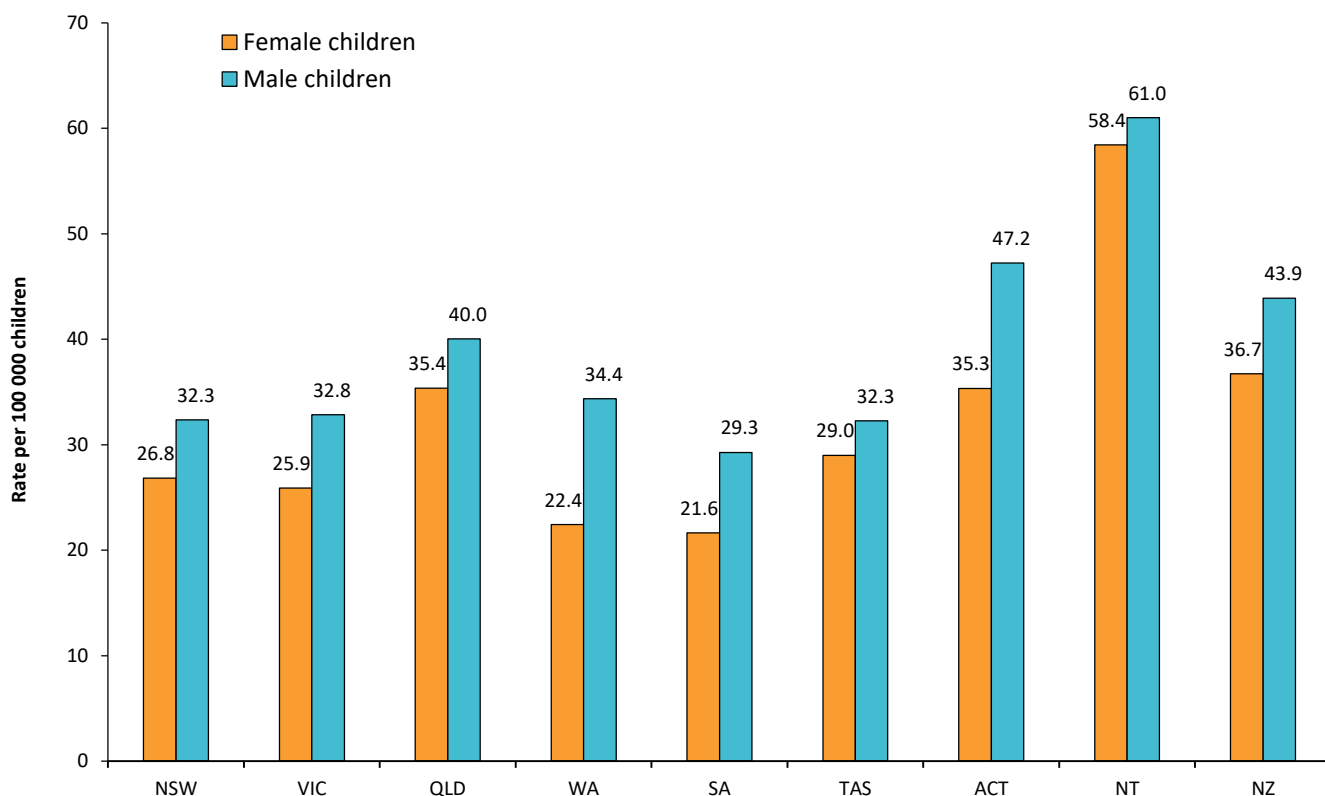
Table 3: Number and rate of child deaths (aged 0–17 years) by sex and jurisdiction 2015

Jurisdiction		Sex	
		Female	Male
NSW	<i>n</i>	222	283
	Rate per 100 000	26.8	32.3
VIC	<i>n</i>	163	218
	Rate per 100 000	25.9	32.8
QLD	<i>n</i>	194	232
	Rate per 100 000	35.4	40.0
WA	<i>n</i>	65	104
	Rate per 100 000	22.4	34.4
SA	<i>n</i>	38	54
	Rate per 100 000	21.6	29.3
TAS	<i>n</i>	16	19
	Rate per 100 000	29.0	32.3
ACT	<i>n</i>	15	21
	Rate per 100 000	35.3	47.2
NT	<i>n</i>	18	20
	Rate per 100 000	58.4	61.0
NZ	<i>n</i>	197	248
	Rate per 100 000	36.7	43.9

Data source: Australian and New Zealand Child Death Review and Prevention Group (2017); Department of Health, Western Australia (2017)

1. There was one child death in Queensland 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 2015.
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 2015, 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 2015



Data source: Australian and New Zealand Child Death Review and Prevention Group (2017); Department of Health, Western Australia (2017)

1. There was one child death in Queensland 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 2015.
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 2015, and should not be used to infer the general probability of death for specific cohorts.

In 2015, there were higher child mortality rates for males compared to females in all jurisdictions.

In 2015, male child mortality rates were approximately 1.3 to 1.5 times the rate for females in Western Australia, Victoria, South Australia and the Australian Capital Territory.

In 2015, the male child mortality rate in Queensland was 1.1 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 SIDS and undetermined causes (within this supplementary chapter only).³

Table 4 provides the numbers and rates of child deaths from diseases and morbid conditions for each age category in each jurisdiction during 2015. 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 2015

Jurisdiction		Age category					Total
		Under 1 year	1–4 years	5–9 years	10–14 years	15–17 years	
NSW	<i>n</i>	258	37	35	17	29	376
	Rate per 100 000	263.5	9.4	7.2	3.8	10.6	22.1
VIC	<i>n</i>	195	33	14	29	19	290
	Rate per 100 000	269.0	10.8	3.8	8.5	9.1	22.4
QLD	<i>n</i>	230	26	22	23	21	322
	Rate per 100 000	367.3	10.2	6.8	7.5	11.5	28.6
WA	<i>n</i>	57	11	6	8	9	91
	Rate per 100 000	162.9	7.9	3.6	5.1	9.5	15.4
SA	<i>n</i>	42	10	5	5	3	65
	Rate per 100 000	210.3	12.3	5.0	5.2	*	18.0
TAS	<i>n</i>	24	1	1	0	2	28
	Rate per 100 000	414.9	*	*	0.0	*	24.5
ACT	<i>n</i>	23	<5	<5	0	<5	28
	Rate per 100 000	410.6	*	*	0.0	*	23.9
NT	<i>n</i>	14	2	1	1	2	20
	Rate per 100 000	350.9	*	*	*	*	31.5
NZ	<i>n</i>	192	28	18	16	16	270
	Rate per 100 000	324.8	11.4	5.7	5.5	8.6	24.5

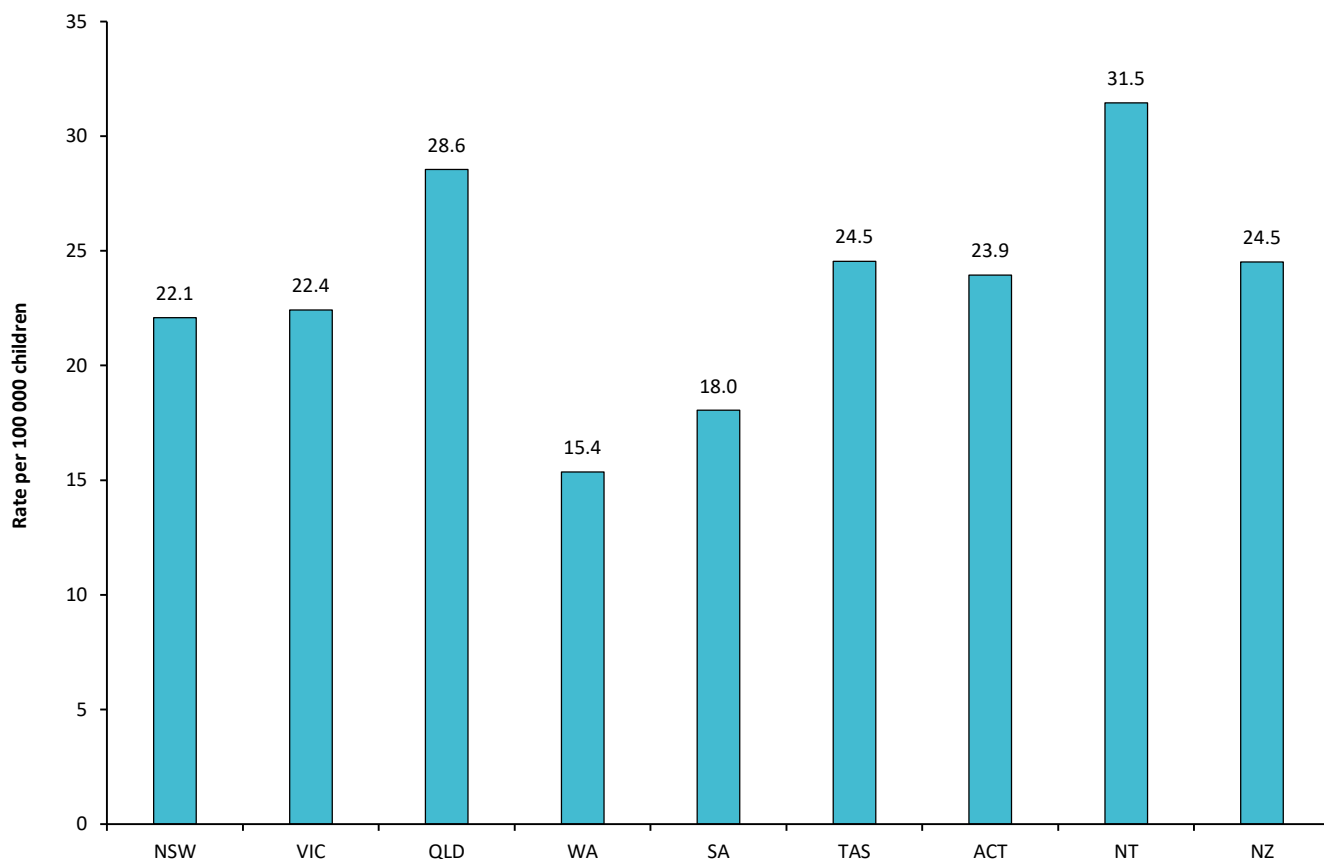
Data source: Australian and New Zealand Child Death Review and Prevention Group (2017), Department of Health, Western Australia (2017)

* 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. 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.
2. Refer to the methodology section for jurisdictional methodological differences and additional issues.
3. The data sets for Western Australia for cause of death are provided by two separate organisations – Department of Health, Western Australia and the Ombudsman, Western Australia. Therefore these two data sets will not sum accurately and should not be compared.
4. Rates are calculated per 100 000 children in each age category in each jurisdiction.
5. Total 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 2015.
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 2015, and should not be used to infer the general probability of death for specific cohorts.

³ 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 2015



Data source: Australian and New Zealand Child Death Review and Prevention Group (2017), Department of Health, Western Australia (2017)

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, but the data is based on 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. The data sets for Western Australia for cause of death are provided by two separate organisations – Department of Health, Western Australia and the Ombudsman, Western Australia. Therefore these two data sets will not sum accurately and should not be compared.
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 2015.
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 2015, and should not be used to infer the general probability of death for specific cohorts.

In 2015, infants (children aged under 1 year) exhibited the highest mortality rate from diseases and morbid conditions in all jurisdictions. Infants accounted for 69.5% of all child deaths from diseases and morbid conditions in Australia and New Zealand, varying between 62.6% for Western Australia and 85.7% for Tasmania.

In 2015, the Northern Territory had the highest child mortality rate from diseases and morbid conditions (31.5 per 100 000), followed by Queensland (28.6 per 100 000). Western Australia had the lowest child mortality rate from diseases and morbid conditions (15.4 per 100 000) and South Australia had the second-lowest (18.0 per 100 000).

In 2015, Queensland had the third-highest infant mortality rate and the second-highest child mortality rate from diseases and morbid conditions (367.3 per 100 000 and 28.6 per 100 000, respectively).

Deaths from diseases and morbid conditions accounted for 70.0% of all child deaths in 2015. 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 2015. 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 2015

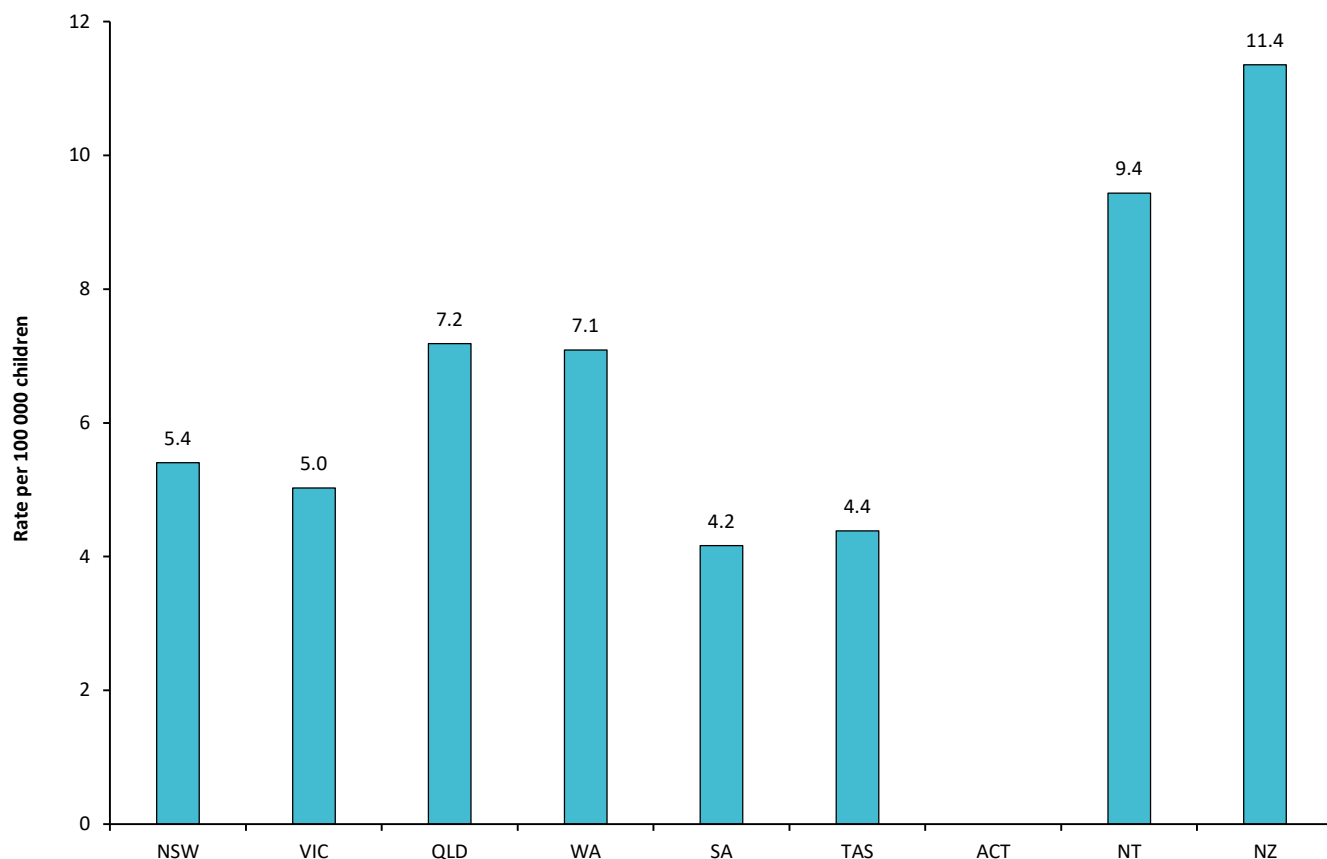
Jurisdiction		Cause of death					Total
		Transport	Drowning	Other non-intentional injury-related	Suicide	Fatal assault and neglect	
NSW	<i>n</i>	33	9	15	27	8	92
	Rate per 100 000	1.9	0.5	0.9	1.6	0.5	5.4
VIC	<i>n</i>	23	≤5	8	20	11	65
	Rate per 100 000	1.8	*	0.6	1.5	0.9	5.0
QLD	<i>n</i>	17	20	11	21	12	81
	Rate per 100 000	1.5	1.8	1.0	1.9	1.1	7.2
WA	<i>n</i>	20	3	4	12	3	42
	Rate per 100 000	3.4	*	0.7	2.0	*	7.1
SA	<i>n</i>	9	1	2	1	2	15
	Rate per 100 000	2.5	*	*	*	*	4.2
TAS	<i>n</i>	1	0	1	3	0	5
	Rate per 100 000	*	0.0	*	*	0.0	4.4
ACT	<i>n</i>	<5					<5
	Rate per 100 000	*					*
NT	<i>n</i>	2	0	2	2	0	6
	Rate per 100 000	*	0.0	*	*	0.0	9.4
NZ	<i>n</i>	17	10	45	44	9	125
	Rate per 100 000	1.5	0.98	4.1	4.0	0.8	11.4

Data source: Australian and New Zealand Child Death Review and Prevention Group (2017), Ombudsman Western Australia (2017)

* 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 and Victoria for numbers less than, or equal to, 5.

1. Classification of external-cause deaths may differ from state to state. The methodology section in this chapter 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, 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. The data sets for Western Australia for cause of death are provided by two separate organisations – Department of Health, Western Australia and the Ombudsman, Western Australia. Therefore these two data sets will not sum accurately and should not be compared.
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 2015.
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 2015, 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 2015



Data source: Australian and New Zealand Child Death Review and Prevention Group (2017), Ombudsman Western Australia (2017)

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

1. Classification of external-cause deaths may differ from state to state. The methodology section in this chapter 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, 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. The data sets for Western Australia for cause of death are provided by two separate organisations – Department of Health, Western Australia and the Ombudsman, Western Australia. Therefore these two data sets will not sum accurately and should not be compared.
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 2015.
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 2015, and should not be used to infer the general probability of death for specific cohorts.

In 2015, transport was the leading external cause of death in New South Wales, Victoria, Western Australia and South Australia. Suicide was the leading external cause of death in Queensland and Tasmania. Other non-intentional injury-related death was the leading external cause in New Zealand. Transport, drowning and suicide were the equal leading causes in the Northern Territory.

In 2015, New Zealand had the highest rate of external-cause deaths (11.4 per 100 000), followed by the Northern Territory (9.4 per 100 000). South Australia had the lowest calculated rate of external-cause deaths (4.2 per 100 000) and Tasmania had the second-lowest (4.4 per 100 000).

In 2015, Queensland had the third-highest rate of external-cause deaths (7.2 per 100 000), compared to the other jurisdictions. Queensland exhibited the highest mortality rate from fatal assault and neglect (1.1 per 100 000) and drowning (1.8 per 100 000) and the second-highest suicide mortality rate (1.9 per 100 000). For transport and other non-intentional injury-related deaths, Queensland exhibited mid-range child mortality rates, in terms of rank and value.

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 2015. 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 2015

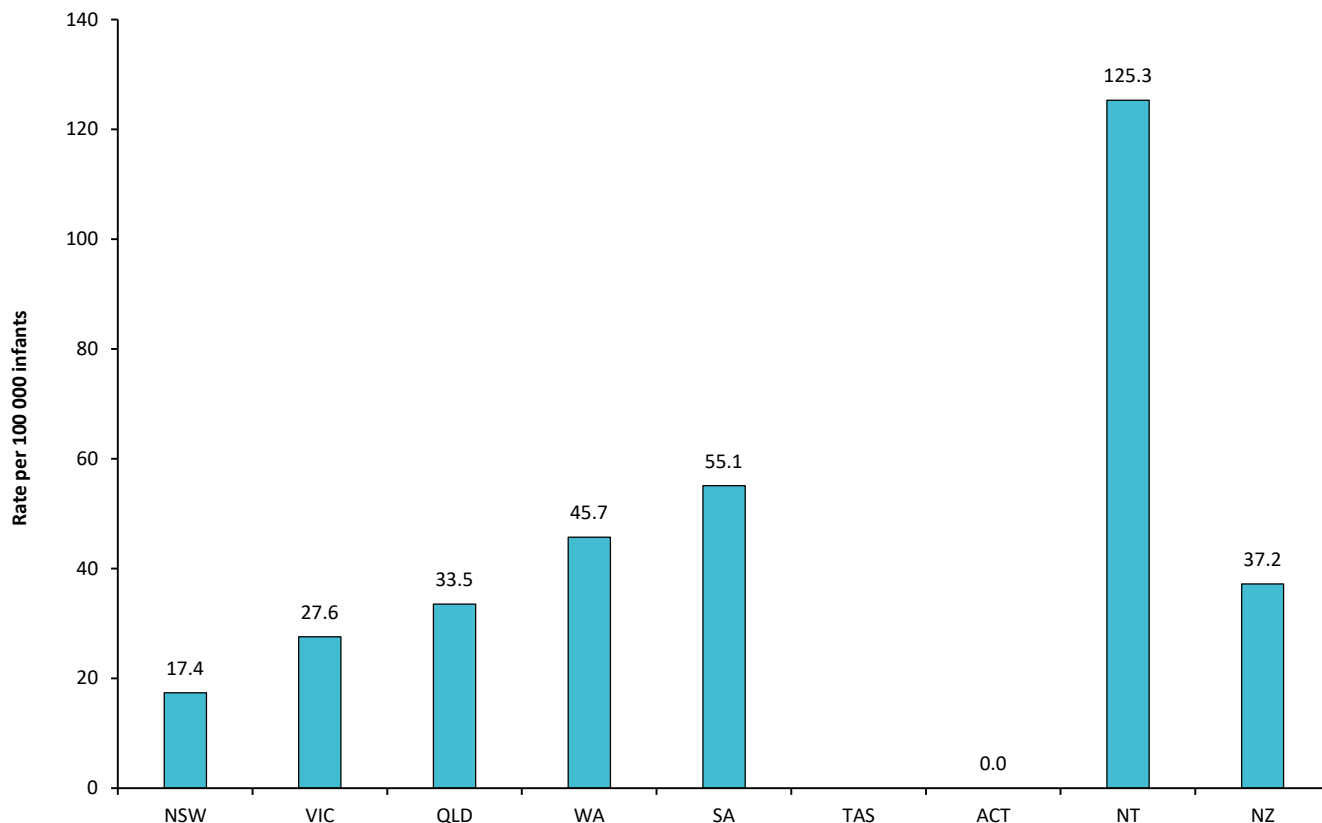
Jurisdiction		Age category						Total
		Under 1 year	1–4 years	5–9 years	10–14 years	15–17 years	1–17 years	
NSW	<i>n</i>	17	0	1	0	2	3	20
	Rate per 100 000	17.4	0.0	*	0.0	*	*	1.2
VIC	<i>n</i>	20	≤5	0	0	≤5	6	26
	Rate per 100 000	27.6	*	0.0	0.0	*	0.5	2.0
QLD	<i>n</i>	21	1	0	0	0	1	22
	Rate per 100 000	33.5	*	0.0	0.0	0.0	*	2.0
WA	<i>n</i>	16	0	0	0	0	0	16
	Rate per 100 000	45.7	0.0	0.0	0.0	0.0	0.0	2.7
SA	<i>n</i>	11	1				1	12
	Rate per 100 000	55.1	*				*	3.3
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>	0	0	0	0	0	0	0
	Rate per 100 000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NT	<i>n</i>	5	0	0	0	0	0	5
	Rate per 100 000	125.3	0.0	0.0	0.0	0.0	0.0	7.9
NZ	<i>n</i>	22	7	0	0	0	7	29
	Rate per 100 000	37.2	2.8	0.0	0.0	0.0	0.7	2.6

Data source: Australian and New Zealand Child Death Review and Prevention Group (2017), Ombudsman Western Australia (2017)

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

1. Classification of external-cause deaths may differ from state to state. The methodology section in this chapter 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, 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. The data sets for Western Australia for cause of death are provided by two separate organisations – Department of Health, Western Australia and the Ombudsman, Western Australia. Therefore these two data sets will not sum accurately and should not be compared.
5. Rates are calculated per 100 000 children in each age category in each jurisdiction.
6. Total rates are calculated per 100 000 children aged 0–17 years in each jurisdiction.
7. Rates are based on the most up-to-date denominator data available and use the ERP data as at 30 June 2015.
8. 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 2015, 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 2015



Data source: Australian and New Zealand Child Death Review and Prevention Group (2017), Ombudsman Western Australia (2017)

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

1. Classification of external-cause deaths may differ from state to state. The methodology section in this chapter 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, 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. The data sets for Western Australia for cause of death are provided by two separate organisations – Department of Health, Western Australia and the Ombudsman, Western Australia. Therefore these two data sets will not sum accurately and should not be compared.
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 2015.
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 2015, 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:⁴

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

⁴ Krous, H.F., Beckwith, J.B., Byard, R.W., Rognum, T.O., Bajanowski, 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.

In 2015, the Northern Territory had the highest rate of infant deaths from SIDS and undetermined causes (125.3 per 100 000), followed by South Australia (55.1 per 100 000). The Australian Capital Territory had the lowest calculated rate of infant deaths from SIDS and undetermined causes (0.0 per 100 000) and New South Wales had the second-lowest (17.4 per 100 000).

In 2015, Queensland had the fourth-highest rate of infant deaths from SIDS and undetermined causes (33.5 per 100 000), compared to the other jurisdictions.

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
- QFCC
- 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 and Ombudsman, Western Australia also provided data.

Analysis period

The analysis covers deaths that occurred during the period 1 January 2015 to 31 December 2015.

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 2015, 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 2015. 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 2015, and should not be used to infer the general probability of death for specific cohorts.⁵

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.

Tables 7 and 8 provide details of the child ERP of each jurisdiction as sourced from the ABS⁶ and Statistics New Zealand.⁷

Table 7: Estimated resident population by age category and jurisdiction, as at June 2015

Jurisdiction	Age category					Total
	Under 1 year	1–4 years	5–9 years	10–14 years	15–17 years	
New South Wales	97 918	393 939	483 051	452 472	274 667	1 702 047
Victoria	72 483	305 740	366 639	340 345	208 515	1 293 722
Queensland	62 620	255 723	321 269	304 774	183 336	1 127 722
Western Australia	34 992	138 494	168 856	155 433	94 717	592 492
South Australia	19 973	81 383	100 793	96 804	61 223	360 176
Tasmania	5 785	24 879	32 278	31 240	19 875	114 057
Australian Capital Territory	5 602	21 657	54 667	21 748	13 238	116 912
Northern Territory	3 990	15 043	17 975	16 982	9 597	63 587
New Zealand	59 110	246 630	315 140	293 470	186 840	1 101 190

Data source: ABS (2016); Statistics New Zealand (2017)

Table 8: Estimated resident population aged 0–17 years by sex and jurisdiction, as at June 2015

Jurisdiction	Sex	
	Female	Male
New South Wales	827 015	875 032
Victoria	629 859	663 863
Queensland	548 396	579 326
Western Australia	289 884	302 608
South Australia	175 664	184 512
Tasmania	55 194	58 863
Australian Capital Territory	42 447	44 465
Northern Territory	30 804	32 783
New Zealand	536 270	564 920

Data source: ABS (2016); Statistics New Zealand (2017)

⁶ Australian Bureau of Statistics (2017). *Australian Demographic Statistics March 2016*, 'Tables 51-58: Estimated Resident Population by Single Year of Age, States and territories', time series spreadsheets, cat. no. 3101.0.

⁷ Statistics New Zealand (2017). *Estimated Resident Population by Age and Sex (1991+) (Annual-Jun 2015)*.

Indigenous population data

Estimates for the Australian Aboriginal and Torres Strait Islander child population for each jurisdiction⁸ and the New Zealand Māori population⁹ as at June 2015 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 2015

Jurisdiction	Indigenous status		Indigenous %
	Indigenous children	Non-Indigenous children	
New South Wales	92 077	1 609 970	5.4%
Victoria	21 146	1 272 576	1.6%
Queensland	87 761	1 039 961	7.8%
Western Australia	37 274	555 218	6.3%
South Australia	16 145	344 031	4.5%
Tasmania	10 733	103 324	9.4%
Australian Capital Territory	2 447	114 465	2.1%
Northern Territory	26 721	36 866	42.0%
New Zealand	278 290	822 900	25.3%

Data source: ABS (2014); Statistics New Zealand (2015)

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 4.3% of the overall Queensland population,^{10,11} 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.

⁸ 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.

⁹ Statistics New Zealand (2015). *Māori Population Estimates: At 30 June 2015 – tables*.

¹⁰ 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.

¹¹ Australian Bureau of Statistics (2016). *Australian Demographic Statistics, Dec 2016*. 'Table 53: Estimated Resident Population By Single Year of Age, Queensland', data cube: Excel spreadsheet, cat. No. 3101.0.

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-PDC¹² and PSANZ-NDC¹³ 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 reason) 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.
- 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 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 the Victoria's mothers, babies and children 2014 and 2015 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>. Published June 2017.
- The Victorian CCOPMM does not specify raw figures where these are less than, or equal to 5. Aboriginal and Torres Strait Islander figures are not specified for counts less than 10. These are represented by the figures ≤5 and <10 throughout this chapter.
- The data for Western Australia for all child deaths, deaths by Indigenous status, sex and for deaths due to diseases and morbid conditions are obtained from the Department of Health, while the data for external-cause deaths and deaths from SIDS and undetermined causes is provided by the Ombudsman, Western Australia. Therefore these two data sets will not sum accurately and should not be compared.
- 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.

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

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

- 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.

The New Zealand Child and Youth Mortality Committee notes 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.
- 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 21 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.

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.