



Child and Youth
Mortality Review
Committee

Child and Youth Mortality Review Committee

13th data report
2012–16

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Executive summary

This is the 13th data report released for the Child and Youth Mortality Review Committee (the CYMRC). It reports mainly on data from 2012 to 2016, as well as providing some tables and figures for 2002 to 2016 and some for 1980 to 2016. Most of the data is from the Mortality Review Database, which contains information on all deaths in children and young people aged 28 days to 24 years who died in Aotearoa/New Zealand from 2002 to the present.

In Aotearoa/New Zealand during the period 2012–16, 2,621 children and young people aged 28 days to 24 years died. Of this total, 483 died in 2016, which is the lowest number of deaths in a single year since the CYMRC was established in 2002. The reduction in the mortality rate over this time is statistically significant.¹

Overall, the leading cause of death was medical conditions (38.8 percent). This was followed by unintentional injury (27.7 percent of deaths) and intentional injury (25.3 percent). Sudden unexpected death, either in infancy (SUDI) or in those aged 12–23 months (SUD), accounted for 7.6 percent of deaths. The leading cause of death changes with age: in children younger than 15 years it is medical conditions, whereas in those aged 15–24 years it is intentional injury (particularly suicide, but also including assault).

The leading medical causes of death also change with age. Perinatal conditions and congenital anomalies are the most common cause in the first year of life, followed by respiratory diseases and infectious and parasitic diseases. However, from one year of age onwards, neoplasms are the primary medical cause of death. In adolescents, diseases of the nervous system are also relatively common. This includes deaths due to epilepsy (46 percent of adolescent neurological deaths), cerebral palsy (25 percent) and muscular dystrophy (22 percent).

Unintentional injury deaths in children and young people occur in two peaks: the first in children aged one to four years, among whom the number of drownings is proportionally high; and the second in adolescence. Transport-related deaths feature heavily in unintentional injury deaths at all ages.

From 15 years of age onwards, suicide is the leading cause of death. Deaths due to assault also occur in two peaks: the first in children under the age of five years and the second in adolescence.

Mortality rates vary by socioeconomic deprivation (hardship), as measured by the New Zealand Deprivation Index. For children and young people overall, mortality rates grow consistently higher with increasing deprivation. Of note, those in decile 10 (most deprived) have a mortality rate over three times higher than the rate of those in decile 1 (least deprived).

When examined by ethnic group, tamariki and taitamariki Māori and Pacific children and young people have the highest mortality rates, followed by those of European and Other ethnicities, and Middle Eastern, Latin American and African (MELAA) ethnic groups. Asian children and young people have the lowest mortality rate overall.

During the period 2012–16, there were 954 deaths in tamariki (28 days to 14 years) and taitamariki (15–24 years) Māori. The leading cause of death was medical conditions (34.7 percent), followed by intentional injury (29.4 percent) and unintentional injury (23.1 percent). The most common medical condition causing death was neoplasms. Large inequities remain in mortality between Māori and non-Māori non-Pacific children and young people. The disparity is most notable for sudden

¹ Chi-squared test for trend for the mortality rate from 2002 to 2016 p-value <0.0001.

unexpected death (SUDI and SUD), where the rate ratio comparing Māori with non-Māori non-Pacific is 7.37 (95 percent confidence interval (CI) 5.22–10.39); and for intentional injury deaths, where the rate ratio is 2.45 (95 percent CI 2.09–2.87). Eighty-nine percent of intentional injury deaths were due to suicide, with marked inequities between Māori and non-Māori non-Pacific occurring from the age of 10 years onwards. For intentional injuries in tamariki Māori aged 10–14 years, all were due to suicide.

During the five years from 2012 to 2016, there were 395 deaths in Pacific children and young people in Aotearoa/New Zealand. The leading cause of death was medical conditions. The most common medical condition overall was neoplasms, followed by diseases of the respiratory system and congenital anomalies. The most common cause of unintentional injury deaths was transport-related (57 percent of unintentional injury deaths). The disparities between Pacific and non-Pacific non-Māori are clearly evident: at all ages, except among those aged five to nine years, Pacific children and young people have higher mortality rates. This disparity is most notable in post-neonatal infants (aged 28 days to less than one year). Conditions with the largest disparity between Pacific and non-Pacific non-Māori children and young people are medical conditions, intentional injury in those aged 10–19 years (primarily suicide) and SUDI.

There were 722 post-neonatal SUDI deaths over the period 2002–16, with 38 deaths in 2016. An analysis by ethnic group points to clear inequities. Māori have a higher SUDI rate than non-Māori non-Pacific. The SUDI mortality for Pacific fluctuates somewhat, but is also consistently higher than the non-Māori non-Pacific rate. Pacific SUDI mortality peaked in 2015 at 2 per 1,000 live births, but in 2016 it was 1.3 deaths per 1,000 live births.

There were 1,758 deaths due to suicide during the period 2002–16. This is the leading cause of death in adolescents, and accounted for 36 percent of all deaths in those aged 15–24 years. Males are over-represented in suicide mortality data: among those aged 10–24 years, the male:female ratio of suicide deaths is 2.5:1. However, this over-representation is not apparent until the mid-teenage years. In younger years, the rates of suicide deaths in females and males are similar. In later teenage years and through until the early 20s, the number of male suicide deaths is substantially greater than the number of female deaths. Deaths due to suicide in Māori tend to begin at a younger age: 60 percent of deaths in those aged 10–14 years were in tamariki Māori.

Similarly to suicide, males are over-represented in deaths due to all causes, accounting for 66 percent of deaths. While male deaths are more common than female deaths for all causes of death, the difference is particularly marked in intentional injury (69 percent male) and unintentional injury (76 percent male) deaths.

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Methods

Overview

The Child and Youth Mortality Review Committee (the CYMRC) was established in 2002 to review deaths in children and young people aged 28 days to 24 years in order to prevent future deaths in this age group. Because the Perinatal and Maternal Mortality Review Committee reviews perinatal-related deaths (from 20 weeks gestation to 27 days of age), this report does not include them, except in Figure 15.1.

Since the CYMRC was established, the review process has evolved. Many people and organisations are involved in providing information, reviewing deaths, collating information, and analysing and reviewing collated data. Particular processes that are central to mortality review are: gathering information and reviewing individual deaths in the district health board (DHB) region where each person lived; and collecting and collating national data.

Case review and data collation involve the following steps.

1. National organisations and some individuals provide information directly to the Mortality Review Data Group (MRDG).
2. The information held centrally is available for use at local review meetings through DHB-appointed CYMRC local review group coordinators.
3. Following the review of each death, CYMRC coordinators add further information to the national database.
4. The MRDG collates and analyses information held in the national database for the CYMRC.
5. The CYMRC reviews the collated case information as well as locally identified issues, recommendations and actions. This provides a detailed overview of regional and national trends, which inform prevention strategies and support recommendations at both local and national levels.

Data collection

The MRDG collects, securely stores and links case information about all child and youth deaths from 1 January 2002 for the CYMRC. Information comes from a variety of sources, including:

1. Births, Deaths and Marriages (Department of Internal Affairs)
2. Ministry of Health
3. Oranga Tamariki—Ministry for Children
4. coroners
5. Coronial Services (Ministry of Justice)
6. Water Safety New Zealand
7. Ministry of Transport
8. local child and youth mortality review groups
9. families of the deceased.

Data providers supply information in varying formats, as well as at times and time intervals that suit them. A weekly extract from Births, Deaths and Marriages is the primary source of notification of deaths. Organisations such as Water Safety New Zealand and the Ministries of Health and

Transport routinely provide selected information on all relevant deaths. The CYMRC continues to consider other suitable data sources in addition to these and to liaise with other organisations.

Some source providers have changed data format or have not been providing information since 2002. For example, Oranga Tamariki—Ministry for Children² provides information for cases that it has had contact with from June 2006 onwards. (The age range considered has gradually expanded from infants and pre-schoolers to include deaths in children and young people up to 24 years of age in 2009.) Most coroners have provided information on coronial cases since January 2003. The MRDG enters and codes all information from the different and sometimes conflicting data sources, in order to help local review as well as national reporting.

Figure M1: Flow of case information from sources to the Mortality Review Database

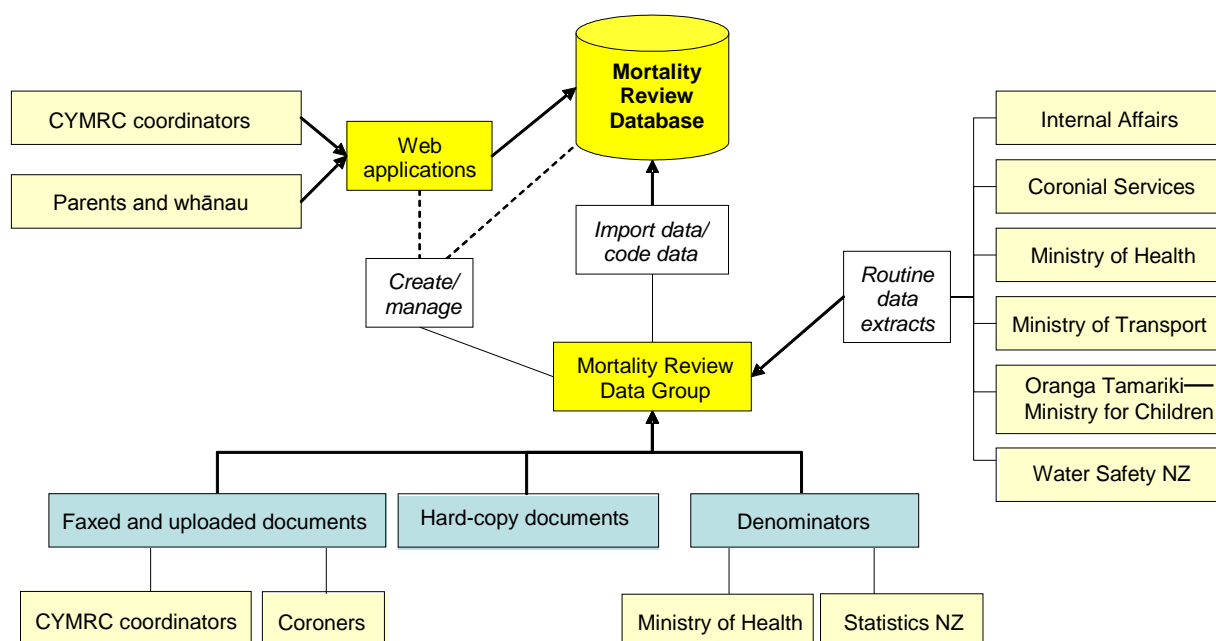


Figure M1 illustrates these sources of information and some of the steps in processing the information. The MRDG maintains websites that allow individuals to contribute information directly. Through a link on the public Health Quality & Safety Commission website (www.hqsc.govt.nz/our-programmes/mrc/cymrc/information-for-parents-and-families), families, whānau and friends who have lost a child or young person can provide feedback about their experiences. The CYMRC local review group coordinator adds further details both before and after local review, via a secure website. As well as data extracts – directly entered data and coded data – the information system includes documents coroners have faxed, electronic format coronial case information (post-2010), uploaded documents, hard copies of documents and denominators (provided by Statistics New Zealand and the Ministry of Health).

The MRDG identifies the National Health Index (NHI) number of the person about whom each item of information is received. It imports data into the Mortality Review Database and links the various sources of information that relate to each individual. The MRDG regularly cleans data to eliminate duplicate or incorrect records and follow up on missing details, so records are complete and internally consistent.

² Before 31 March 2017, Child, Youth and Family performed this role. Oranga Tamariki—Ministry for Children has since replaced Child, Youth and Family.

When interpreting CYMRC data, please note it comes from a database that is constantly being updated. As well as receiving details of new cases, it can gain new information for existing cases and, at times, changing information for existing cases. As a result, details can change from year to year, even for cases where death occurred some years previously. This is particularly true of cases that require an inquest, because this process may not be completed until years after the death.

While this report includes deaths that occurred prior to 31 December 2016, the 2016 data is the least complete of any year, for the above reasons. The incompleteness of the data is not randomly spread across all causes. Where deaths are referred to the coroner, such as unexpected deaths and some injury deaths, information on the final cause of death is less likely to be available quickly. Therefore, cause of death information relating to deaths in 2016 in particular needs to be interpreted with caution. This also means later annual reports may have slightly different numbers in any one category. The most recent report will be the most accurate.

The local review process

Deaths of children and young people are reviewed by the local child and youth mortality review group (LCYMRG) in the DHB in which the individual lived. The purpose of local review is to identify systems issues that can be modified to reduce the likelihood of future deaths.

Each LCYMRG has an appointed chair and coordinator. When the death of a child or young person aged between 28 days and 24 years occurs within a coordinator's region, the coordinator will access the secure database to gather initial information on the deceased. The coordinator also collects information from local organisations involved over the life course of the individual to create a shared understanding of the circumstances leading to their death. The coordinator will then initiate information requests to the various members of the LCYMRG, who each act as a representative of their particular organisation. Some of the new information gathered as part of the local review process is entered into the Mortality Review Database.

As official agents of the CYMRC, the LCYMRG members can access their organisation's records to identify and collect information that may be relevant to the review process. The members bring this information to the review meeting and provide relevant details, as needed, for the review. The local chair facilitates each review and has the task of bringing together all the relevant factors relating to a death.

Information shared in the context of the review meeting must remain confidential to the process. Issues identified in the meeting that require urgent action from participating agencies, such as aspects of professional competence or the safety of others, must be dealt with outside the review process using the normal inter-agency protocols and procedures. This means participants do not compromise the no-blame focus of the review process or the confidentiality agreement signed as a condition of agent status. The process is exempt from Official Information Act 1982 requirements, but complaints about procedures can be reported to and investigated by the Ombudsman.

A review group might meet several times before it has gathered all the information on a case. Once it has all the information, the group may choose to highlight issues or make specific recommendations. Local recommendations may be delegated to specific group members if the agency they represent is needed to facilitate a response. It is important to present the issues and recommendations in a way that does not assign blame but rather focuses on systems changes that could prevent future deaths.

Once a review group has completed its local death review, the coordinator enters all the relevant data into the secure national database. In this way, issues, recommendations and follow-up actions are forwarded to the national CYMRC.

The LCYMRG process gathers extensive detail about the context of the death. The process itself supports local action in response to learning from cases. Although only a proportion of deaths before 2009 have been reviewed, the increased coverage of the LCYMRGs since then will allow for many more system improvements in the future.

Analysis and coding

Mortality data

The data for this report is from the Mortality Review Database. The data was extracted from the database on 21 November 2017. For the purposes of mortality review in Aotearoa/New Zealand, children and young people are defined as those aged from 28 days to 14 years (children) and from 15 to 24 years (adolescents). In all tables, the year of death relates to the calendar year in which the individual died, rather than the year the death was registered. This is different to some official collections, which use the year the death is registered. Where neonatal deaths are included, these do not include stillbirths or terminations.

Cause of death

In response to requests for more detailed ICD-10-AM coding, the Ministry of Health data was altered in 2008 to include its mortality coding. Cause of death is now assigned using the Underlying Cause of Death from the Ministry of Health's Mortality Collection. This was backdated to include all cases in the database, not just those from 2008 onwards.

For deaths in infants younger than one year of age, SUDI (sudden unexpected death in infancy) is assigned as the cause of death where the Mortality Collection listed any one of the following ICD-10-AM codes as the underlying cause of death:

- R95 Sudden infant death syndrome
- R96 Other sudden death, cause unknown
- R98 Unattended death
- R99 Other ill-defined and unspecified causes of mortality
- W75 Accidental suffocation and strangulation in bed
- W78 Inhalation of gastric contents
- W79 Inhalation and ingestion of food causing obstruction of respiratory tract.

If the individual was between 12 and 23 months of age, and any of the following ICD-10-AM codes were listed as their underlying cause of death, the individual's cause of death was attributed to SUD (sudden unexpected death):

- R95 Sudden infant death syndrome
- R96 Other sudden death, cause unknown
- R98 Unattended death
- R99 Other ill-defined and unspecified causes of mortality
- W75 Accidental suffocation and strangulation in bed
- W78 Inhalation of gastric contents.

The cause of death tables arrange external causes of death according to the International Collaborative Effort on Injury Statistics classification. This assigns ICD-10 groupings to various

headings. This report uses the classification system that this report series has followed since 2011, which is slightly different to the system for the reports before 2011; so data from some previous reports may not be directly comparable.

Ethnicity

The database contains ethnicity data from multiple sources. These sources are: Births, Deaths and Marriages, the Ministry of Health, coronial records and the information entered by LCYMRG coordinators when reviewing a death. A data source hierarchy establishes which data source is used, based on evidence as to its quality and completeness in Aotearoa/New Zealand.

The ethnic groups this report uses – Māori; Pacific; Asian; Middle Eastern, Latin American and African (MELAA); and European and Other – are consistent with the groupings used more generally in the health sector. We recognise that within each of these groups exists great diversity, both in country of origin, language(s) and culture, and in equity in New Zealand society.

The Māori and Pacific chapters of this report (Chapters 2 and 3) were developed independently with the Māori and Pacific members of the national CYMRC. As a result, each of these chapters contains different information according to Māori and Pacific population group priorities as identified by representative CYMRC members. We are grateful to these members for their time and commitment in developing these chapters.

Most of the report uses prioritised ethnicity. This involves a process to assign one ethnic group to each individual, giving precedence to Māori, followed by Pacific, Asian, MELAA and then European and Other ethnicities. The exception is the Pacific chapter, which uses a total response ethnicity classification. This means that if an individual has a Pacific ethnic group as any one of their ethnicities, they will be included there. Under a prioritised system, if an individual identified as being both Pacific and Māori, they would be counted as Māori. However, in the Pacific chapter using a total response system, they will be included as Pacific.

DHB of residence

The DHB of residence is derived from the person's address as supplied by the coroner, police or Births, Deaths and Marriages. This address is based on the individual's self-identified 'usual' place of residence and does not necessarily reflect their legal residential status.

Statistics

The MRDG computed the data presented in this report from the Mortality Review Database. Percentages are expressed to one decimal place. In some cases, due to rounding, percentages do not add up to 100 exactly.

The denominators used in the main analyses are from two sources. The first is the number of live births in Aotearoa/New Zealand, as supplied by the Ministry of Health. Year is determined using the year of registration of birth, rather than the year of birth itself. Rates for post-neonatal infant deaths (aged 28 days to less than one year) are expressed in terms of the number per 1,000 live births. The other denominator used is a derived estimated resident population. This is calculated for each year and is based on the Statistics New Zealand Estimated Resident Population from census years 2001, 2006 and 2013. Linear extrapolation was undertaken to calculate the estimated resident population between 2001 and 2006, and 2006 and 2013. The 2006 to 2013 gradient was then used to extrapolate out to 2016. The denominator for the age group of one to four years was calculated using the above methods to derive the population aged under four years. To estimate the one to four year population the number of live births from each year were subtracted off this total. Rates in this report are presented as the number per 100,000 age-specific population for most age groups;

the exception is for infants younger than one year, for whom rates are expressed as the number per 1,000 live births.

The Pacific chapter (Chapter 3) required a total response Pacific denominator. It used the count of the usually resident population from Statistics New Zealand Pacific ethnic group (total responses) census for the relevant years.

Some of the figures in this report contain historical data dating back to 1980. The numerator for these deaths is as follows: it uses CYMRC data for deaths aged 28 days to 24 years from 2002 onwards; for earlier years, it uses Statistics New Zealand data. For neonatal deaths (0–27 days), the numerator uses Perinatal and Maternal Mortality Review Committee data from 2007 onwards; for earlier years, it uses Statistics New Zealand data. The denominator used to calculate infant mortality rates was live births from Statistics New Zealand (1980–2016). The denominator used to calculate mortality rates for children and young people aged 1–24 years was population estimates from Statistics New Zealand (1980–2016). Statistics New Zealand uses a historical de facto population for years before 1991 and the Estimated Resident Population from 1991 onwards. The historical de facto population estimates are based on counts of all people present at a given time and do not account for people who are not usually resident or for those who are usually resident but temporarily out of the country.³ The Estimated Resident Population takes into account residents who are temporarily overseas and makes an adjustment for net census undercount, as well as excluding visitors from overseas.⁴

Rates and confidence intervals are expressed to two decimal places. Rates are not calculated for numbers less than three. Due to the differences in the way rates are calculated and the different denominators used, the rates presented in this report may vary from other published rates.

The deaths of non-New Zealand residents are excluded from the main sections of the report because the denominator in rate calculations (as above) excludes visitors from overseas. Data on this population is provided as a supplement, with rates not calculated.

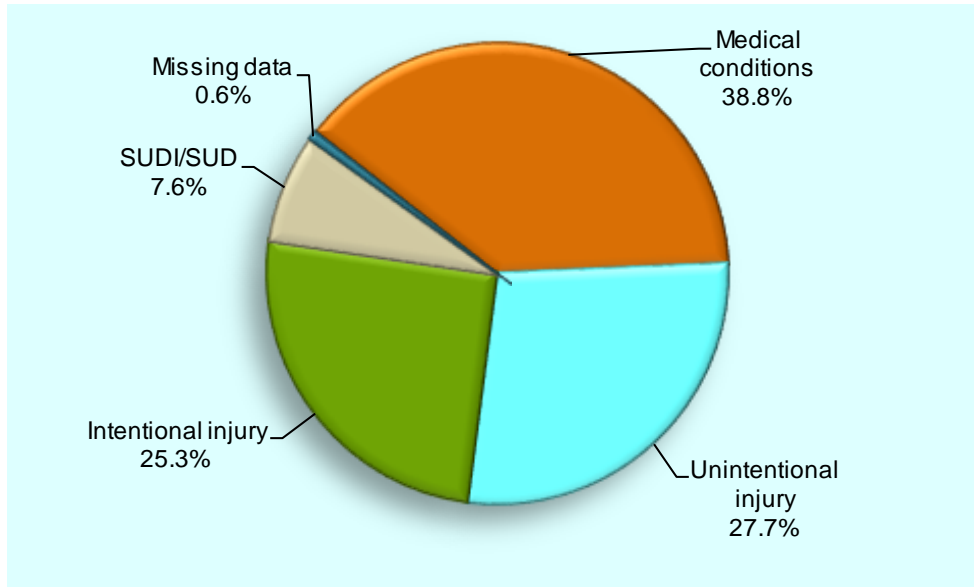
The term 'statistical significance' in this report indicates a statistical test has provided sufficient evidence that the groups being compared are different (with a statistical significance level of 0.05 – that is, the probability that the groups are the same is less than 5 percent).

³ Statistics New Zealand website: <http://datainfolplus.stats.govt.nz/item/nz.govt.stats/bec27cc6-c9e2-4b7a-b1f4-cb5e096f91ad> (accessed 15 February 2018).

⁴ Statistics New Zealand website: <http://datainfolplus.stats.govt.nz/item/nz.govt.stats/7751f101-7b2d-4e97-a487-3ac4126d22d4> (accessed 15 February 2018).

1 Overview of national data for Aotearoa/ New Zealand

Figure 1.1: Mortality (%) in children and young people aged 28 days to 24 years by cause of death, Aotearoa/New Zealand 2012–16 combined (n=2,621 deaths)



Source: Mortality Review Database.

In Aotearoa/New Zealand during the period 2012–16, 2,621 children and young people aged 28 days to 24 years died. Of this total, 483 died in 2016 (**Table 1.3**), which is the lowest number of deaths in a single year since the CYMRC was established in 2002 (**Table 15.2** and **Figures 15.1** and **15.2**). The reduction in the mortality rate over this time is statistically significant.⁵ Overall, the leading cause of death during the period 2012–16 was medical conditions (38.8 percent). This was followed by unintentional injury (27.7 percent of deaths) and intentional injury (25.3 percent). Sudden unexpected death, either in infancy (SUDI) or in those aged 12–23 months (SUD), accounts for 7.6 percent of deaths (**Figure 1.1**).

The leading cause of death changes with age: in children younger than 15 years, it is medical conditions; and in those aged 15–24 years, it is intentional injury (suicide and assault) (**Table 1.1**).

Table 1.1: Mortality (number of deaths) in children and young people aged 28 days to 24 years by cause of death and age group, Aotearoa/New Zealand 2012–16 combined (n=2,621 deaths)

Category	<1 year*	1–4 years	5–9 years	10–14 years	15–19 years	20–24 years	Total	Percentage (%)
Medical	248	167	104	81	178	238	1,016	38.8
Unintentional injury	12	74	51	51	252	287	727	27.7
Intentional injury	8	7	3	39	273	332	662	25.3
SUDI/SUD	186	13	0	0	0	0	199	7.6
Missing data	<3	3	<3	<3	3	5	17	0.6
Total	456	264	160	173	706	862	2,621	100

* This category represents infants aged from 28 days onwards but younger than one calendar year.

Source: Mortality Review Database.

⁵ Chi-squared test for trend for the mortality rate from 2002 to 2016 p-value <0.0001.

Table 1.2: Mortality (number of deaths and total rate per 100,000 resident population) by cause of death and age group, Aotearoa/New Zealand 2012–16 combined (n=2,621 deaths)

Cause of death	<1 year*	1–4 years	5–9 years	10–14 years	15–19 years	20–24 years	Total	%	Rate 2012–16
Medical									
Infectious and parasitic disease	20	18	3	<3	5	3	51	1.9	0.66
Neoplasms	13	34	41	29	65	69	251	9.6	3.25
Diseases of the blood and blood-forming organs and disorders of the immune system	7	<3	<3	0	6	<3	19	0.7	0.25
Endocrine, nutritional and metabolic diseases	8	7	13	4	11	14	57	2.2	0.74
Mental and behavioural disorders	0	<3	0	<3	<3	7	11	0.4	0.14
Diseases of the nervous system	15	27	14	15	28	51	150	5.7	1.95
Diseases of the circulatory system	14	7	3	9	18	30	81	3.1	1.05
Diseases of the respiratory system	28	26	10	12	10	9	95	3.6	1.23
Diseases of the digestive system	4	<3	<3	3	<3	6	19	0.7	0.25
Diseases of the skin and subcutaneous tissue	0	0	0	0	<3	<3	<3	x	s
Diseases of the musculoskeletal system and connective tissue	0	<3	0	<3	4	<3	9	0.3	0.12
Diseases of the genitourinary system	0	0	<3	0	<3	5	7	0.3	0.09
Pregnancy, childbirth and the puerperium	0	0	0	0	0	6	6	0.2	0.08
Certain conditions originating in the perinatal period	66	3	0	0	0	0	69	2.6	0.89
Congenital anomalies	73	32	14	3	18	22	162	6.2	2.1
Symptoms and abnormal findings not elsewhere classified	0	7	<3	<3	7	11	27	1.0	0.35
Total medical	248	167	104	81	178	238	1,016	38.8	13.17

Cause of death	<1 year*	1–4 years	5–9 years	10–14 years	15–19 years	20–24 years	Total	%	Rate 2012–16
Unintentional injury									
Cut/pierce	0	0	0	0	0	<3	<3	x	s
Drowning	<3	17	4	7	28	35	93	3.5	1.21
Fall	<3	<3	<3	3	10	10	26	1.0	0.34
Fire/hot object or substance	0	<3	4	<3	4	4	14	0.5	0.18
Firearm	0	<3	0	<3	<3	5	10	0.4	0.13
Machinery	0	<3	0	0	<3	<3	3	0.1	0.04
Transport	7	33	32	30	180	200	482	18.4	6.25
Natural/environmental	0	<3	<3	<3	0	<3	6	0.2	0.08
Poisoning	0	<3	<3	<3	16	14	35	1.3	0.45
Struck by, against	0	5	<3	0	<3	6	15	0.6	0.19
Suffocation	0	6	4	3	6	5	24	0.9	0.31
Other specified, classifiable	<3	<3	<3	<3	<3	3	8	0.3	0.10
Other specified, not elsewhere classified	0	0	0	0	<3	0	<3	x	s
Unspecified	<3	4	0	<3	0	0	6	0.2	0.08
Complications of medical and surgical care	0	0	0	0	<3	0	<3	x	s
Sequelae of surgical and medical care as external cause	0	0	0	<3	0	0	<3	x	s
Total unintentional injury	12	74	51	51	252	287	727	27.7	9.43
Intentional injury									
Assault	8	7	3	<3	10	30	59	2.3	0.77
Suicide	0	0	0	38	263	302	603	23	7.82
Total intentional injury	8	7	3	39	273	332	662	25.3	8.58
SUDI/SUD									
SUDI (28 days to <1 year)†	186	–	–	–	–	–	186	7.1	2.41
SUD (12–23 months)‡	–	13	–	–	–	–	13	0.5	0.17
Total SUDI/SUD	186	13	0	0	0	0	199	7.6	2.58
Missing data	<3	3	<3	<3	3	5	17	0.65	0.22
Total	456	264	160	173	706	862	2,621	100	33.99

* This category represents infants aged 28 days onwards but younger than one calendar year.

† See **Table 6.1** for SUDI deaths by ICD-10-AM code. ‡ See **Table 7.1** for SUD deaths by ICD-10-AM code.

– Indicates not applicable, as SUDI and SUD are age-restricted causes of death in this report.

Note: no deaths occurred due to the following during the study period: diseases of the eye and adnexa, diseases of the ear and mastoid process, or deaths due to overexertion.

'x' indicates percentage not calculated due to small numbers.

's' indicates rate not calculated due to small numbers.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 0–24 years.

The leading medical causes of death also change with age. Perinatal conditions and congenital anomalies are most common in the first year of life, followed by respiratory diseases and infectious and parasitic diseases. However, from one year of age onwards, neoplasms are the primary

medical cause of death. In adolescents, diseases of the nervous system are also relatively common. This includes deaths due to epilepsy (46 percent of adolescent neurological deaths), cerebral palsy (25 percent) and muscular dystrophy (22 percent).⁶

Unintentional injury deaths in children and young people occur in two peaks: the first in children aged one to four years, among whom the number of drownings is proportionally high; and the second in adolescence. Transport-related deaths feature heavily in unintentional injury deaths.

From 15 years of age onwards, intentional injury deaths, particularly suicide, are the most common cause of death. Deaths due to assault also occur in two peaks: the first in children under the age of five years and the second in adolescence (**Table 1.2**).

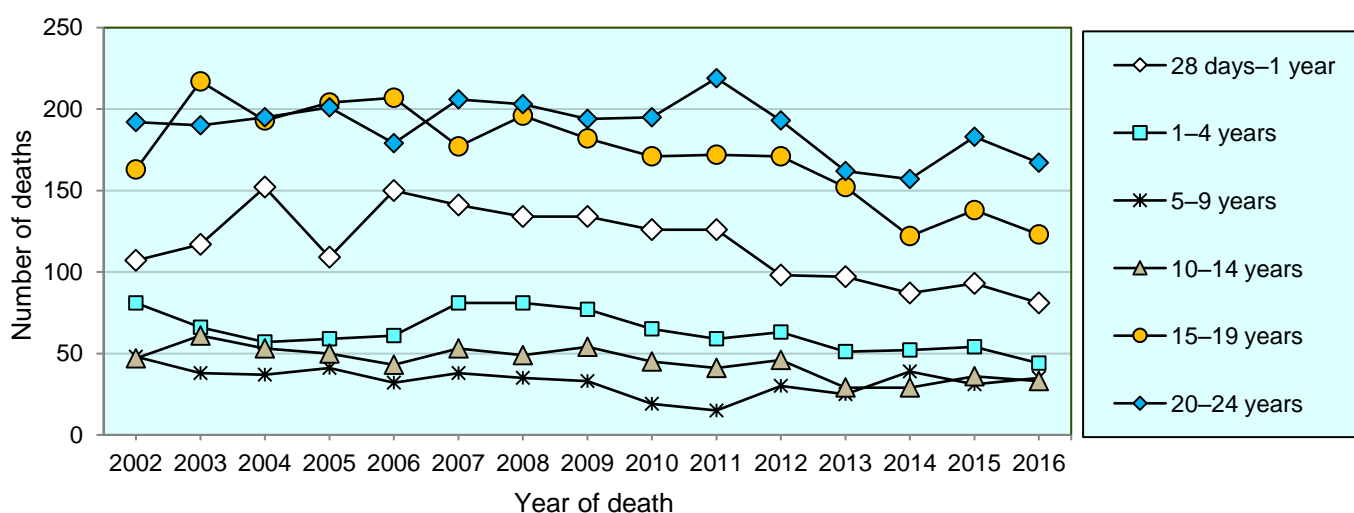
Table 1.3: Mortality (number of deaths) in children and young people aged 28 days to 24 years by age group and year of death, Aotearoa/New Zealand 2012–16 (n=2,621 deaths)

Category	2012	2013	2014	2015	2016	Total	Percentage (%)
28 days–<1 year	98	97	87	93	81	456	17.4
1–4 years	63	51	52	54	44	264	10.1
5–9 years	30	25	39	31	35	160	6.1
10–14 years	46	29	29	36	33	173	6.6
15–19 years	171	152	122	138	123	706	26.9
20–24 years	193	162	157	183	167	862	32.9
Total	601	516	486	535	483	2,621	100

Source: Mortality Review Database.

Overall, a general trend has been for the number of deaths to fall over time. In 2015 the number of deaths increased slightly in most age groups; however, the figures showed some improvement in 2016 (**Table 1.3** and **Figure 1.2**).

Figure 1.2: Mortality (number of deaths) in children and young people aged 28 days to 24 years by age group and year of death, Aotearoa/New Zealand 2002–16 (n=9,292 deaths)



Source: Mortality Review Database.

⁶ Data not shown.

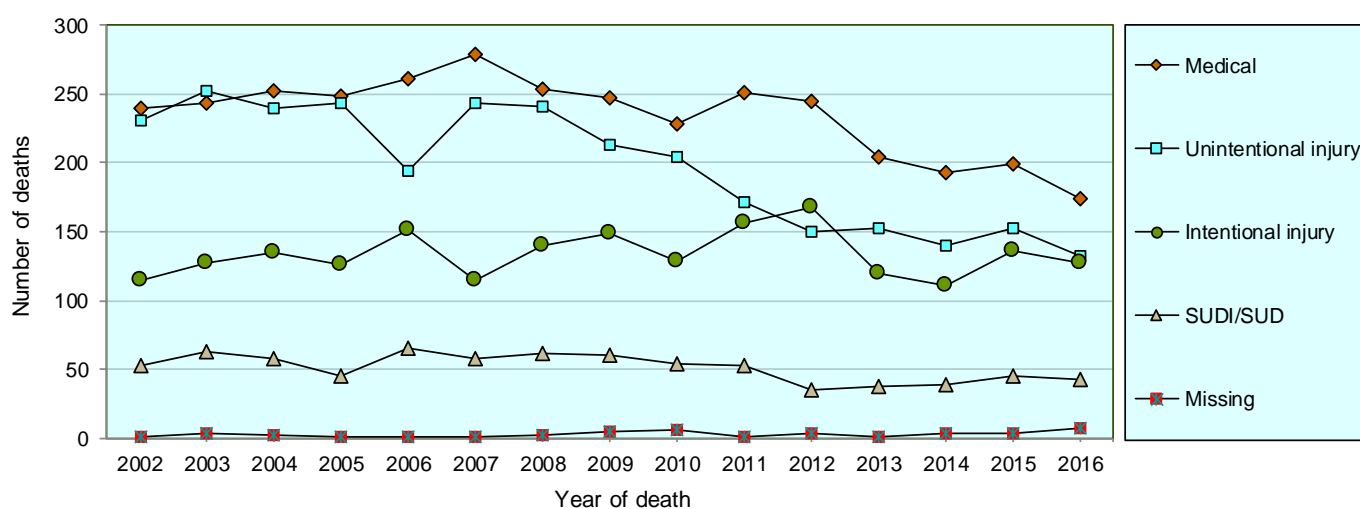
Table 1.4: Mortality (number of deaths) in children and young people aged 28 days to 24 years by cause and year of death, Aotearoa/New Zealand 2012–16 (n=2,621 deaths)

Category	2012	2013	2014	2015	2016	Total	Percentage (%)
Medical	245	205	193	199	174	1,016	38.8
Unintentional injury	150	153	140	152	132	727	27.7
Intentional injury	168	120	111	136	127	662	25.3
SUDI/SUD	35	37	39	45	43	199	7.6
Missing data	3	<3	3	3	7	17	0.6
Total	601	516	486	535	483	2,621	100

Source: Mortality Review Database.

Similarly, the number of deaths by all causes of death increased a little in 2015 compared with 2014 (**Table 1.4**). However, for each cause of death, fewer deaths occurred in 2016. When compared with the years before 2012, the number of medical and unintentional injury deaths is lower than in previous years. The number of intentional injury deaths fluctuates from year to year and is currently in the mid-range compared with previous years (**Figure 1.3**).

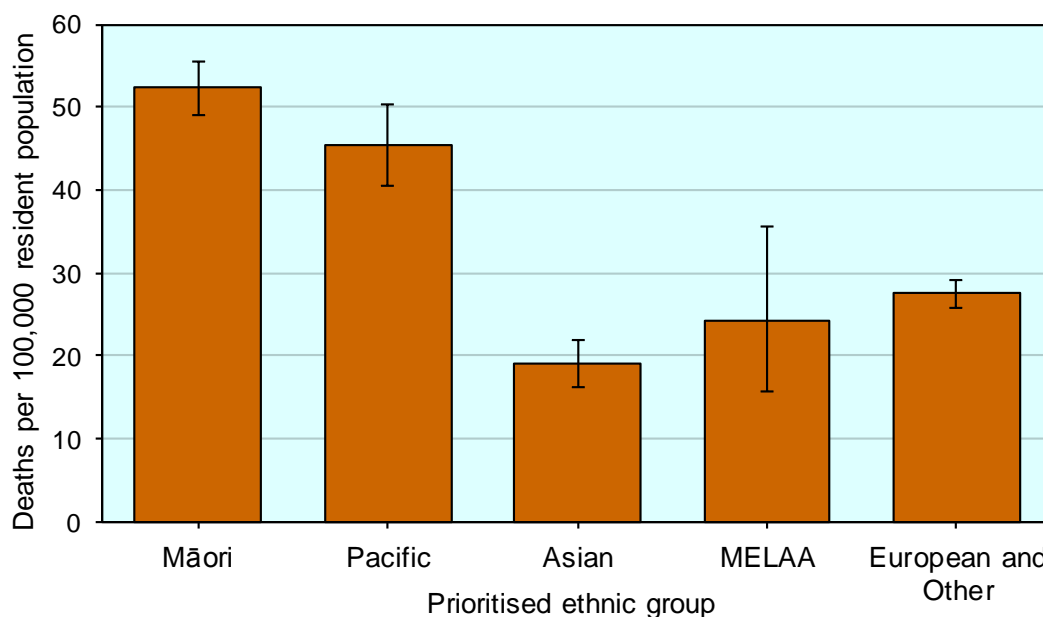
Figure 1.3: Mortality (number of deaths) in children and young people aged 28 days to 24 years by cause and year of death, Aotearoa/New Zealand 2002–16 (n=9,292 deaths)



Source: Mortality Review Database.

When examined by ethnic group, tamariki and taitamariki Māori and Pacific children and young people have the highest mortality rates, followed by those of European and Other ethnicities, and MELAA. Asian children and young people have the lowest mortality rate overall (**Figure 1.4**).

Figure 1.4: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children and young people aged 28 days to 24 years by ethnic group, Aotearoa/New Zealand 2012–16 combined (n=2,616 deaths*)

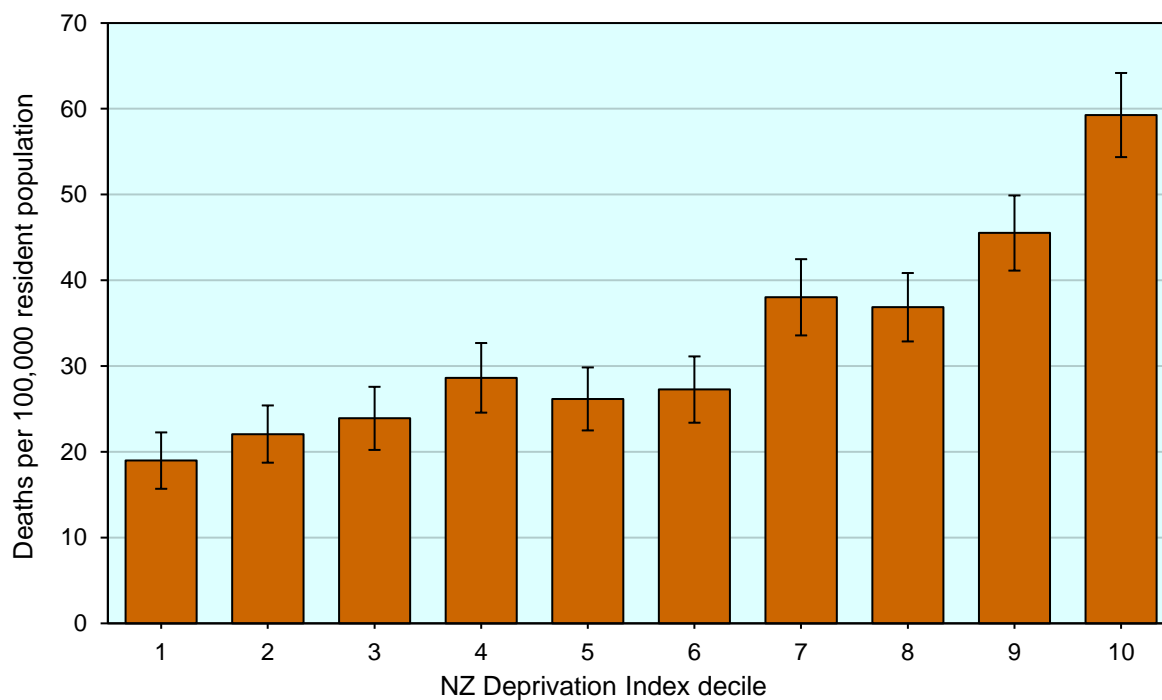


* Excludes five cases with no available ethnicity data.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 0–24 years.

Mortality rates vary by socioeconomic deprivation (hardship), as measured by the New Zealand Deprivation Index. For children and young people overall there was a consistent pattern of higher mortality rates with increasing deprivation. Of note, those in decile 10 (most deprived) have a mortality rate over three times higher than the rate of those in decile 1 (least deprived) (**Figure 1.5**).

Figure 1.5: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children and young people aged 28 days to 24 years by NZ Deprivation Index decile, Aotearoa/ New Zealand 2012–16 combined (n=2,619 deaths*)



* Excludes two cases with no available deprivation data.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 0–24 years.

2 Māori mortality

2.1 Overview

This chapter examines mortality in tamariki (28 days to 14 years) and taitamariki (15–24 years) Māori. It compares the findings on tamariki and taitamariki Māori with the data on non-Māori non-Pacific children and young people. Therefore, the analyses in this chapter exclude the deaths of Pacific children and young people (n=325) and those of unknown or unrecorded ethnicity (n=5). This chapter reports on deaths that occurred in Aotearoa/New Zealand during the years 2012–16.

Table 2.1: Mortality (number of deaths and rate per 100,000 resident population) in children and young people aged 28 days to 24 years by cause of death and age group, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 combined (n= 2,291 deaths)

Category	Māori						Total		Rate		Rate ratio (95% CI)
	<1 year*	1–4 years	5–9 years	10–14 years	15–19 years	20–24 years	Māori	Non-Māori non-Pacific	Māori	Non-Māori non-Pacific	
Medical	105	62	28	21	58	57	331	522	18.14	10.10	1.80 (1.57–2.06)
Unintentional injury	<3	27	20	21	83	68	220	441	12.06	8.53	1.41 (1.20–1.66)
Intentional injury	7	3	0	20	128	122	280	324	15.34	6.27	2.45 (2.09–2.87)
SUDI/SUD	108	9	0	0	0	0	117	45	6.41	0.87	7.37 (5.22–10.39)
Missing data	<3	0	0	<3	<3	<3	6	5	0.33	0.10	3.40 (1.04–11.14)
Total	223	101	48	64	270	248	954	1,337	52.28	25.86	2.02 (1.86–2.20)

* This category represents infants aged 28 days onwards but younger than one calendar year.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 0–24 years.

There were 954 deaths in tamariki and taitamariki Māori during the years 2012–16. The overall leading cause of death for all ages is medical conditions (34.7 percent). The three leading causes of medical death are neoplasms (n=75); congenital anomalies (n=49); and diseases of the nervous system (n=43), which includes deaths due to epilepsy (n=20) and cerebral palsy (n=10).⁷ The next most common cause of death is intentional injury (29.4 percent), which includes suicide (n=250) and assault (n=30) deaths.⁷ There were 220 deaths due to unintentional injury (23.1 percent) and 117 deaths due to SUDI or, in those aged 12–23 months, SUD (12.3 percent). Overall, tamariki and taitamariki Māori have higher mortality rates compared with non-Māori non-Pacific. The disparity is most notable for SUDI/SUD deaths (rate ratio 7.37, 95 percent confidence interval (CI) 5.22–10.39) and intentional deaths (rate ratio 2.45, 95 percent CI 2.09–2.87) (**Table 2.1**). The total number of deaths fluctuates from year to year, but overall is reducing (**Table 2.2**).

⁷ Data not shown.

Table 2.2: Mortality (number of deaths and rate per 100,000 resident population) in children and young people aged 28 days to 24 years by cause and year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=2,291 deaths)

Category	Māori					Total		Rate		Rate ratio (95% CI)
	2012	2013	2014	2015	2016	Māori	Non-Māori non-Pacific	Māori	Non-Māori non-Pacific	
Medical	92	66	56	56	61	331	522	18.14	10.10	1.80 (1.57–2.06)
Unintentional injury	46	54	43	39	38	220	441	12.06	8.53	1.41 (1.20–1.66)
Intentional injury	72	54	42	58	54	280	324	15.34	6.27	2.45 (2.09–2.87)
SUDI/SUD	21	22	29	19	26	117	45	6.41	0.87	7.37 (5.22–10.39)
Missing data	<3	0	<3	<3	3	6	5	0.33	0.10	3.40 (1.04–11.14)
Total	232	196	171	173	182	954	1,337	52.28	25.86	2.02 (1.86–2.20)

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 0–24 years.

Table 2.3: Mortality (number of deaths and rate per 100,000 age-specific resident population) in children and young people aged 28 days to 24 years by age group and year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=2,291 deaths)

Age group	Māori					Total		Rate		Rate ratio (95% CI)
	2012	2013	2014	2015	2016	Māori	Non-Māori non-Pacific	Māori	Non-Māori non-Pacific	
<1 year*	51	42	50	35	45	223	162	2.57	0.88	2.92 (2.39–3.57) [†]
1–4 years	26	20	21	16	18	101	125	29.59	15.42	1.92 (1.48–2.49)
5–9 years	10	13	9	3	13	48	93	12.31	9.55	1.29 (0.91–1.83)
10–14 years	23	9	11	11	10	64	82	17.80	8.45	2.11 (1.52–2.92)
15–19 years	71	58	34	57	50	270	357	77.96	33.29	2.34 (2.00–2.74)
20–24 years	51	54	46	51	46	248	518	82.46	44.70	1.84 (1.59–2.15)
Total	232	196	171	173	182	954	1,337	52.28	25.86	2.02 (1.86–2.20)

* This category represents infants aged 28 days onwards but younger than one calendar year.

[†] Rate is per 1,000 live births.

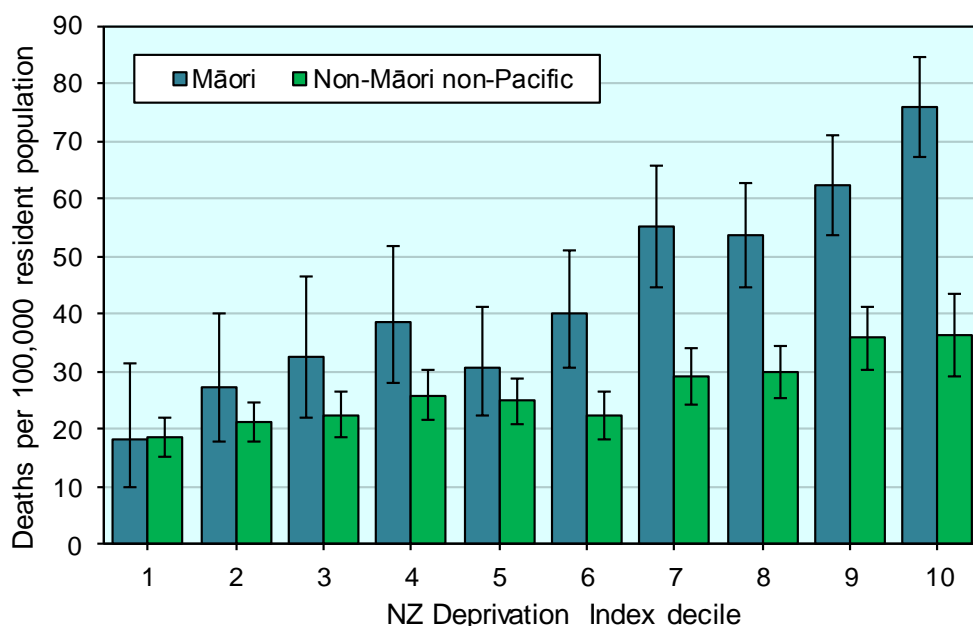
Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 0–24 years.

Mortality rates vary considerably by age group. The rate in those aged five to nine years is the lowest (12.31 per 100,000), while the rate in those aged 28 days to one year is the highest (2.57 per 1,000; equivalent to 257 per 100,000). Similarly, inequities between Māori and non-Māori non-Pacific vary considerably by age group. Tamariki Māori aged five to nine years have a similar mortality rate to non-Māori non-Pacific, but the mortality rate of Māori infants is nearly three times higher than that for non-Māori non-Pacific infants (rate ratio 2.92, 95 percent CI 2.39–3.57) (**Table 2.3**). Excluding those aged five to nine years, mortality rates for tamariki and taitamariki Māori are statistically significantly higher than those for non-Māori non-Pacific children and young people for each age group.

Mortality varies significantly by deprivation, as measured by the New Zealand Deprivation Index. Those living in high-decile areas have statistically significantly higher mortality rates than those living in lower-decile areas, regardless of ethnicity. However, tamariki and taitamariki Māori have statistically significantly higher mortality rates than non-Māori non-Pacific at higher levels of deprivation; particularly in deciles 6–10 (**Figure 2.1**).⁸

⁸ The difference in mortality rate between Māori and non-Māori non-Pacific is statistically significant for decile 4 (rate ratio 1.49, 95% CI 1.06–2.10) and deciles 6–10.

Figure 2.1: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children and young people aged 28 days to 24 years by NZ Deprivation Index decile, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 combined (n=2,289 deaths*)



* Excludes two cases with no available deprivation data.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 0–24 years.

2.2 Post-neonatal infants: 28 days to less than one year

Table 2.4: Post-neonatal infant* mortality (number of deaths and rate per 1,000 live births) by cause and year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=385 deaths)

Category	2012	2013	2014	2015	2016	Total		Rate		Rate ratio (95% CI)
						Māori	Non-Māori non-Pacific	Māori	Non-Māori non-Pacific	
Medical	29	21	18	17	20	105	110	1.21	0.6	2.02 (1.55–2.64)
Unintentional injury	0	0	<3	0	0	<3	10	s	0.05	-
Intentional injury	<3	0	4	0	<3	7	<3	0.08	s	-
SUDI	20	21	27	18	22	108	41	1.25	0.22	5.57 (3.89–7.98)
Missing data	0	0	0	0	<3	<3	0	s	-	-
Total	51	42	50	35	45	223	162	2.57	0.88	2.91 (2.38–3.57)

* This age group includes infants aged 28 days onwards but younger than one calendar year.

's' indicates rate not calculated due to small numbers.

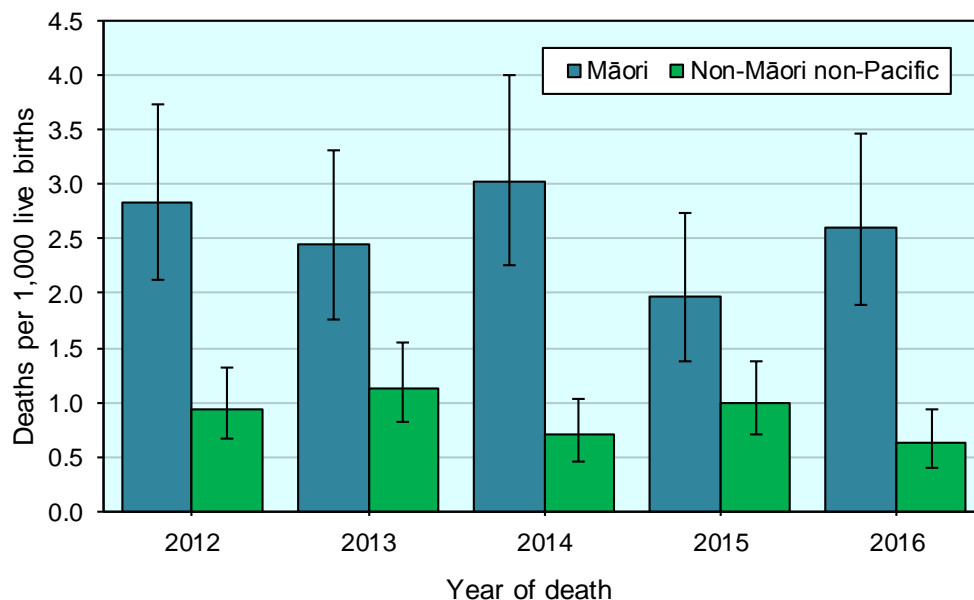
Sources: Numerator: Mortality Review Database; Denominator: Ministry of Health Live Birth Registrations 2012–16.

There were 223 deaths in Māori infants aged 28 days to less than one year during the five-year period 2012–16. The most common cause of death is SUDI, with 108 deaths during 2012–16. The next leading cause of death is medical conditions, with 105 deaths. The leading medical causes of death are congenital anomalies (n=29), conditions originating in the perinatal period (n=23) and diseases of the respiratory system (n=15).⁹ For both SUDI and medical conditions, the mortality rate

⁹ Data not shown.

in Māori is statistically significantly higher than that in non-Māori non-Pacific babies (SUDI rate ratio 5.57, 95 percent CI 3.89–7.98; medical rate ratio 2.02, 95 percent CI 1.55–2.64). There were seven deaths due to assault and fewer than three due to unintentional injury (**Table 2.4**).

Figure 2.2: Post-neonatal infant* mortality (rate per 1,000 live births and 95% confidence intervals) by year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=223 Māori, 162 non-Māori non-Pacific deaths)



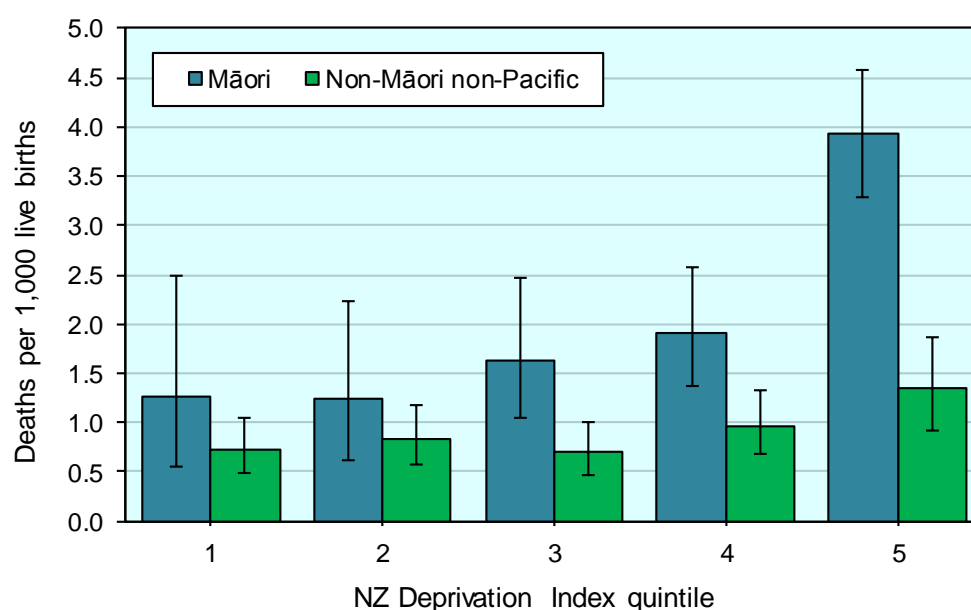
* This age group includes infants aged 28 days onwards but younger than one calendar year.

Sources: Numerator: Mortality Review Database; Denominator: Ministry of Health Live Birth Registrations 2012–16.

Mortality in this age group has fluctuated from year to year, but no change over the study period is statistically significant for either Māori or for non-Māori non-Pacific. The mean mortality rate in Māori over the 2012–16 period is 2.6 per 1,000 live births. Mortality rates are statistically significantly higher in Māori compared with non-Māori non-Pacific for each of the past five years¹⁰ (**Figure 2.2**).

¹⁰ In 2015 the Māori:non-Māori non-Pacific rate ratio was 1.97, 95% CI 1.24–3.11.

Figure 2.3: Post-neonatal infant* mortality (rate per 1,000 live births and 95% confidence interval) by NZ Deprivation Index quintile, Māori compared with non-Māori non-Pacific, Aotearoa/ New Zealand 2012–16 combined (n=223 Māori, 162 non-Māori non-Pacific deaths)



* This age group includes infants aged 28 days onwards but younger than one calendar year.

Sources: Numerator: Mortality Review Database; Denominator: Ministry of Health Live Birth Registrations 2012–16.

An analysis of mortality by deprivation shows that in Māori infants aged 28 days to less than one year mortality rates are higher in those living in more deprived areas. Māori infants have statistically significantly higher mortality rates than non-Māori non-Pacific for quintiles 3, 4 and 5 (most deprived) (Figure 2.3).

2.3 Children aged one to four years

Table 2.5: Mortality in children aged one to four years (number of deaths and rate per 100,000 resident population) by cause of death and year, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=226 deaths)

Category	2012	2013	2014	2015	2016	Total		Rate		Rate ratio (95% CI)
						Māori	Non-Māori non-Pacific	Māori	Non-Māori non-Pacific	
Medical	19	10	13	10	10	62	81	18.16	9.98	1.82 (1.31–2.53)
Unintentional injury	6	9	6	<3	4	27	35	7.91	4.31	1.83 (1.11–3.03)
Intentional injury	0	0	0	3	0	3	4	0.88	0.49	1.78 (0.40–7.96)
SUD (12–23 months)	<3	<3	<3	<3	4	9	4	2.64	0.49	5.35 (1.65–17.36)
Missing data	0	0	0	0	0	0	<3	-	s	-
Total	26	20	21	16	18	101	125	29.59	15.41	1.92 (1.48–2.50)

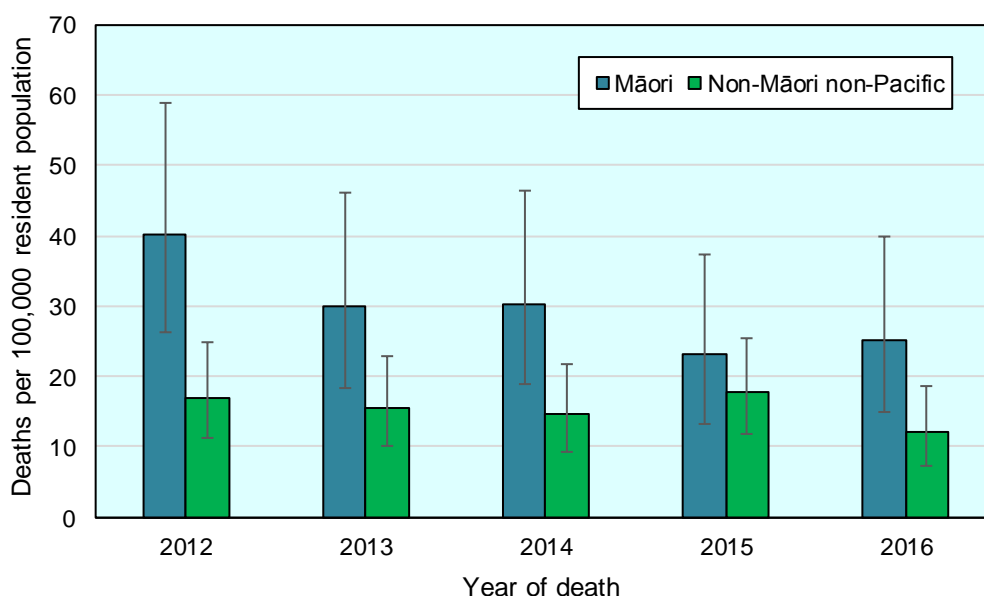
's' indicates rate not calculated due to small numbers.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, one to four years.

There were 101 deaths in tamariki Māori aged one to four years during 2012–16. Medical conditions are the leading cause of death (61 percent). The leading medical causes of death are diseases of the nervous system (n=11) and congenital anomalies (n=10), followed by diseases of the respiratory system, infectious and parasitic diseases and neoplasms (nine deaths each).¹¹ Unintentional injury accounts for 27 percent (27 deaths), which are mainly transport-related (59 percent), while the other deaths include four due to drowning (15 percent) and a range of other causes.¹¹ There were nine sudden unexpected deaths (SUD).

For these three categories of death, tamariki Māori have a higher mortality rate than non-Māori non-Pacific children (medical conditions rate ratio 1.82, 95 percent CI 1.31–2.53; unintentional injury rate ratio 1.83, 95 percent CI 1.11–3.03; SUD rate ratio 5.35, 95 percent CI 1.65–17.36) (**Table 2.5**). Intentional injury (assault) rates show no statistically significant differences between tamariki Māori and non-Māori non-Pacific children.

Figure 2.4: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children aged one to four years by year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=101 Māori, 125 non-Māori non-Pacific deaths)

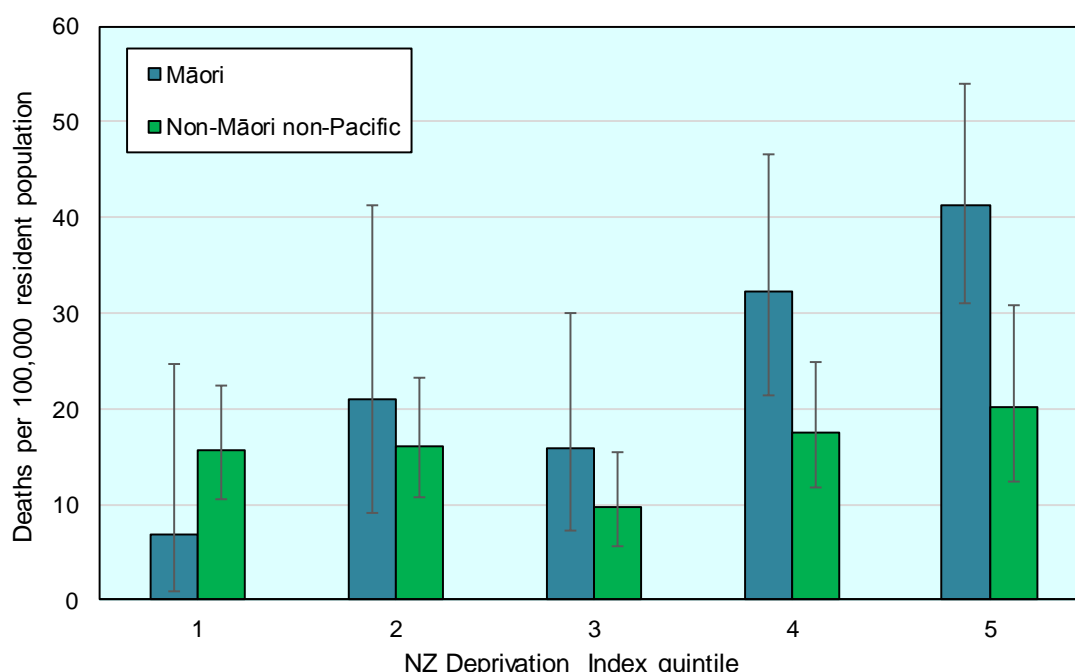


Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, one to four years.

Mortality in this age group has fluctuated from year to year, but no change over the study period is statistically significant for Māori or for non-Māori non-Pacific (**Figure 2.4**).

¹¹ Data not shown.

Figure 2.5: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children aged one to four years by NZ Deprivation Index quintile, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 combined (n=101 Māori, 125 non-Māori non-Pacific deaths)



Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, one to four years.

For tamariki Māori aged one to four years, a general trend is towards higher mortality rates with increasing deprivation. For those in quintiles 4¹² and 5 (most deprived), the mortality rates in tamariki Māori are statistically significantly higher than those in non-Māori non-Pacific children (Figure 2.5).

2.4 Children aged five to nine years

Table 2.6: Mortality (number of deaths and rate per 100,000 resident population) in children aged five to nine years by cause and year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=141 deaths)

Category	2012	2013	2014	2015	2016	Total		Rate		Rate ratio (95% CI)
						Māori	Non-Māori non-Pacific	Māori	Non-Māori non-Pacific	
Medical	5	9	4	<3	9	28	63	7.18	6.47	1.11 (0.71–1.73)
Unintentional injury	5	4	5	<3	4	20	27	5.13	2.77	1.85 (1.04–3.30)
Intentional injury	0	0	0	0	0	0	3	-	0.31	-
Missing data	0	0	0	0	0	0	0	-	-	-
Total	10	13	9	3	13	48	93	12.31	9.55	1.29 (0.91–1.83)

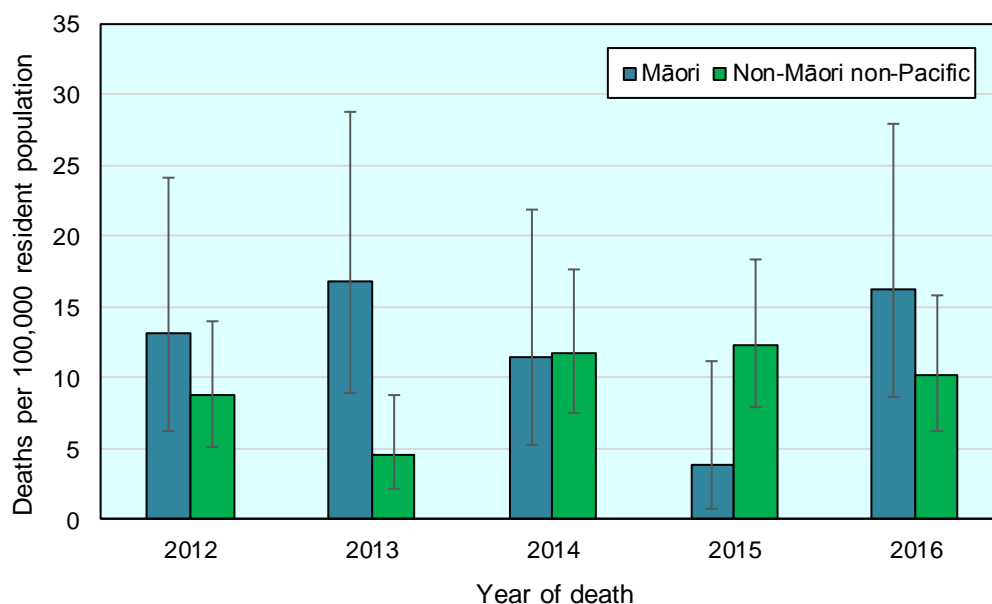
Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, five to nine years.

¹² For quintile 4 the Māori:non-Māori non-Pacific rate ratio is 1.85, 95% CI 1.11–3.10.

Among children aged five to nine years, there were 48 deaths in tamariki Māori during 2012–16. The causes of death were medical conditions (58 percent) and unintentional injury (42 percent). The most frequent medical conditions were neoplasms (n=11), diseases of the respiratory system (n=6) and diseases of the nervous system (n=4).¹³ The most common unintentional injury causes of death were transport-related deaths (n=9) followed by drowning and suffocation (three deaths each).¹³ The mortality rate for unintentional injury deaths in tamariki Māori is statistically significantly higher (rate ratio 1.85, 95 percent CI 1.04–3.30) compared with the rate in non-Māori non-Pacific children. There were no deaths due to intentional injury in taitamariki Māori during the study period (**Table 2.6**).

Mortality rates varied substantially over the five-year period. However, no lasting statistically significant differences in mortality rates occurred either between the years or between tamariki Māori and non-Māori non-Pacific children (**Figure 2.6**).

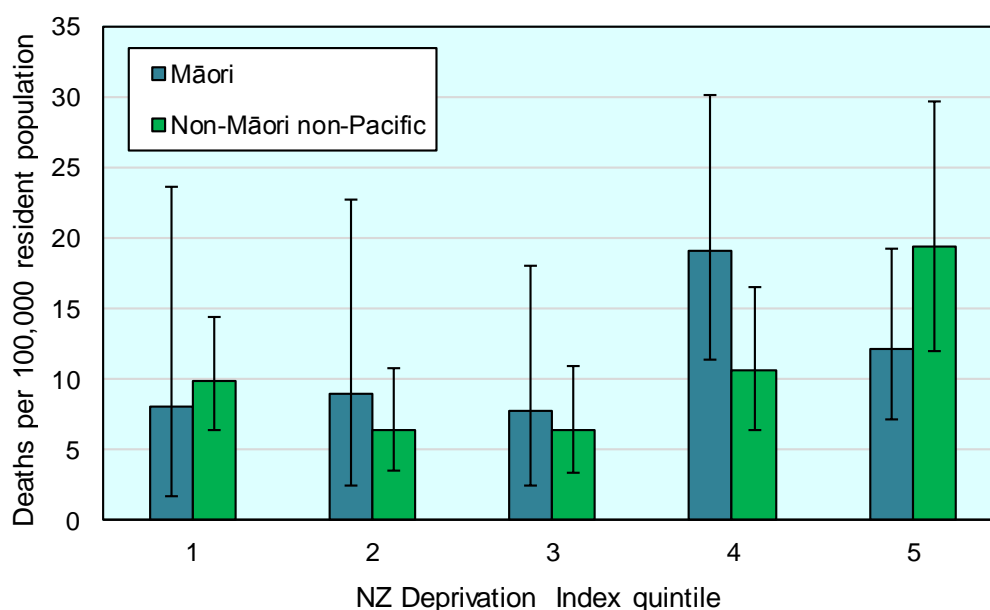
Figure 2.6: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children aged five to nine years by year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=48 Māori and 93 non-Māori non-Pacific deaths)



Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, five to nine years.

¹³ Data not shown.

Figure 2.7: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children aged five to nine years by NZ Deprivation Index quintile, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 combined (n=48 Māori and 93 non-Māori non-Pacific deaths)



Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, five to nine years.

An analysis by New Zealand deprivation quintile shows no consistent statistically significant differences in mortality rates; either by deprivation quintile or by ethnic group (Figure 2.7).

2.5 Children aged 10–14 years

Table 2.7: Mortality (number of deaths and rate per 100,000 resident population) in children aged 10–14 years by cause and year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=146 deaths)

Category	2012	2013	2014	2015	2016	Total		Rate		Rate ratio (95% CI)
						Māori	Non-Māori non-Pacific	Māori	Non-Māori non-Pacific	
Medical	8	3	3	5	<3	21	44	5.84	4.54	1.29 (0.77–2.17)
Unintentional injury	8	5	4	<3	<3	21	26	5.84	2.68	2.18 (1.23–3.87)
Intentional injury	7	<3	3	4	5	20	12	5.56	1.24	4.50 (2.20–9.20)
Missing data	0	0	<3	0	<3	<3	0	s	-	-
Total	23	9	11	11	10	64	82	17.8	8.45	2.11 (1.52–2.92)

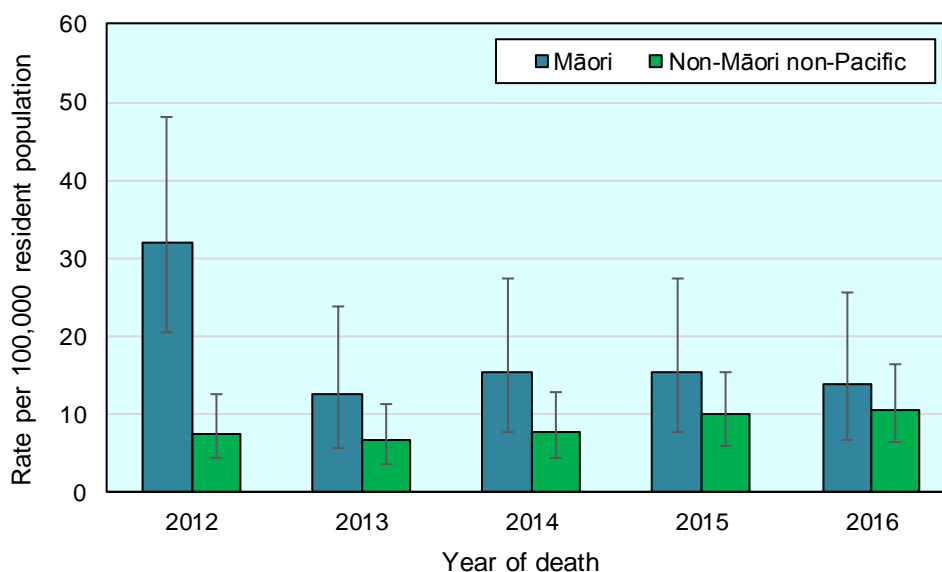
's' indicates rate not calculated due to small numbers.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 10–14 years.

A total of 64 tamariki Māori aged 10–14 years died during the period 2012–16. Their overall mortality rate is 17.8 per 100 000, which is statistically significantly higher than the mortality rate for non-Māori non-Pacific children of the same age (rate ratio 2.11, 95 percent CI 1.52–2.92). The leading causes of death were medical conditions and unintentional injury (33 percent each), followed by intentional injury (31 percent). The most common medical causes of death were

neoplasms (n=10) and diseases of the nervous system (n=4).¹⁴ Fifty-seven percent of unintentional injury deaths were transport-related; the remainder have a range of causes.¹⁴ Of the intentional injury deaths in tamariki Māori in this age group, all were due to suicide; no deaths were due to assault.¹⁴ Compared with non-Māori non-Pacific children, Māori have statistically significantly higher mortality rates of unintentional and intentional injury (rate ratios 2.18, 95 percent CI 1.23–3.87 and 4.50, 95 percent CI 2.20–9.20, respectively) (**Table 2.7**).

Figure 2.8: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children aged 10–14 years by year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=64 Māori and 82 non-Māori non-Pacific deaths)



Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 10–14 years.

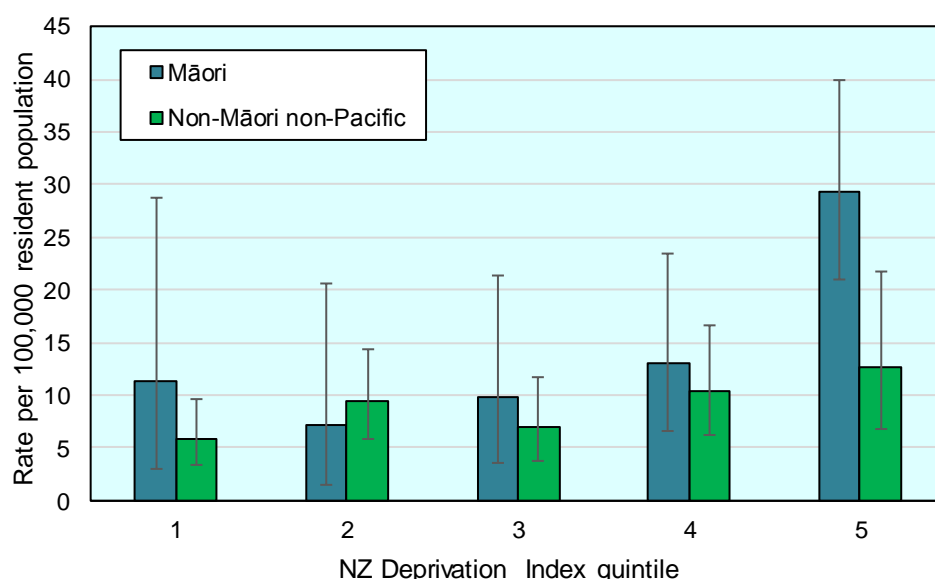
An analysis by year shows no consistent trends over the time period in either rates by year or in comparisons between tamariki Māori and non-Māori non-Pacific children (**Figure 2.8**).

Mortality rates vary somewhat by deprivation. The pattern is towards higher mortality rates in the most deprived areas; however, there are not any statistically significant differences between quintiles in this age group. While Māori have higher mortality rates than non-Māori non-Pacific at most quintiles, this difference is only statistically significant in the most deprived quintile (NZ Deprivation Index quintile 5)¹⁵ (**Figure 2.9**).

¹⁴ Data not shown.

¹⁵ For quintile 5 the Māori:non-Māori non-Pacific rate ratio is 2.31, 95% CI 1.24–4.32.

Figure 2.9: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children aged 10–14 years by NZ Deprivation Index quintile, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 combined (n=64 Māori and 82 non-Māori non-Pacific deaths)



Source: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 10–14 years.

2.6 Young people aged 15–19 years

Table 2.8: Mortality (number of deaths and rate per 100,000 resident population) in young people aged 15–19 years by cause and year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=627 deaths)

Category	2012	2013	2014	2015	2016	Total		Rate		Rate ratio (95% CI)
						Māori	Non-Māori non-Pacific	Māori	Non-Māori non-Pacific	
Medical	16	13	7	12	10	58	90	16.75	8.39	2.00 (1.43–2.78)
Unintentional injury	17	18	14	18	16	83	150	23.96	13.99	1.71 (1.31–2.24)
Intentional injury	37	27	13	27	24	128	116	36.96	10.82	3.42 (2.66–4.39)
Missing data	<3	0	0	0	0	<3	<3	s	s	-
Total	71	58	34	57	50	270	357	77.96	33.29	2.34 (2.00–2.74)

's' indicates rate not calculated due to small numbers.

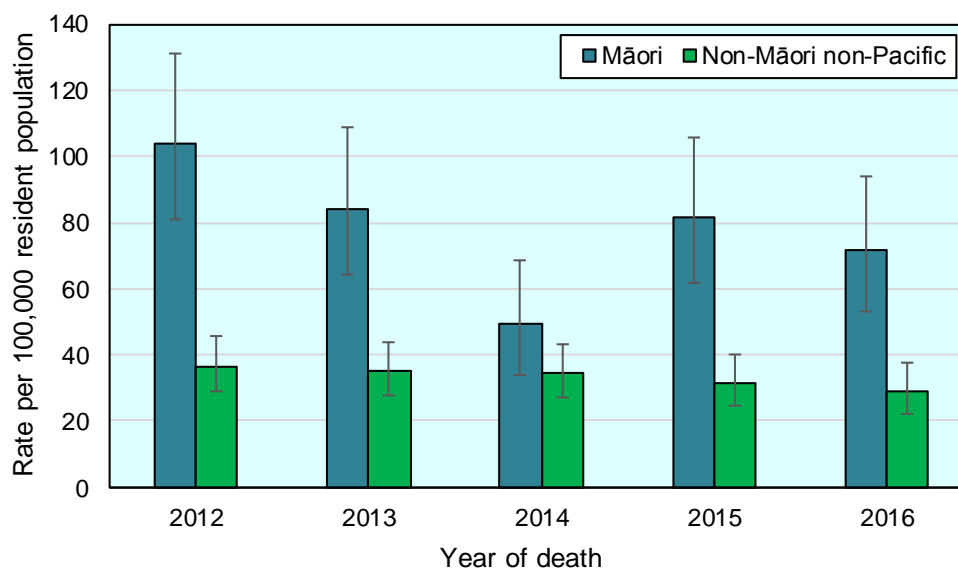
Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 15–19 years.

There were 270 deaths in taitamariki Māori during the period 2012–16. Intentional injury was the leading cause of death (47 percent), with 120 deaths due to suicide and 8 because of assault.¹⁶ The remaining deaths were due to unintentional injury (31 percent) and medical conditions (21 percent). The leading cause of unintentional injury death was transport-related (n=63), followed by drowning (n=7) and poisoning (n=5).¹⁶ The leading medical cause of death was neoplasms (n=24) followed by diseases of the circulatory system (n=8), while diseases of the respiratory and nervous systems and congenital anomalies accounted for five deaths each.¹⁶ Taitamariki Māori have statistically

¹⁶ Data not shown.

significantly higher mortality rates both overall and for each cause of death compared with non-Māori non-Pacific young people (**Table 2.8**).

Figure 2.10: Mortality (rate per 100,000 resident population and 95% confidence intervals) in young people aged 15–19 years by year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=270 Māori and 357 non-Māori non-Pacific deaths)



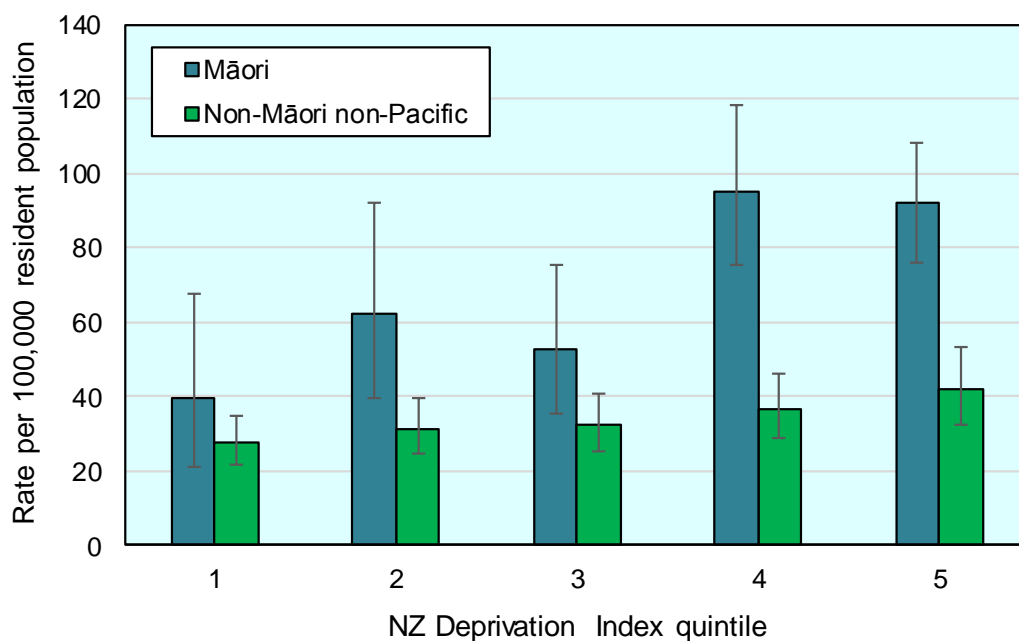
Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 15–19 years.

Mortality rates in this age group have not changed in any consistent statistically significant way over the period 2012–16 (**Figure 2.10**).

An analysis by deprivation quintile shows Māori have a statistically significantly higher mortality rate than non-Māori non-Pacific at each level of deprivation except quintile 1 (least deprived)¹⁷ (**Figure 2.11**).

¹⁷ For quintile 2 the Māori:non-Māori non-Pacific rate ratio is 1.98, 95% CI 1.24–3.14; for quintile 3 the rate ratio is 1.64, 95% CI 1.07–2.51.

Figure 2.11: Mortality (rate per 100,000 resident population and 95% confidence intervals) in young people aged 15–19 years by NZ Deprivation Index quintile, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 combined (n=270 Māori and 356 non-Māori non-Pacific deaths*)



* Excludes one case with no available deprivation data.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 15–19 years.

2.7 Young people aged 20–24 years

Table 2.9: Mortality (number of deaths and rate per 100,000 resident population) in young people aged 20–24 years by cause and year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=766 deaths)

Category	2012	2013	2014	2015	2016	Total		Rate		Rate ratio (95% CI)
						Māori	Non-Māori non-Pacific	Māori	Non-Māori non-Pacific	
Medical	15	10	11	11	10	57	134	18.95	11.56	1.64 (1.20–2.23)
Unintentional injury	10	18	13	15	12	68	193	22.61	16.65	1.36 (1.03–1.79)
Intentional injury	26	26	22	24	24	122	188	40.57	16.22	2.50 (1.99–3.14)
Missing data	0	0	0	<3	0	<3	3	s	0.26	-
Total	51	54	46	51	46	248	518	82.46	44.70	1.84 (1.59–2.15)

's' indicates rate not calculated due to small numbers.

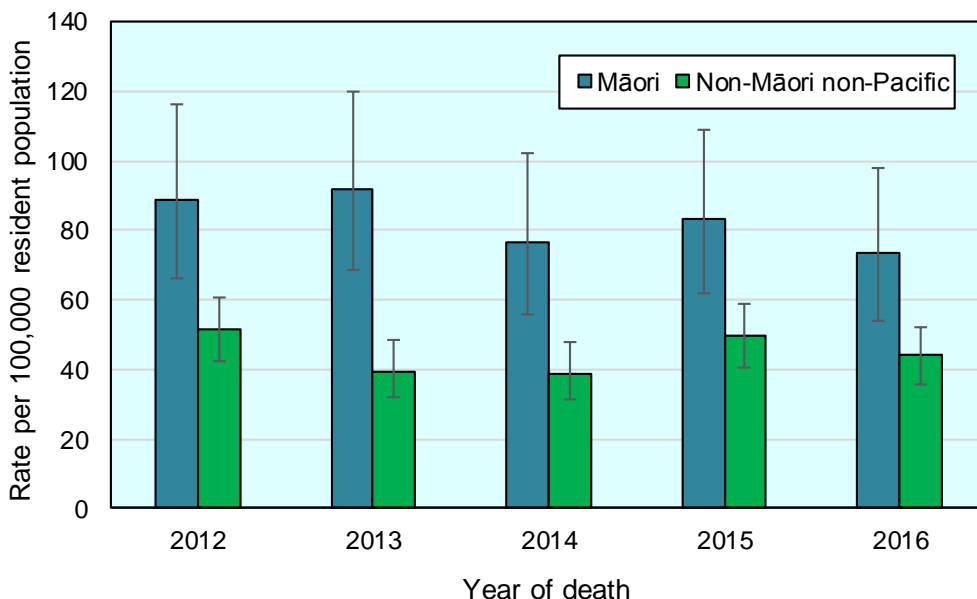
Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 20–24 years.

There were 248 deaths in taitamariki Māori aged 20–24 years during the years 2012–16. The leading cause of death was intentional injury (49 percent), followed by unintentional injury (27 percent) and medical conditions (23 percent). Of the intentional injury deaths, suicide was the leading cause, with 110 deaths; the remaining 12 were due to assault.¹⁸ Transport crashes accounted for 68 percent of unintentional injury deaths, while drowning and poisoning accounted for 7 percent each.¹⁸ The leading medical causes of death were neoplasms (n=17), diseases of the nervous system (n=12) and diseases of the circulatory system (n=6).¹⁸ Taitamariki Māori have a higher overall mortality rate compared with non-Māori non-Pacific young people (rate ratio 1.84, 95 percent CI 1.59–2.15), as well as statistically significantly higher mortality from each individual category of death (**Table 2.9**).

Mortality rates in taitamariki Māori have not changed substantially since 2012. However, throughout the reporting period mortality rates for taitamariki Māori are statistically significantly higher than those for non-Māori non-Pacific young people (**Figure 2.12**).

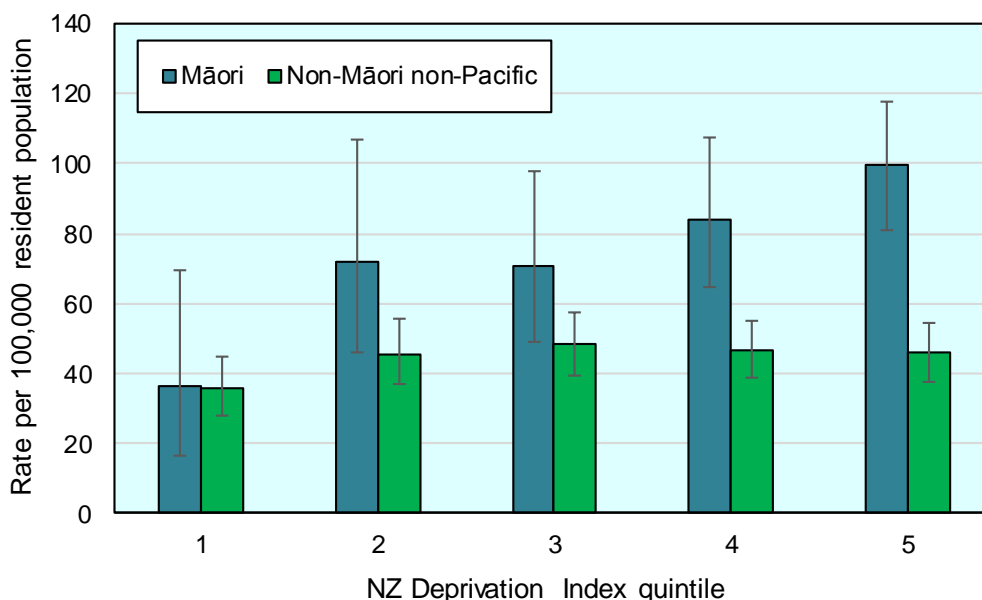
¹⁸ Data not shown.

Figure 2.12: Mortality (rate per 100,000 resident population and 95% confidence intervals) in young people aged 20–24 years by year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=248 Māori and 518 non-Māori non-Pacific deaths)



Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 20–24 years.

Figure 2.13: Mortality (rate per 100,000 resident population and 95% confidence intervals) in young people aged 20–24 years by NZ Deprivation Index quintile, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 combined (n=248 Māori and 517 non-Māori non-Pacific deaths*)



* Excludes one case with no available deprivation data.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 20–24 years.

Taitamariki Māori have statistically significantly higher mortality rates than non-Māori non-Pacific young people among those living in all quintiles except for quintile 1 (least deprived)¹⁹ (**Figure 2.13**).

2.8 Summary

During the period 2012–16, there were 954 deaths in tamariki and taitamariki Māori. The leading cause of death was medical conditions (34.7 percent), followed by intentional injury (29.4 percent) and unintentional injury (23.1 percent). The most common medical condition causing death was neoplasms.

Large inequities remain in mortality between Māori and non-Māori non-Pacific. The disparity is most notable for sudden unexpected death both in infancy (SUDI) and in those aged 12–23 months (SUD), where the rate ratio comparing Māori with non-Māori non-Pacific is 7.37 (95 percent CI 5.22–10.39); and for intentional injury deaths, where the rate ratio is 2.45 (95 percent CI 2.09–2.87).

Eighty-nine percent of intentional injury deaths were due to suicide, with marked inequities between Māori and non-Māori non-Pacific occurring from the age of 10 years onwards. For intentional injuries in those aged 10–14 years, all were due to suicide.

¹⁹ For quintile 2 the Māori:non-Māori non-Pacific rate ratio is 1.58, 95% CI 1.01–2.47; for quintile 3 the rate ratio is 1.46, 95% CI 1.00–2.14.

3 Pacific mortality

This chapter reports on mortality in Pacific children and young people. It uses ‘total response’ ethnicity to classify whether a person is of Pacific ethnicity. This means that if an individual has a Pacific ethnic group as any one of their ethnicities, they will be included here. In contrast, the rest of this report uses the system of ‘prioritised’ ethnicity. Prioritised ethnicity assigns one ethnic group to each individual, giving precedence to Māori, followed by Pacific, Asian, MELAA and then European and Other ethnicities. Therefore, in the rest of the report if an individual identified as being both Pacific and Māori, they would be classified as Māori. However, in this chapter, they will be included as Pacific. This chapter compares Pacific data with findings on non-Pacific non-Māori children and young people. Therefore, Māori who do not also identify as Pacific (n=884) are excluded from this chapter, as are those of unknown or unrecorded ethnicity (n=5).

In total, 395 Pacific children and young people died during 2012–16. They are a diverse group, made up of people who identify with a range and number of ethnic groups (**Table 3.1**).

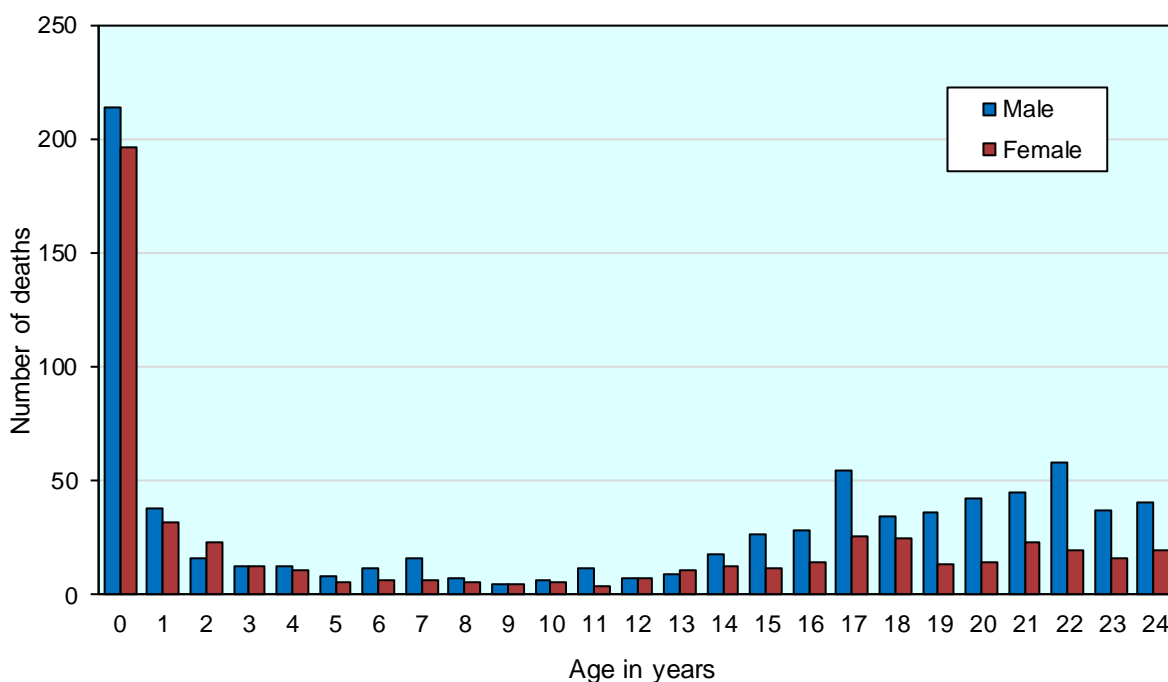
Table 3.1: Pacific mortality (number of deaths) in children and young people aged 28 days to 24 years by ethnic group and year of death, Aotearoa/New Zealand 2012–16 (n=395 deaths)

Ethnic group	Deaths per year					Total
	2012	2013	2014	2015	2016	
Cook Island Māori	14	13	11	21	15	74
Cook Island Māori, Niuean	<3					<3
Cook Island Māori, Samoan	<3	<3	<3		<3	6
Cook Island Māori, Samoan, Tongan	<3					<3
Cook Island Māori, Tahitian, Samoan	<3					<3
Cook Island Māori, Tongan	<3		<3	<3	<3	6
Cook Island Māori, Tongan, Niuean	<3					<3
Fijian	3	<3	<3	5	6	17
Fijian, Niuean		<3				<3
Kiribati				<3		<3
Niuean	6	<3	6	4	<3	19
Samoan	36	30	32	29	18	145
Samoan, Fijian	<3		<3			<3
Samoan, Niuean	<3		<3	<3	<3	6
Samoan, Niuean, Fijian			<3			<3
Samoan, Tokelauan		<3		<3		<3
Samoan, Tongan	<3	<3	3			6
Samoan, Tongan, Niuean					<3	<3
Solomon Islander				<3		<3
Tokelauan	4	3	<3		<3	9
Tongan	17	18	17	13	18	83
Tongan, Niuean	<3	<3	<3		<3	5
Tuvaluan	<3		<3	<3	<3	4
Tuvaluan, Samoan		<3				<3
Tuvaluan, Tokelauan	<3					<3
Total	93	74	81	79	68	395

Note: Any non-Pacific ethnicities these individuals identified with are not displayed.

Source: Mortality Review Database.

Figure 3.1: Pacific mortality (number of deaths) in children and young people aged 28 days to 24 years by age and sex, Aotearoa/New Zealand 2002–16 combined (n=1,301 deaths)



Source: Mortality Review Database.

There were 1,301 deaths in Pacific children and young people during 2002–16. Deaths peak in those aged 28 days to less than one year and reduce in older ages, except for a smaller peak in adolescence (**Figure 3.1**). This pattern of high post-neonatal infant mortality is similar to that in Māori. However, in the non-Pacific non-Māori population the number of deaths in infancy is only a little higher than that in each year of adolescence (**Table 2.3**). There is a large disparity in post-neonatal infant mortality: the rate in Pacific infants is 2.4 times higher than that in non-Pacific non-Māori infants (rate ratio 2.44, 95 percent CI 1.91–3.13) (**Table 3.5**).

Table 3.2: Pacific mortality (number of deaths and rate per 100,000 resident population) in children and young people aged 28 days to 24 years by cause of death and age group, Aotearoa/New Zealand 2012–16 combined (n=395 deaths)

Category	<1 year*	1–4 years	5–9 years	10–14 years	15–19 years	20–24 years	Total	Percentage (%)	Rate
Medical	47	31	16	19	32	50	195	49.4	23.74
Unintentional injury	<3	15	5	6	19	31	77	19.5	9.37
Intentional injury	0	0	0	8	35	26	69	17.5	8.40
SUDI/SUD	53	0	0	0	0	0	53	13.4	6.45
Missing data	0	0	0	0	0	<3	<3	x	s
Total	101	46	21	33	86	108	395	100.0	48.08

'x' indicates percentage not calculated due to small numbers.

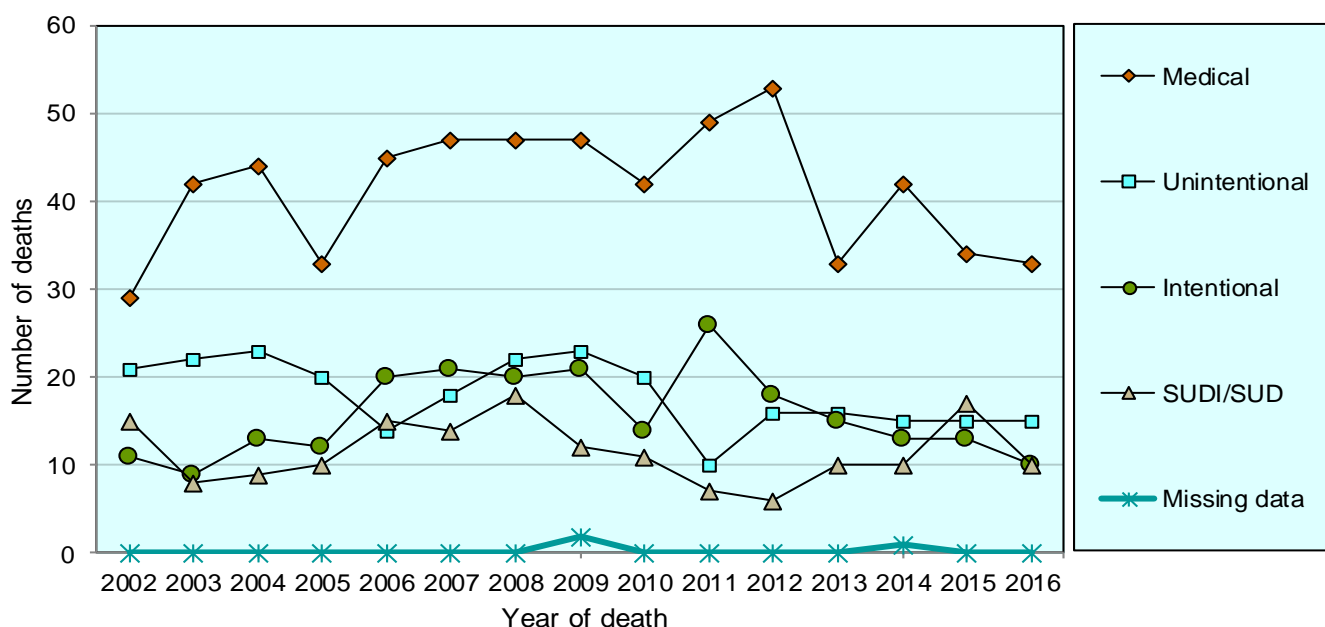
's' indicates rate not calculated due to small numbers.

* This category represents infants aged 28 days onwards but younger than one calendar year.

Sources: Numerator: Mortality Review Database; Denominator: MRDG-derived usually resident Pacific (total responses) population 2012–16, 0–24 years.

During the years 2012–16, there were 395 deaths in Pacific children and young people. Almost half of these deaths are due to medical conditions (n=195), while 20 percent are due to unintentional injury. Eighteen percent are due to intentional injury (suicide and assault) and 13 percent to SUDI/SUD (Table 3.2).

Figure 3.2: Pacific mortality (number of deaths) in children and young people aged 28 days to 24 years by cause of death and year, Aotearoa/New Zealand 2002–16 (n=1,301 deaths)



Source: Mortality Review Database.

The number of deaths by cause has fluctuated over the years since 2002. No clear trends of either an increase or a decrease in the number of deaths are evident (Figure 3.2 and Table 3.3).

Table 3.3: Pacific mortality (number of deaths and rate per 100,000 resident population) in children and young people aged 28 days to 24 years by age group and year of death, Aotearoa/New Zealand 2012–16 (n=395 deaths)

Category	2012	2013	2014	2015	2016	Total	Percentage (%)	Rate
<1 year*	17	21	20	25	18	101	25.6	2.15†
1–4 years	13	7	9	8	9	46	11.6	31.84
5–9 years	4	<3	7	4	4	21	5.3	12.11
10–14 years	10	7	4	7	5	33	8.4	19.82
15–19 years	24	19	14	17	12	86	21.8	54.72
20–24 years	25	18	27	18	20	108	27.3	81.16
Total	93	74	81	79	68	395	100	48.08

* This category represents infants aged 28 days onwards but younger than one calendar year.

† Rate is per 1,000 live births.

Sources: Numerator: Mortality Review Database; Denominator: MRDG-derived usually resident Pacific (total responses) population 2012–16, 0–24 years.

Medical conditions were the leading cause of death, accounting for 195 deaths from 2012 to 2016. The most common cause of medical death was neoplasms (n=39), followed by diseases of the respiratory system and congenital anomalies (n=29 deaths each). Unintentional injury accounted for

19.5 percent of deaths, of which 57 percent were transport-related, 18 percent were due to drowning and 13 percent were due to poisoning. There were 69 deaths due to intentional injury (17.5 percent), made up of assault (n=4) and suicide (n=65 deaths). Another 53 deaths were due to SUDI (Table 3.4).

Table 3.4: Pacific mortality (number of deaths and rate per 100,000 resident population) by cause of death and age group, Aotearoa/New Zealand 2012–16 combined (n=395 deaths)

Cause of death	<1 year*	1–4 years	5–9 years	10–14 years	15–19 years	20–24 years	Total	%	Rate 2012–16
Medical									
Infectious and parasitic disease	3	4	0	0	0	0	7	1.8	0.85
Neoplasms	0	5	7	4	7	16	39	9.9	4.75
Diseases of the blood and blood-forming organs and disorders of the immune system	3	<3	<3	0	<3	<3	8	2.0	0.97
Endocrine, nutritional and metabolic diseases	0	0	<3	<3	<3	<3	5	1.3	0.61
Mental and behavioural disorders	0	0	0	0	0	0	0	-	-
Diseases of the nervous system	<3	5	<3	5	5	10	28	7.1	3.41
Diseases of the circulatory system	4	<3	0	3	5	9	23	5.8	2.80
Diseases of the respiratory system	10	9	<3	4	3	<3	29	7.3	3.53
Diseases of the digestive system	<3	0	0	0	0	<3	3	0.8	0.37
Diseases of the skin and subcutaneous tissue	0	0	0	0	0	<3	<3	x	s
Diseases of the musculoskeletal system and connective tissue	0	0	0	0	<3	<3	3	0.8	0.37
Diseases of the genitourinary system	0	0	0	0	0	3	3	0.8	0.37
Pregnancy, childbirth and the puerperium	0	0	0	0	0	0	0	-	-
Certain conditions originating in the perinatal period	13	0	0	0	0	0	13	3.3	1.58
Congenital anomalies	12	4	3	<3	5	4	29	7.3	3.53
Symptoms and abnormal findings not elsewhere classified	0	<3	0	0	<3	<3	4	1.0	0.49
Total medical	47	31	16	19	32	50	195	49.4	23.74
Unintentional injury									
Cut/pierce	0	0	0	0	0	0	0	-	-
Drowning	0	3	0	<3	4	5	14	3.5	1.70
Fall	0	0	0	0	<3	0	<3	x	s
Fire/hot object or substance	0	0	<3	0	0	0	<3	x	s
Firearm	0	<3	0	0	0	0	<3	x	s
Machinery	0	0	0	0	0	<3	<3	x	s
Transport	<3	5	3	3	10	22	44	11.1	5.36
Natural/environmental	0	0	0	0	0	0	0	-	-
Poisoning	0	<3	<3	<3	3	3	10	2.5	1.22
Struck by, against	0	<3	0	0	0	0	<3	x	s
Suffocation	0	<3	0	0	<3	0	<3	x	s
Other specified, classifiable	0	<3	0	0	0	0	<3	x	s
Other specified, not elsewhere classified	0	0	0	0	0	0	0	-	-
Unspecified	0	<3	0	0	0	0	<3	x	s
Complications of medical and surgical care	0	0	0	0	0	0	0	-	-
Sequelae of surgical and medical care as external cause	0	0	0	0	0	0	0	-	-
Total unintentional injury	<3	15	5	6	19	31	77	19.5	9.37

Cause of death	<1 year*	1–4 years	5–9 years	10–14 years	15–19 years	20–24 years	Total	%	Rate 2012–16
Intentional injury									
Assault	0	0	0	0	<3	3	4	1.0	0.49
Suicide	0	0	0	8	34	23	65	16.5	7.91
Total intentional injury	0	0	0	8	35	26	69	17.5	8.4
SUDI/SUD									
SUDI (28 days to <1 year)	53	0	0	0	0	0	53	13.4	6.45
SUD (12–23 months)	0	0	0	0	0	0	0	-	-
Total SUDI/SUD	53	0	0	0	0	0	53	13.4	6.45
Missing data	0	0	0	0	0	<3	<3	x	s
Total	101	46	21	33	86	108	395	100.0	48.08

* This category represents infants aged 28 days onwards but younger than one calendar year.

'x' indicates percentage not calculated due to small numbers.

's' indicates rate not calculated due to small numbers.

Sources: Numerator: Mortality Review Database; Denominator: MRDG-derived usually resident Pacific (total responses) population 2012–16, 0–24 years.

3.1 Post-neonatal infants: 28 days to less than one year

Table 3.5: Post-neonatal infant* mortality (number of deaths and rate per 1,000 live births) by cause and year of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 (n=263 deaths)

Category	2012	2013	2014	2015	2016	Total		Rate		Rate ratio (95% CI)
						Pacific	Non-Pacific non-Māori	Pacific	Non-Pacific non-Māori	
Medical	11	10	10	8	8	47	110	1.01	0.6	1.68 (1.19–2.36)
Unintentional injury	0	<3	0	0	0	<3	10	0.02	0.05	0.39 (0.05–3.06)
Intentional injury	0	0	0	0	0	0	<3	-	s	-
SUDI	6	10	10	17	10	53	41	1.13	0.22	5.07 (3.37–7.62)
Total	17	21	20	25	18	101	162	2.16	0.88	2.44 (1.91–3.13)

* This age group includes infants aged 28 days onwards but younger than one calendar year.

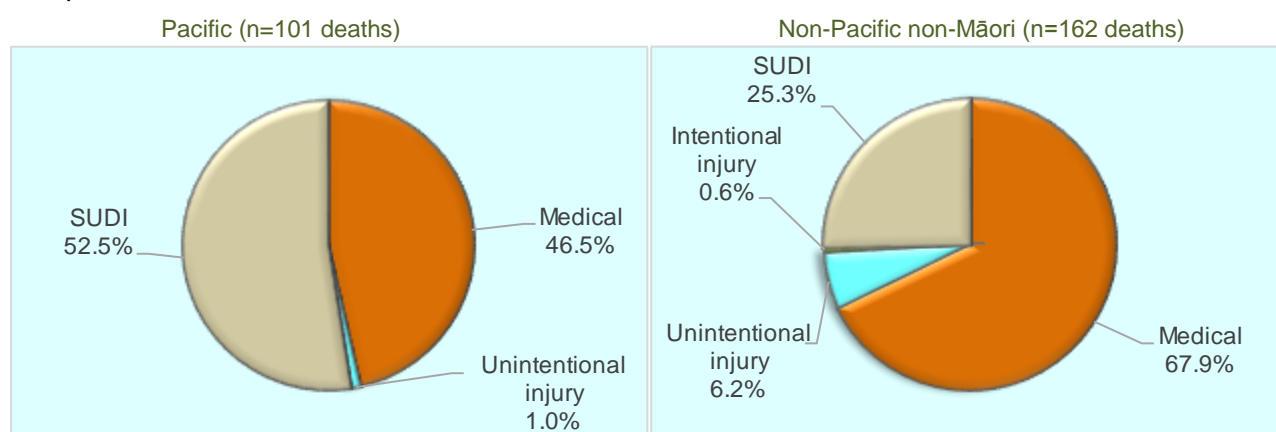
's' indicates rate not calculated due to small numbers.

Sources: Numerator: Mortality Review Database; Denominator: Ministry of Health live births.

There were 101 deaths in post-neonatal Pacific infants aged 28 days to one year during the period 2012–16. The leading cause of death in this age group was SUDI (52.5 percent), followed by medical conditions (46.5 percent) (**Figure 3.3**).

Compared with non-Pacific non-Māori infants, Pacific infants have a statistically significantly higher mortality rate from SUDI (rate ratio 5.07, 95 percent CI 3.37–7.62) and medical deaths (rate ratio 1.68, 95 percent CI 1.19–2.36). Pacific infants also have a higher mortality rate overall, compared with non-Pacific non-Māori infants (rate ratio 2.44, 95 percent CI 1.91–3.13). No deaths were due to intentional injury in this age group (**Table 3.5**).

Figure 3.3: Mortality in post-neonatal infants* (percentage of deaths) by cause of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 combined



* This age group includes infants aged 28 days onwards but younger than one calendar year.

Source: Mortality Review Database.

3.2 Children aged one to four years

Table 3.6: Mortality (number of deaths and rate per 100,000 resident population) in children aged one to four years by cause and year of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 (n=171 deaths)

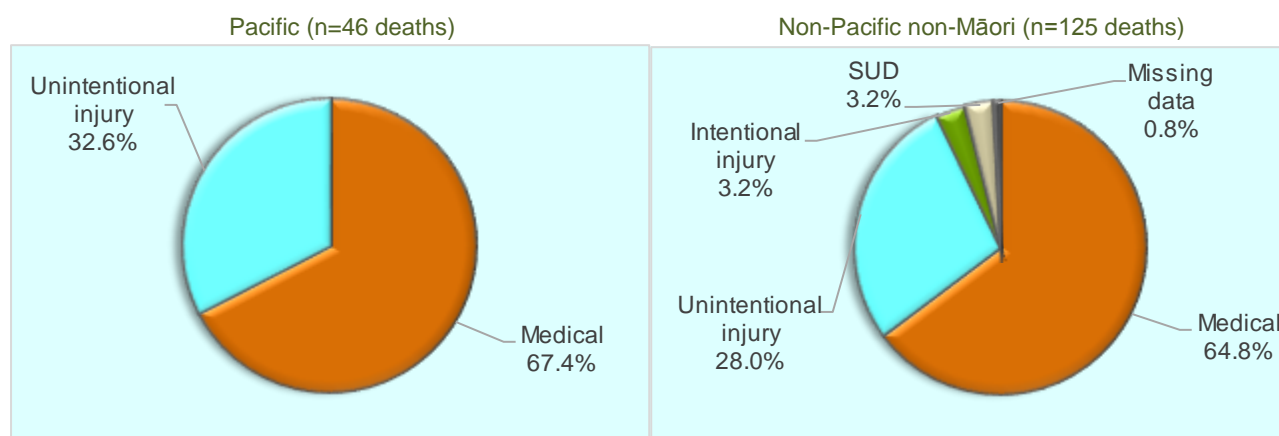
Category	2012	2013	2014	2015	2016	Total		Rate		Rate ratio (95% CI)
						Pacific	Non-Pacific non-Māori	Pacific	Non-Pacific non-Māori	
Medical	10	7	6	4	4	31	81	21.43	9.98	2.15 (1.42–3.25)
Unintentional injury	3	0	3	4	5	15	35	10.37	4.31	2.40 (1.31–4.40)
Intentional injury	0	0	0	0	0	0	4	-	0.49	-
SUD (12–23 months)	0	0	0	0	0	0	4	-	0.49	-
Missing	0	0	0	0	0	0	<3	-	s	-
Total	13	7	9	8	9	46	125	31.80	15.41	2.06 (1.47–2.89)

's' indicates rate not calculated due to small numbers.

Sources: Numerator: Mortality Review Database; Denominator: MRDG-derived usually resident Pacific (total responses) population 2012–16, one to four years.

There were 46 deaths in Pacific children aged one to four years during the period 2012–16. The leading cause of death was medical conditions (n=31). The most common medical conditions were diseases of the respiratory system (n=9), followed by diseases of the nervous system and neoplasms (n=5 deaths each). There were 15 deaths due to unintentional injury (32.6 percent), of which five were transport-related and three were due to drowning (**Table 3.4**). Compared with non-Pacific non-Māori children, Pacific children have a higher percentage of deaths due to medical conditions and unintentional injury and a lower percentage (no deaths) from intentional injury and SUD (**Figure 3.4**). This age group has large disparities in medical and unintentional injury deaths and in deaths as a whole between Pacific and non-Pacific non-Māori children, with an overall rate ratio of 2.06 (95 percent CI 1.47–2.89) (**Table 3.6**).

Figure 3.4: Mortality (percentage of deaths) in children aged one to four years by cause of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 combined



Source: Mortality Review Database.

3.3 Children aged five to nine years

Table 3.7: Mortality (number of deaths and rate per 100,000 resident population) in children aged five to nine years by cause and year of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 (n=114 deaths)

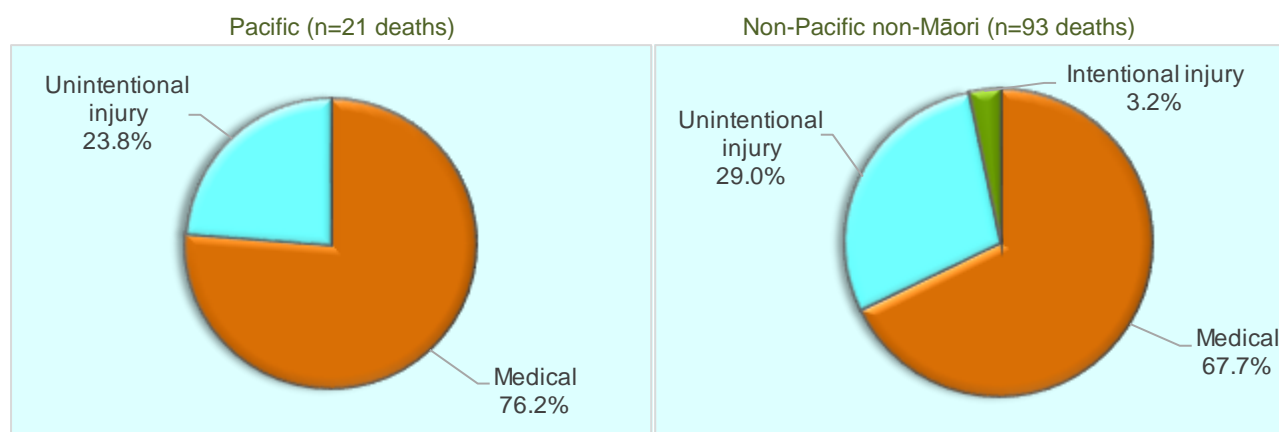
Category	2012	2013	2014	2015	2016	Total		Rate		Rate ratio (95% CI)
						Pacific	Non-Pacific non-Māori	Pacific	Non-Pacific non-Māori	
Medical	<3	<3	7	3	3	16	63	9.23	6.47	1.43 (0.82–2.47)
Unintentional injury	<3	<3	0	<3	<3	5	27	2.88	2.77	1.04 (0.40–2.70)
Intentional injury	0	0	0	0	0	0	3	-	0.31	-
Total	4	<3	7	4	4	21	93	12.11	9.55	1.27 (0.79–2.04)

Sources: Numerator: Mortality Review Database; Denominator: MRDG-derived usually resident Pacific (total responses) population 2012–16, five to nine years.

In Pacific children aged five to nine years during 2012–16, there were 21 deaths. The leading cause of death was medical conditions, accounting for 16 deaths (**Table 3.7**). The most common medical condition causing death was neoplasms (n=7) (**Table 3.4**).

Compared with non-Pacific non-Māori children, Pacific children have a slightly higher percentage of medical deaths and a lower percentage of unintentional injury deaths (**Figure 3.5**). However, the mortality rates for each category of death and mortality rates overall are not statistically different between Pacific and non-Pacific non-Māori (**Table 3.7**). No deaths were due to intentional injury in Pacific children in this age group.

Figure 3.5: Mortality (percentage of deaths) in children aged five to nine years by cause of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 combined



Source: Mortality Review Database.

3.4 Children aged 10–14 years

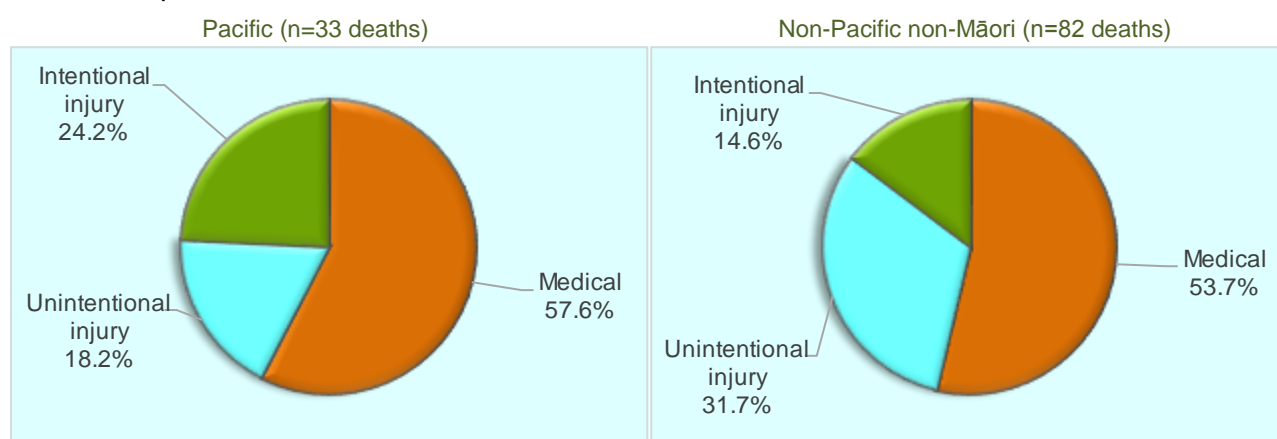
Table 3.8: Mortality (number of deaths and rate per 100,000 resident population) in children aged 10–14 years by cause and year of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 (n=115 deaths)

Category	2012	2013	2014	2015	2016	Total		Rate		Rate ratio (95% CI)
						Pacific	Non-Pacific non-Māori	Pacific	Non-Pacific non-Māori	
Medical	7	3	3	3	3	19	44	11.41	4.54	2.52 (1.47–4.31)
Unintentional injury	<3	3	0	<3	<3	6	26	3.60	2.68	1.34 (0.55–3.27)
Intentional injury	<3	<3	<3	3	<3	8	12	4.80	1.24	3.88 (1.59–9.50)
Total	10	7	4	7	5	33	82	19.82	8.45	2.34 (1.57–3.51)

Sources: Numerator: Mortality Review Database; Denominator: MRDG-derived usually resident Pacific (total responses) population 2012–16, 10–14 years.

There were 33 deaths in Pacific children aged 10–14 years. The leading cause of death was medical conditions; the most common medical conditions causing death were diseases of the nervous system (n=5). Eight deaths were due to intentional injury in this age group, all of which were suicide (**Table 3.4**). Compared with non-Pacific non-Māori, Pacific children have a higher percentage of intentional injury deaths (24 compared with 15 percent) and a lower percentage of unintentional injury deaths (18 compared with 32 percent) (**Figure 3.6**). Disparities between Pacific mortality rates and non-Pacific non-Māori are statistically significant for medical conditions (rate ratio 2.52, 95 percent CI 1.47–4.31), intentional injury (rate ratio 3.88, 95 percent CI 1.59–9.50) and overall mortality (rate ratio 2.34, 95 percent CI 1.57–3.51) (**Table 3.8**). Note that all intentional injury deaths in Pacific children in this age group were due to suicide.

Figure 3.6: Mortality (percentage of deaths) in children aged 10–14 years by cause of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 combined



Source: Mortality Review Database.

3.5 Young people aged 15–19 years

Table 3.9: Mortality (number of deaths and rate per 100,000 resident population) in young people aged 15–19 years by cause and year of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 (n=443 deaths)

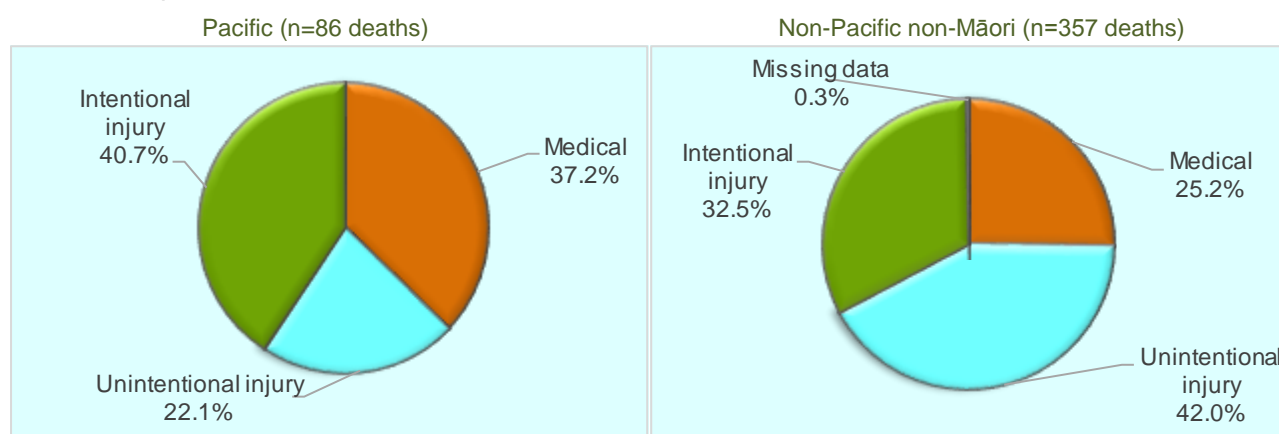
Category	2012	2013	2014	2015	2016	Total		Rate		Rate ratio (95% CI)
						Pacific	Non-Pacific non-Māori	Pacific	Non-Pacific non-Māori	
Medical	9	4	5	6	8	32	90	20.36	8.39	2.43 (1.62–3.63)
Unintentional injury	4	9	3	<3	<3	19	150	12.09	13.99	0.86 (0.54–1.39)
Intentional injury	11	6	6	9	3	35	116	22.27	10.82	2.06 (1.41–3.00)
Missing	0	0	0	0	0	0	<3	-	s	-
Total	24	19	14	17	12	86	357	54.72	33.29	1.64 (1.30–2.08)

's' indicates rate not calculated due to small numbers.

Sources: Numerator: Mortality Review Database; Denominator: MRDG-derived usually resident Pacific (total responses) population 2012–16, 15–19 years.

In Pacific young people aged 15–19 years there were 86 deaths during 2012–16. The leading cause of death was intentional injury (n=35), for which most deaths were due to suicide. The second most common cause of death was medical conditions, which included seven deaths due to neoplasms and five deaths each from congenital anomalies, and diseases of the nervous and circulatory systems. The leading cause of unintentional injury death was transport crashes, accounting for 10 deaths (53 percent) (**Table 3.4**). Compared with non-Pacific non-Māori young people, Pacific young people have a higher percentage of deaths due to medical conditions (37 compared with 25 percent) and intentional injury (41 compared with 33 percent), and a lower percentage due to unintentional injury (22 compared with 42 percent) (**Figure 3.7**). Some disparities in mortality rates between Pacific and non-Pacific non-Māori are statistically significant: Pacific rates are higher for medical conditions (rate ratio 2.43, 95 percent CI 1.62–3.63), intentional injury (rate ratio 2.06, 95 percent CI 1.41–3.00) and deaths overall (rate ratio 1.64, 95 percent CI 1.30–2.08) (**Table 3.9**).

Figure 3.7: Mortality in young people aged 15–19 years (percentage of deaths) by cause of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 combined



Source: Mortality Review Database.

3.6 Young people aged 20–24 years

Table 3.10: Mortality (number of deaths and rate per 100,000 resident population) in young people aged 20–24 years by cause and year of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 (n=626 deaths)

Category	2012	2013	2014	2015	2016	Total		Rate		Rate ratio (95% CI)
						Pacific	Non-Pacific non-Māori	Pacific	Non-Pacific non-Māori	
Medical	14	8	11	10	7	50	134	37.57	11.56	3.25 (2.35–4.50)
Unintentional injury	6	<3	9	7	7	31	193	23.30	16.65	1.40 (0.96–2.04)
Intentional injury	5	8	6	<3	6	26	188	19.54	16.22	1.20 (0.80–1.81)
Missing	0	0	<3	0	0	<3	3	s	0.26	-
Total	25	18	27	18	20	108	518	81.16	44.70	1.82 (1.48–2.23)

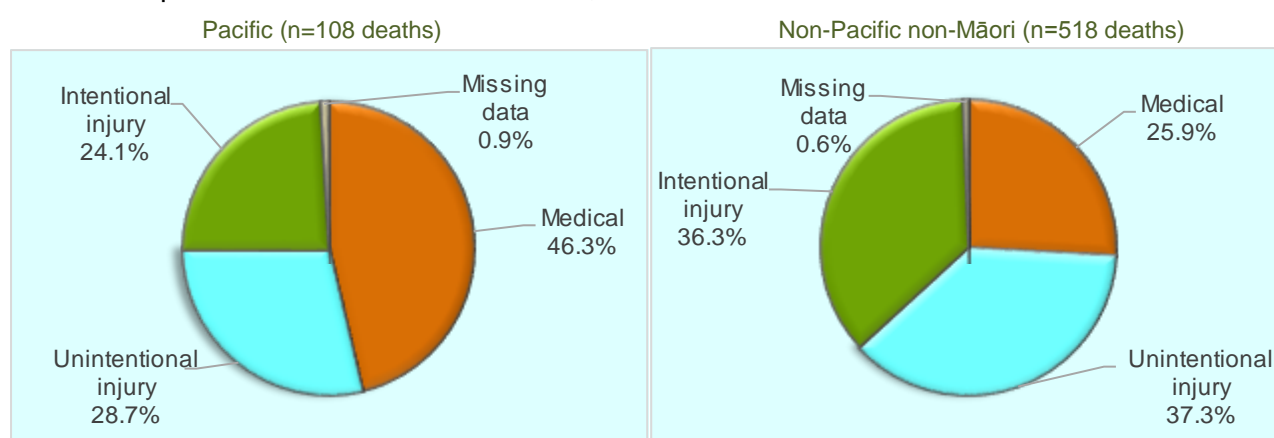
's' indicates rate not calculated due to small numbers.

Sources: Numerator: Mortality Review Database; Denominator: MRDG-derived usually resident Pacific (total responses) population 2012–16, 20–24 years.

There were 108 deaths in Pacific young people aged 20–24 years in the period 2012–16. The leading cause of death was medical conditions; the most common medical causes were neoplasms (n=16), diseases of the nervous system (n=10) and diseases of the circulatory system (n=9). The leading cause of unintentional injury death was transport crashes (71 percent). Of the 26 deaths due to intentional injury, 23 were due to suicide (88 percent) and 3 to assault (**Table 3.4**).

Compared with non-Pacific non-Māori young people, Pacific young people have a higher proportion of medical deaths (46 compared with 26 percent) and a lower proportion of injury deaths, both unintentional and intentional (**Figure 3.8**). The disparities in mortality rates between Pacific and non-Pacific non-Māori are statistically significant for medical deaths (rate ratio 3.25, 95 percent CI 2.35–4.50) and for deaths in this age group overall (rate ratio 1.82, 95 percent CI 1.48–2.23) (**Table 3.10**).

Figure 3.8: Mortality in young people aged 20–24 years (percentage of deaths) by cause of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 combined



Source: Mortality Review Database.

3.7 Summary

There were 395 deaths in Pacific children and young people in Aotearoa/New Zealand during the five years from 2012 to 2016. The leading cause of death was medical conditions. The most common medical condition overall was neoplasms, followed by diseases of the respiratory system and congenital anomalies. The most common cause of unintentional injury deaths was transport-related (57 percent), followed by drowning (18 percent) and poisoning (13 percent). Marked disparities between Pacific and non-Pacific non-Māori occur at all ages, except in those aged five to nine years. The age group with the greatest disparity is post-neonatal infants. Causes of death with the greatest disparity between Pacific and non-Pacific non-Māori children and young people are medical conditions, intentional injury in those aged 10–19 years (mainly suicide) and SUDI.

4 SUDI mortality

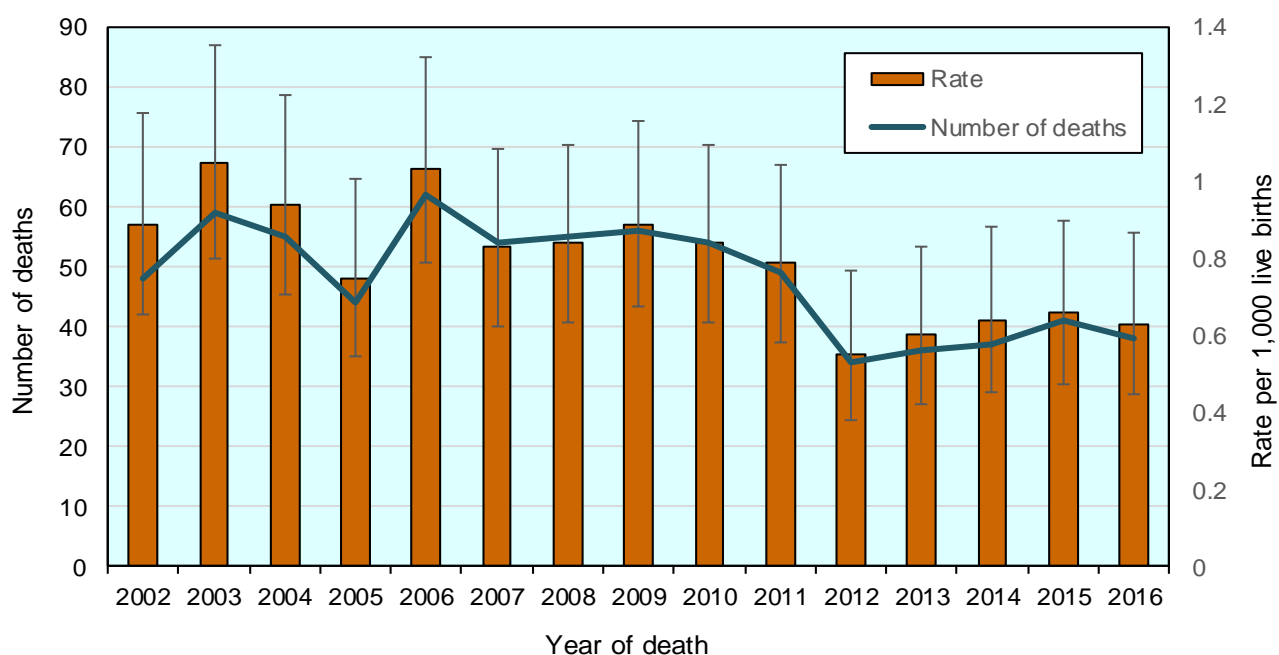
Table 4.1: Post-neonatal SUDI mortality (number of deaths and rate per 1,000 live births) by year, Aotearoa/New Zealand 2002–16 (n=722 deaths)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Number of deaths	48	59	55	44	62	54	55	56	54	49	34	36	37	41	38	722
Rate	0.89	1.05	0.94	0.75	1.03	0.83	0.84	0.89	0.84	0.79	0.55	0.60	0.64	0.66	0.63	0.79

Sources: Numerator: Mortality Review Database; Denominator: Ministry of Health Live Birth Registrations 2002–16.

There were 722 deaths due to SUDI in post-neonatal infants (aged 28 days to less than one year) during the years 2002–16, including 38 deaths in 2016. The SUDI mortality rate has varied substantially over this time, ranging from a high of 1.05 per 1,000 live births in 2003 to a low of 0.55 per 1,000 live births in 2012 (**Table 4.1** and **Figure 4.1**).

Figure 4.1: Post-neonatal SUDI mortality (number of deaths, rate per 1,000 live births and 95% confidence intervals) by year, Aotearoa/New Zealand 2002–16 (n=722 deaths)

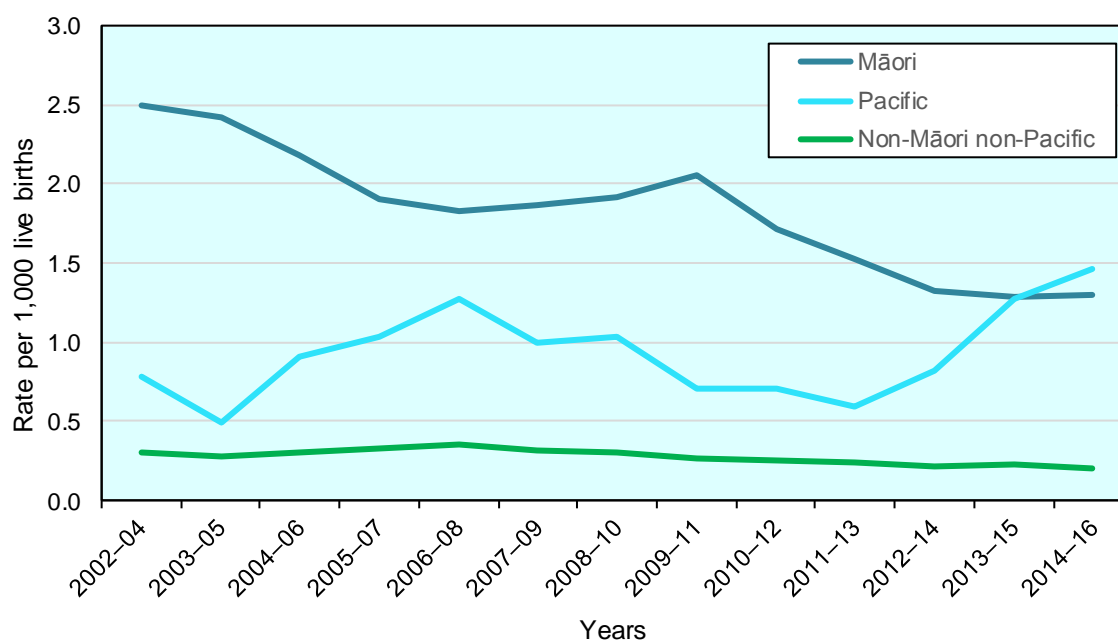


Sources: Numerator: Mortality Review Database; Denominator: Ministry of Health Live Birth Registrations 2002–16.

Analysis by ethnic group points to clear disparities. Māori have a higher SUDI rate than non-Māori non-Pacific (**Figure 4.2** and **Table 4.2**). The SUDI mortality rate for Pacific fluctuates somewhat, but is also consistently higher than the non-Māori non-Pacific rate (**Figure 4.2**). Pacific SUDI mortality peaked in 2015 at 2 per 1,000 live births, but in 2016 was lower at 1.3 deaths per 1,000 live births.²⁰

²⁰ Data not shown.

Figure 4.2: Post-neonatal SUDI mortality (rate per 1,000 live births) by ethnic group and year of death (three-year rolling rates), Aotearoa/New Zealand 2002–16 (n=722 deaths)



Sources: Numerator: Mortality Review Database; Denominator: Ministry of Health Live Birth Registrations 2002–16.

Similarly, SUDI mortality rates by DHB of residence vary substantially, from those DHBs that have had no SUDI deaths during the five-year period to those that have a large number. In most DHBs the SUDI mortality rate in Māori is higher than the rate in non-Māori. The number of deaths in Pacific infants is numerically low in most DHBs, however, where it is possible to calculate rates, these are high compared with non-Māori non-Pacific rates. The overall SUDI rate in Pacific infants is statistically significantly higher than the SUDI rate in non-Māori non-Pacific infants (**Table 4.2**). Note that these figures are based on five years' combined data and some DHBs may have reduced the number of deaths in their region within that period.

Table 4.2: Post-neonatal SUDI mortality (number of deaths and rate per 1,000 live births), by DHB of residence and ethnic group, 2012–16 combined (n=186 deaths)

DHB of residence	Māori			Pacific			Non-Māori non-Pacific			Total		
	Deaths	Rate	95% CI	Deaths	Rate	95% CI	Deaths	Rate	95% CI	Deaths	Rate	95% CI
Northland	6	0.88	0.32–1.92	<3	s	-	<3	s	-	9	0.8	0.36–1.51
Waitemata	<3	s	-	<3	s	-	3	0.11	0.02–0.31	7	0.18	0.07–0.37
Auckland	3	0.73	0.15–2.12	6	1.11	0.41–2.42	0	-	-	9	0.29	0.13–0.55
Counties Manukau	23	2.06	1.31–3.09	18	1.44	0.85–2.27	<3	s	-	42	1.00	0.72–1.35
Waikato	16	1.47	0.84–2.39	3	2.61	0.54–7.64	7	0.46	0.19–0.95	26	0.96	0.62–1.40
Lakes	4	0.94	0.26–2.41	<3	s	-	0	-	-	5	0.66	0.22–1.55
Bay of Plenty	4	0.61	0.17–1.56	0	-	-	<3	s	-	5	0.35	0.11–0.81
Tairāwhiti	6	2.37	0.87–5.16	0	-	-	0	-	-	6	1.66	0.61–3.61
Hawke's Bay	8	1.54	0.66–3.02	0	-	-	<3	s	-	9	0.82	0.38–1.57
Taranaki	3	1.16	0.24–3.40	0	-	-	3	0.6	0.12–1.74	6	0.78	0.28–1.69
MidCentral	4	0.99	0.27–2.54	0	-	-	<3	s	-	5	0.47	0.15–1.09
Whanganui	6	2.97	1.09–6.47	<3	s	-	0	-	-	7	1.66	0.67–3.41
Capital & Coast	7	1.92	0.77–3.95	3	1.51	0.31–4.43	<3	s	-	11	0.61	0.30–1.08
Hutt	4	1.36	0.37–3.47	<3	s	-	3	0.51	0.11–1.49	8	0.81	0.35–1.60
Wairarapa	0	-	-	0	-	-	<3	s	-	<3	s	-
Nelson Marlborough	<3	s	-	0	-	-	0	-	-	<3	s	-
West Coast	0	-	-	0	-	-	0	-	-	0	-	-
Canterbury	4	0.73	0.20–1.88	0	-	-	13	0.55	0.29–0.94	17	0.55	0.32–0.88
South Canterbury	0	-	-	0	-	-	0	-	-	0	-	-
Southern	6	1.68	0.62–3.65	<3	s	-	4	0.3	0.08–0.78	11	0.63	0.32–1.13
Aotearoa/ New Zealand	108	1.25	1.01–1.48	37	1.17	0.82–1.61	41	0.22	0.16–0.30	186	0.62	0.53–0.70

's' indicates rate not calculated due to small numbers.

Sources: Numerator: Mortality Review Database; Denominator: Ministry of Health Live Birth Registrations 2012–16.

5 Suicide mortality

During the period 2002–16, there were 1,758 deaths due to suicide. The age range for these deaths is 9–24 years. This chapter hereafter reports on data on the deaths in those aged 10–24 years only.

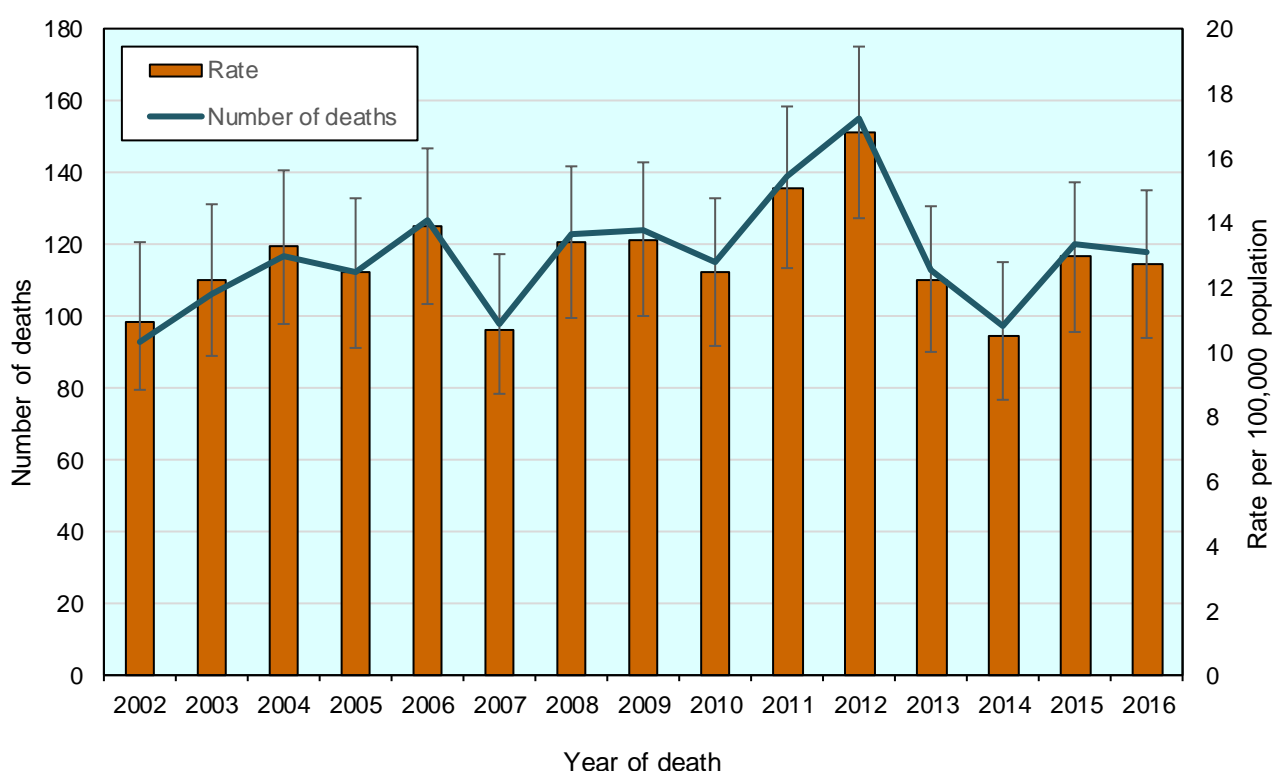
Table 5.1: Suicide mortality (number of deaths and rate per 100,000 population) in children and young people aged 10–24 years by year, Aotearoa/New Zealand 2002–16 (n=1,757 deaths)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2002–16
Number of deaths	93	106	117	112	127	98	123	124	115	139	155	113	97	120	118	1,757
Rate	10.94	12.23	13.25	12.46	13.88	10.69	13.40	13.49	12.50	15.08	16.80	12.23	10.48	12.95	12.72	12.88

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2002–16, 10–24 years.

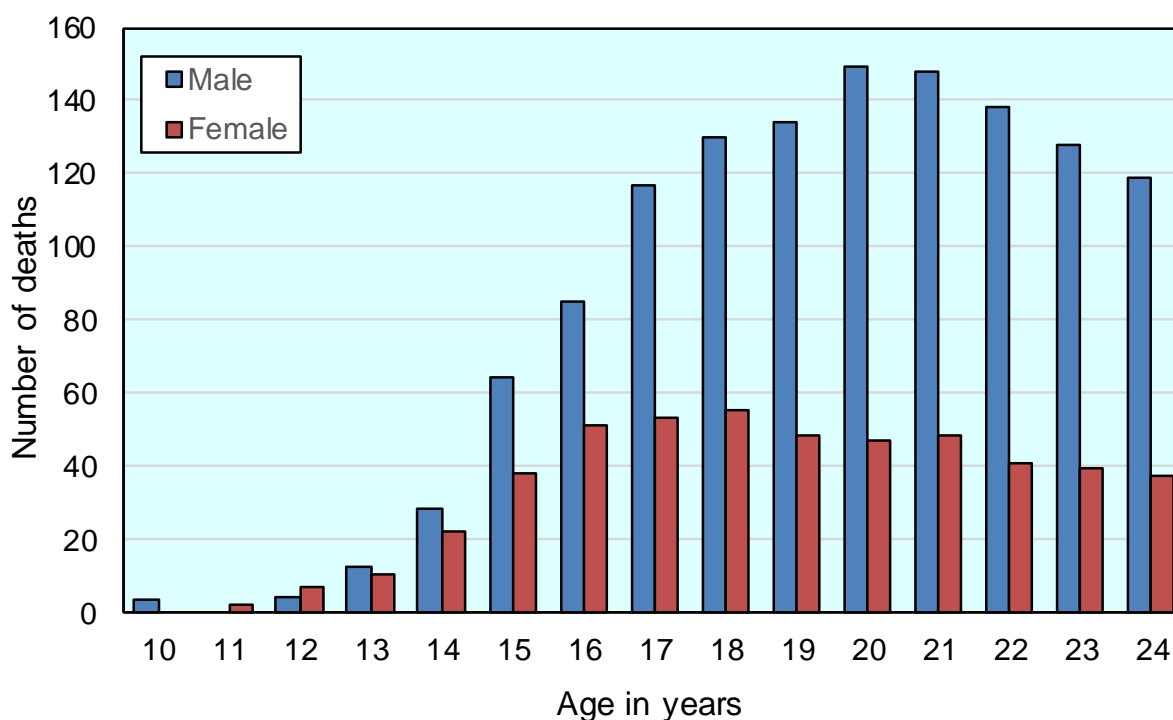
The suicide rate in children and young people aged 10–24 years has varied considerably over the past 15 years. The lowest rate occurred in 2014 with 10.48 deaths per 100,000 population, while 2012 saw the highest rate of 16.80 per 100,000 population (**Table 5.1**). Within such fluctuations in suicide mortality rates, no clear trends in the overall rate have emerged (**Figure 5.1**).

Figure 5.1: Suicide mortality (number of deaths, rate per 100,000 population and 95% confidence intervals) in children and young people aged 10–24 years by year of death, Aotearoa/New Zealand 2002–16 (n=1,757 deaths)



Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2002–16, 10–24 years.

Figure 5.2: Suicide mortality (number of deaths) in children and young people aged 10–24 years by age and sex, Aotearoa/New Zealand 2002–16 (n=1,757 deaths)

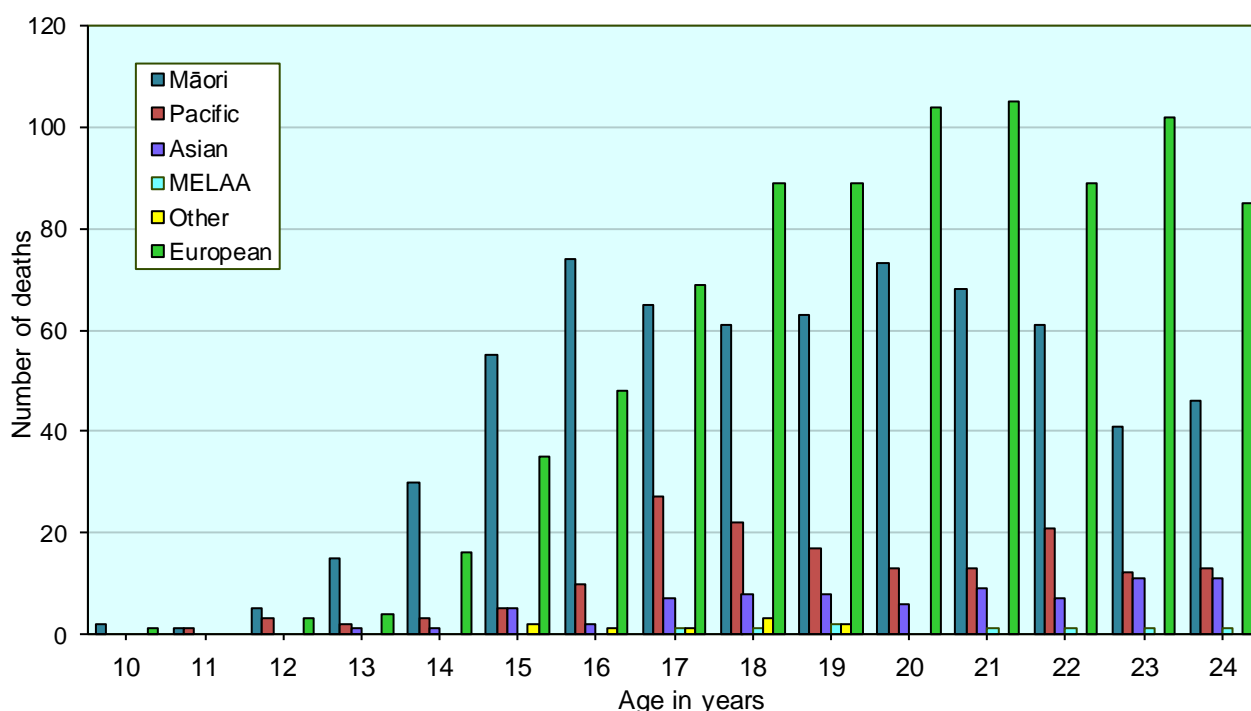


Source: Mortality Review Database.

An analysis by age and sex reveals a number of patterns. Male deaths due to suicide far outweigh suicide deaths in females, with an overall male:female ratio of 2.5:1.²¹ However, in the childhood years (10–14 years of age) the number of suicide deaths in males and females is similar. It is only in adolescence that the greater number of male suicide deaths becomes evident. From the age of 17 years onwards, the number of male suicide deaths is at least twice that of female suicide deaths. The total number of deaths peaks at the ages of 20 and 21 years, and gradually reduces after that (Figure 5.2).

²¹ Data not shown.

Figure 5.3: Suicide mortality (number of deaths) in children and young people aged 10–24 years by age and prioritised ethnic group, Aotearoa/New Zealand 2002–16 combined (n=1,754 deaths*)



* Excludes three cases where ethnicity was unknown.

Source: Mortality Review Database.

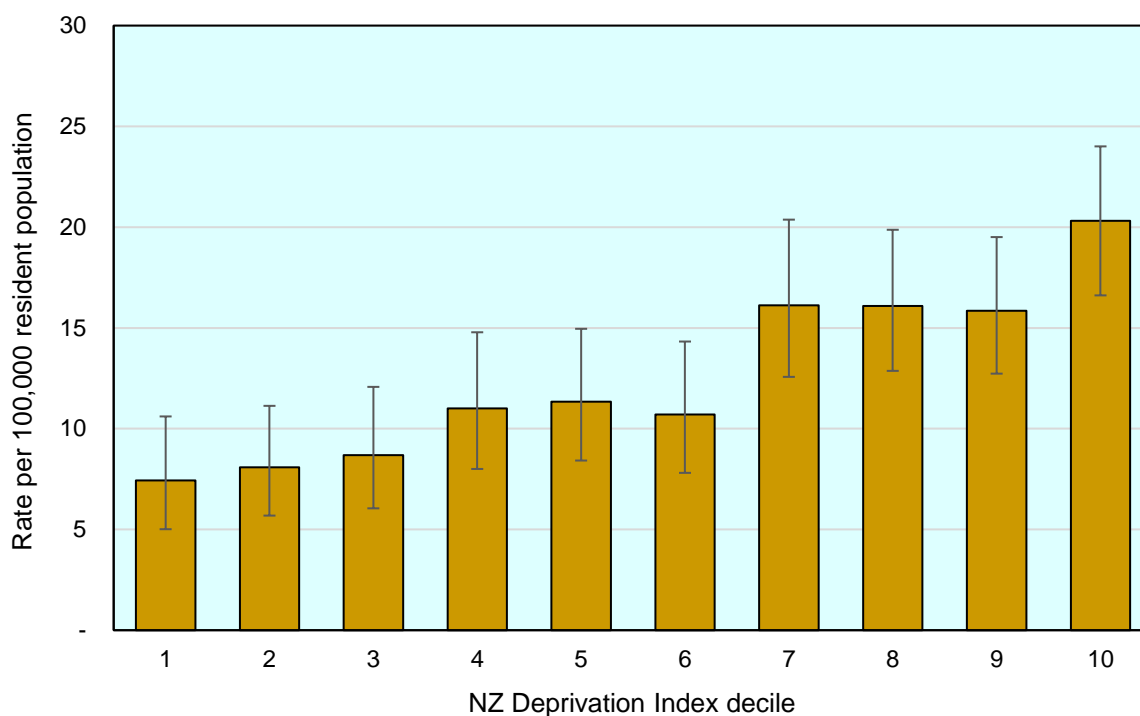
While the main peak in suicide deaths in children and young people is at the age of 20 years, the peak age varies by ethnic group. For taitamariki Māori, high numbers of deaths occur between the ages of 16 and 20 years. For those of European ethnicity, suicide deaths peak at 20 years of age (**Figure 5.3**). Deaths in Māori tend to begin younger: 60 percent of deaths in those aged 10–14 years are in tamariki Māori.²² Consistent with the absolute numbers, rates of suicide are also high in tamariki and taitamariki Māori at each of the three age groups compared with non-Māori non-Pacific.²³ This trend is similar for Pacific children and young people also, with rates higher in children aged 10–14 years and young people aged 15–19 years compared with non-Pacific non-Māori children and young people.²⁴

²² Data not shown.

²³ The Māori: non-Māori non-Pacific suicide rate ratios are: 10–14 years 4.91 (95% CI 2.35–10.24); 15–19 years rate ratio 3.23 (95% CI 2.50–4.17); 20–24 years rate ratio 2.45 (95% CI 1.93–3.11).

²⁴ The Pacific: non-Pacific non-Māori suicide rate ratios are: 10–14 years 4.28 (95% CI 1.66–11.05); 15–19 years rate ratio 1.83 (95% CI 1.21–2.76).

Figure 5.4: Suicide mortality (rate per 100,000 population and 95% confidence intervals) in children and young people aged 10–24 years by NZ Deprivation Index decile, Aotearoa/ New Zealand 2012–16 (n=602 deaths*)



* Excludes one case where deprivation unknown.

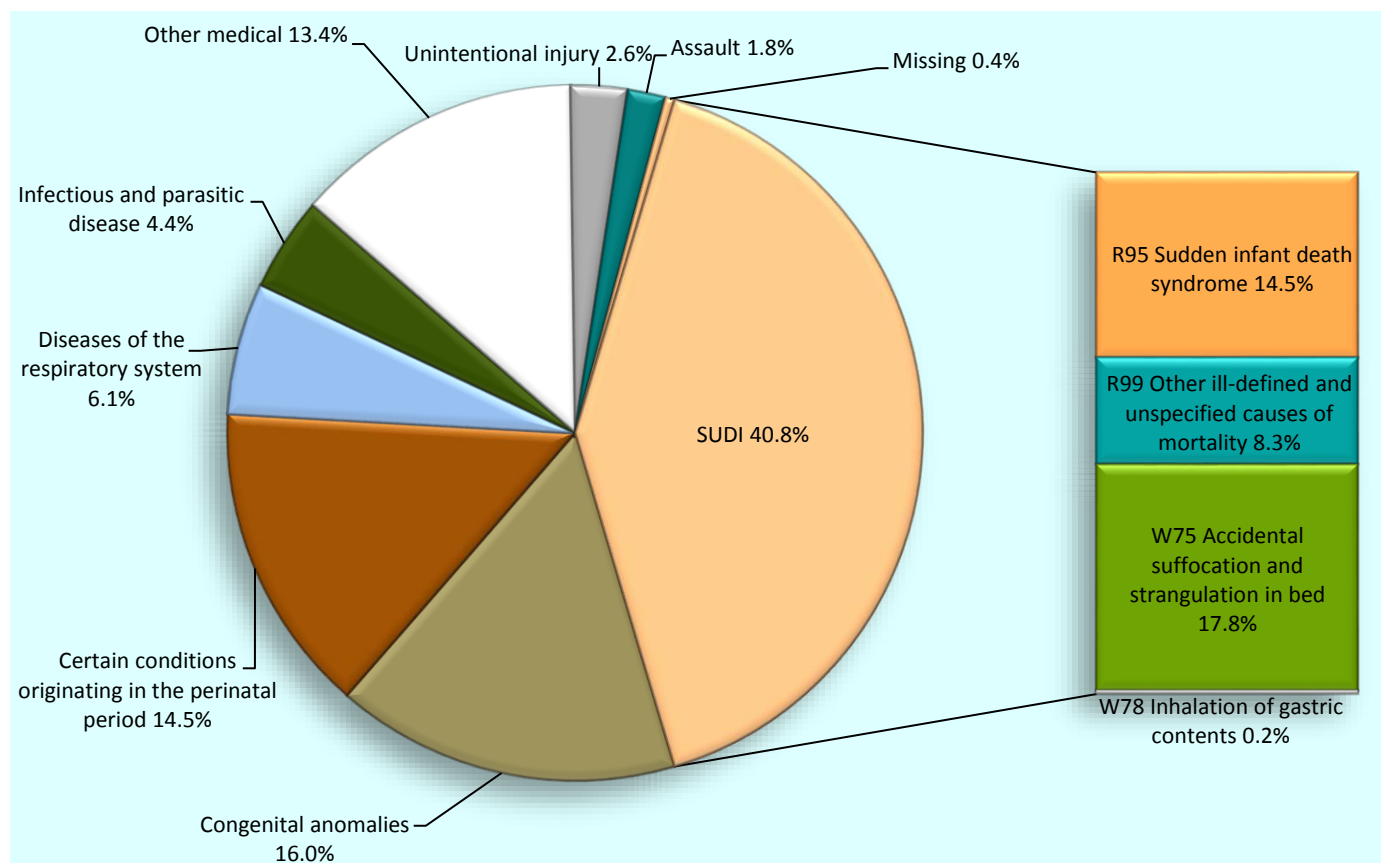
Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 10–24 years.

Deaths due to suicide are more frequent in those living in more deprived areas, as measured by the New Zealand Deprivation Index. The mortality rate in deciles 7–10 is statistically significantly higher than the mortality rate in deciles 1–3 (**Figure 5.4**).

Appendices

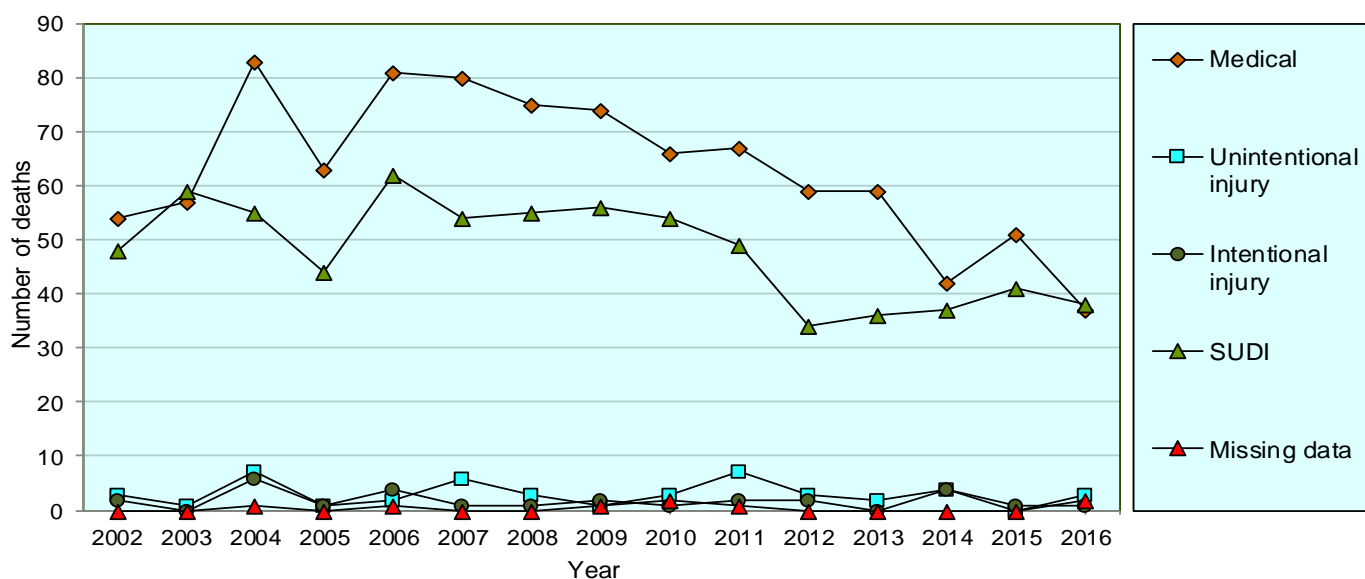
6 Post-neonatal infants: 28 days to less than one year

Figure 6.1: Post-neonatal infant mortality (%) by cause of death, Aotearoa/New Zealand 2012–16 combined (n=456 deaths)



Source: Mortality Review Database.

Figure 6.2: Post-neonatal infant mortality (number of deaths) by cause of death and year, Aotearoa/New Zealand 2002–16 (n=1,752 deaths)



Source: Mortality Review Database.

Table 6.1: Post-neonatal infant mortality (number deaths and rate per 1,000 live births) by cause of death and year, Aotearoa/New Zealand 2012–16 (n=456 deaths)

Cause of death	2012	2013	2014	2015	2016	Total	%	Rate 2012–16
Medical								
Infectious and parasitic disease	3	7	5	4	<3	20	4.4	0.07
Neoplasms	<3	3	<3	4	<3	13	2.9	0.04
Diseases of the blood and blood-forming organs and disorders of the immune system	<3	<3	<3	<3	<3	7	1.5	0.02
Endocrine, nutritional and metabolic diseases	<3	<3	<3	<3	<3	8	1.8	0.03
Mental and behavioural disorders	0	0	0	0	0	0	-	-
Diseases of the nervous system	6	3	<3	3	<3	15	3.3	0.05
Diseases of the circulatory system	<3	4	5	<3	<3	14	3.1	0.05
Diseases of the respiratory system	12	4	6	4	<3	28	6.1	0.09
Diseases of the digestive system	0	<3	0	<3	<3	4	0.9	0.01
Diseases of the skin and subcutaneous tissue	0	0	0	0	0	0	-	-
Diseases of the musculoskeletal system and connective tissue	0	0	0	0	0	0	-	-
Diseases of the genitourinary system	0	0	0	0	0	0	-	-
Pregnancy, childbirth and the puerperium	0	0	0	0	0	0	-	-
Certain conditions originating in the perinatal period	14	19	10	12	11	66	14.5	0.22
Congenital anomalies	18	14	8	19	14	73	16.0	0.24
Symptoms and abnormal findings not elsewhere classified	0	0	0	0	0	0	-	-
Total medical	59	59	42	51	37	248	54.4	0.82

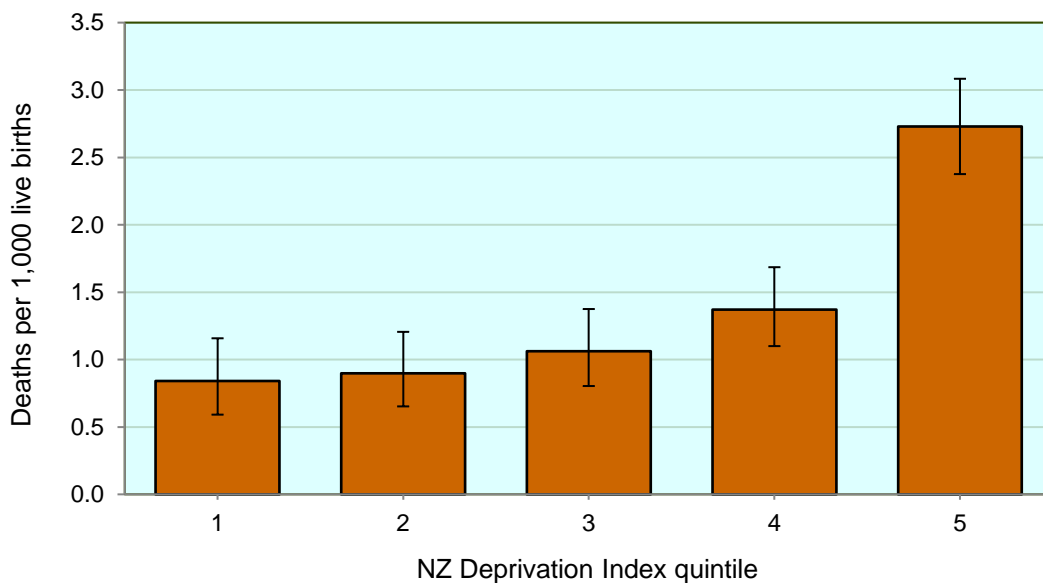
Cause of death	2012	2013	2014	2015	2016	Total	%	Rate 2012–16
Unintentional injury								
Cut/pierce	0	0	0	0	0	0	-	-
Drowning	0	0	<3	0	<3	<3	x	s
Fall	<3	0	0	0	0	<3	x	s
Fire/hot object or substance	0	0	0	0	0	0	-	-
Firearm	0	0	0	0	0	0	-	-
Machinery	0	0	0	0	0	0	-	-
Transport	<3	<3	<3	0	<3	7	1.5	0.02
Natural/environmental	0	0	0	0	0	0	-	-
Poisoning	0	0	0	0	0	0	-	-
Struck by, against	0	0	0	0	0	0	-	-
Suffocation	0	0	0	0	0	0	-	-
Other specified, classifiable	0	0	0	0	<3	<3	x	s
Other specified, not elsewhere classified	0	0	0	0	0	0	-	-
Unspecified	0	0	<3	0	0	<3	x	s
Complications of medical and surgical care	0	0	0	0	0	0	-	-
Sequelae of surgical and medical care as external cause	0	0	0	0	0	0	-	-
Total unintentional injury	3	<3	4	0	3	12	2.6	0.04
Intentional injury								
Assault	<3	0	4	<3	<3	8	1.8	0.03
Total intentional injury	<3	0	4	<3	<3	8	1.8	0.03
SUDI								
R95 Sudden infant death syndrome	19	18	11	12	6	66	14.5	0.22
R99 Other ill-defined and unspecified causes of mortality	<3	<3	0	9	25	38	8.3	0.13
W75 Accidental suffocation and strangulation in bed	13	16	26	19	7	81	17.8	0.27
W78 Inhalation of gastric contents	0	0	0	<3	0	<3	s	s
Total SUDI	34	36	37	41	38	186	40.8	0.61
Missing data	0	0	0	0	<3	<3	x	s
Total	98	97	87	93	81	456	100	1.51

'x' indicates percentage not calculated due to small numbers.

's' indicates rate not calculated due to small numbers.

Sources: Numerator: Mortality Review Database; Denominator: Ministry of Health Live Birth Registrations 2012–16.

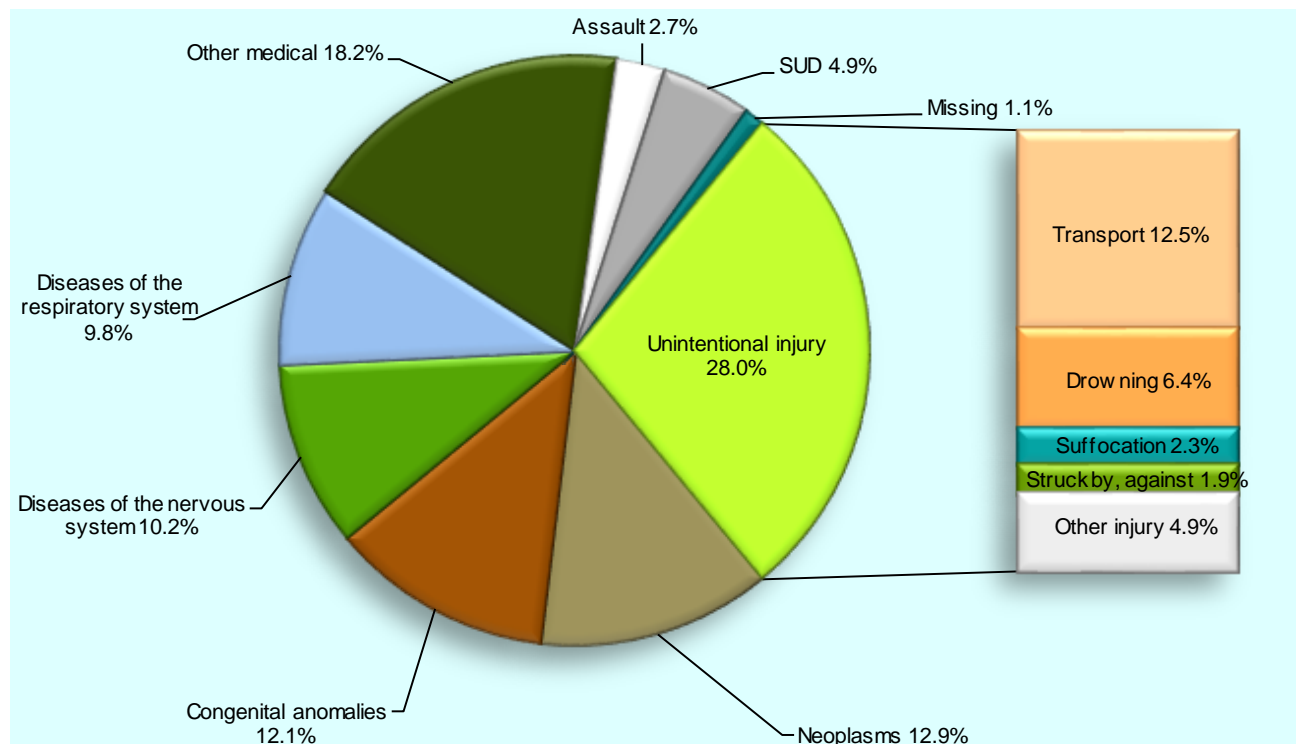
Figure 6.3: Post-neonatal infant mortality rates (deaths per 1,000 live births and 95% confidence intervals) by NZ Deprivation Index quintile, Aotearoa/New Zealand 2012–16 combined (n=456 deaths)



Sources: Numerator: Mortality Review Database; Denominator: Ministry of Health Live Birth Registrations 2012–16.

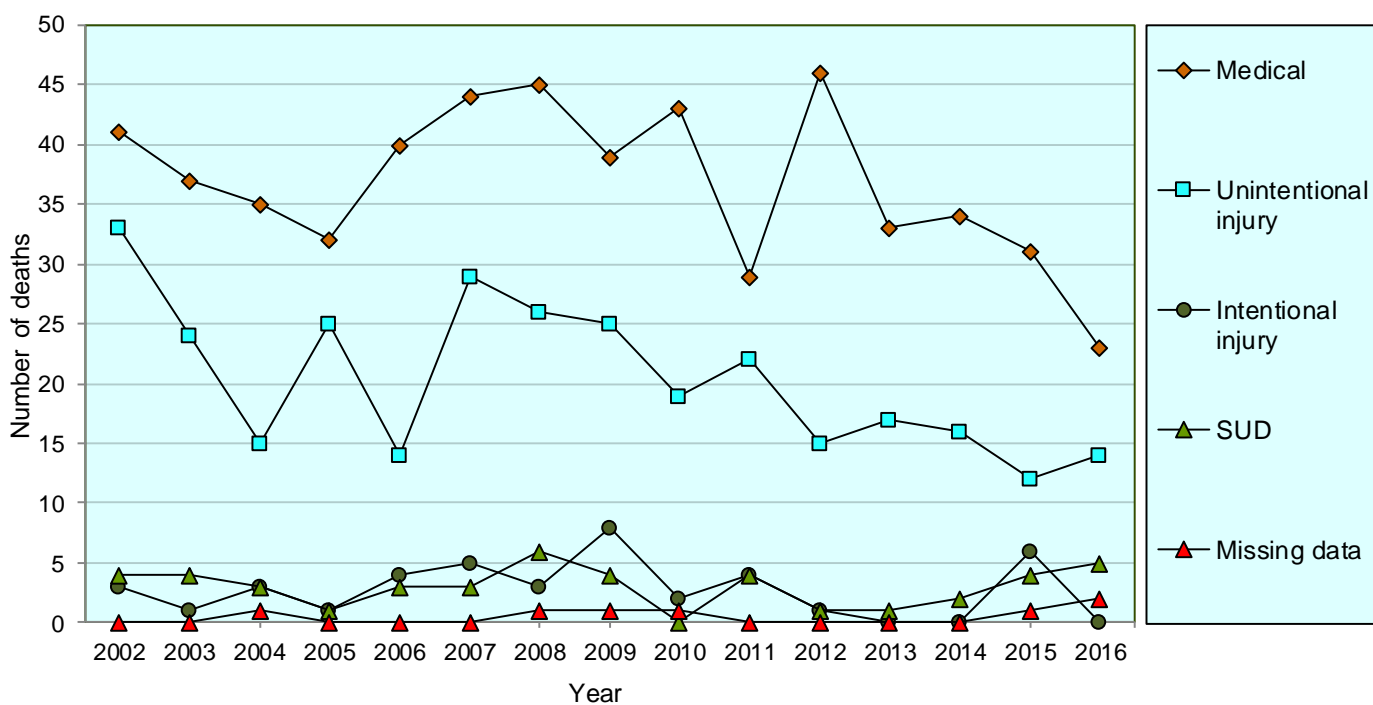
7 Children aged one to four years

Figure 7.1: Mortality (%) in children aged one to four years by cause of death, Aotearoa/ New Zealand 2012–16 combined (n=264 deaths)



Source: Mortality Review Database.

Figure 7.2: Mortality (number of deaths) in children aged one to four years by cause of death and year, Aotearoa/New Zealand 2002–16 (n=951 deaths)



Source: Mortality Review Database.

Table 7.1: Mortality (number of deaths and total rate per 100,000 resident population) in children aged one to four years by cause of death and year, Aotearoa/New Zealand 2012–16 (n=264 deaths)

Cause of death	2012	2013	2014	2015	2016	Total	%	Rate 2012–16
Medical								
Infectious and parasitic disease	5	4	7	<3	<3	18	6.8	1.41
Neoplasms	11	6	5	7	5	34	12.9	2.66
Diseases of the blood and blood-forming organs and disorders of the immune system	<3	0	<3	0	0	<3	x	s
Endocrine, nutritional and metabolic diseases	<3	<3	<3	3	0	7	2.7	0.55
Mental and behavioural disorders	0	0	<3	0	0	<3	x	s
Diseases of the nervous system	5	9	3	4	6	27	10.2	2.12
Diseases of the circulatory system	3	<3	<3	<3	<3	7	2.7	0.55
Diseases of the respiratory system	8	4	5	5	4	26	9.8	2.04
Diseases of the digestive system	0	0	<3	0	<3	<3	x	s
Diseases of the skin and subcutaneous tissue	0	0	0	0	0	0	-	-
Diseases of the musculoskeletal system and connective tissue	<3	0	0	0	0	<3	x	s
Diseases of the genitourinary system	0	0	0	0	0	0	-	-
Pregnancy, childbirth and the puerperium	0	0	0	0	0	0	-	-
Certain conditions originating in the perinatal period	<3	0	<3	0	0	3	1.1	0.24
Congenital anomalies	9	5	7	7	4	32	12.1	2.51
Symptoms and abnormal findings not elsewhere classified	0	<3	<3	3	<3	7	2.7	0.55
Total medical	46	33	34	31	23	167	63.3	13.08
Unintentional injury (includes undetermined intent and legal intervention/war)								
Cut/pierce	0	0	0	0	0	0	-	-
Drowning	3	5	4	3	<3	17	6.4	1.33
Fall	0	<3	0	0	0	<3	x	s
Fire/hot object or substance	0	0	<3	0	0	<3	x	s
Firearm	0	0	0	0	<3	<3	x	s
Machinery	0	<3	0	0	0	<3	x	s
Transport	7	8	9	<3	7	33	12.5	2.59
Natural/environmental	0	<3	0	<3	0	<3	x	s
Poisoning	0	0	0	<3	0	<3	x	s
Struck by, against	<3	0	0	<3	<3	5	1.9	0.39
Suffocation	<3	0	<3	<3	3	6	2.3	0.47
Other specified, classifiable	<3	0	0	0	0	<3	x	s
Other specified, not elsewhere classified	0	0	0	0	0	0	-	-
Unspecified	<3	<3	<3	<3	0	4	1.5	0.31
Complications of medical and surgical care	0	0	0	0	0	0	-	-
Sequelae of surgical and medical care as external cause	0	0	0	0	0	0	-	-
Total unintentional injury	15	17	16	12	14	74	28	5.8
Intentional injury								
Assault	<3	0	0	6	0	7	2.7	0.55
Total intentional injury	<3	0	0	6	0	7	2.7	0.55

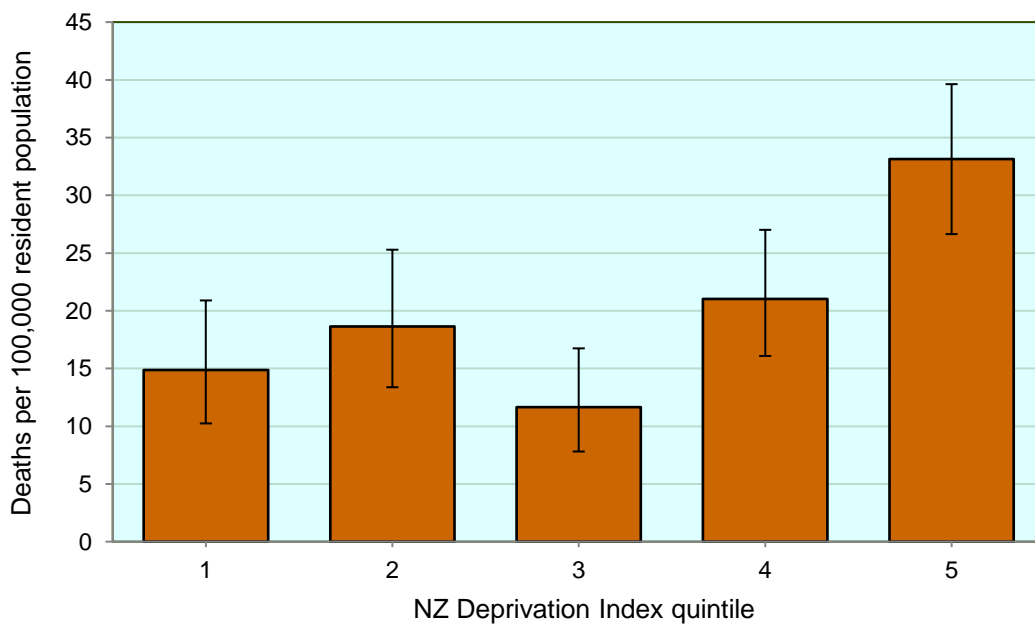
Cause of death	2012	2013	2014	2015	2016	Total	%	Rate 2012–16
SUD (12–23 months)								
R95 Sudden infant death syndrome	0	0	0	0	0	0	-	-
R96 Other sudden death, cause unknown	0	0	0	0	0	0	-	-
R98 Unattended death	0	0	0	0	0	0	-	-
R99 Other ill-defined and unspecified causes of mortality	<3	0	0	4	5	10	3.8	0.78
W75 Accidental suffocation and strangulation in bed	0	<3	<3	0	0	3	1.1	0.24
W78 Inhalation of gastric contents	0	0	0	0	0	0	-	-
Total SUD	<3	<3	<3	4	5	13	4.9	1.02
Missing data	0	0	0	<3	<3	3	1.1	0.24
Total	63	51	52	54	44	264	100	20.68

'x' indicates percentage not calculated due to small numbers.

's' indicates rate not calculated due to small numbers.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, one to four years.

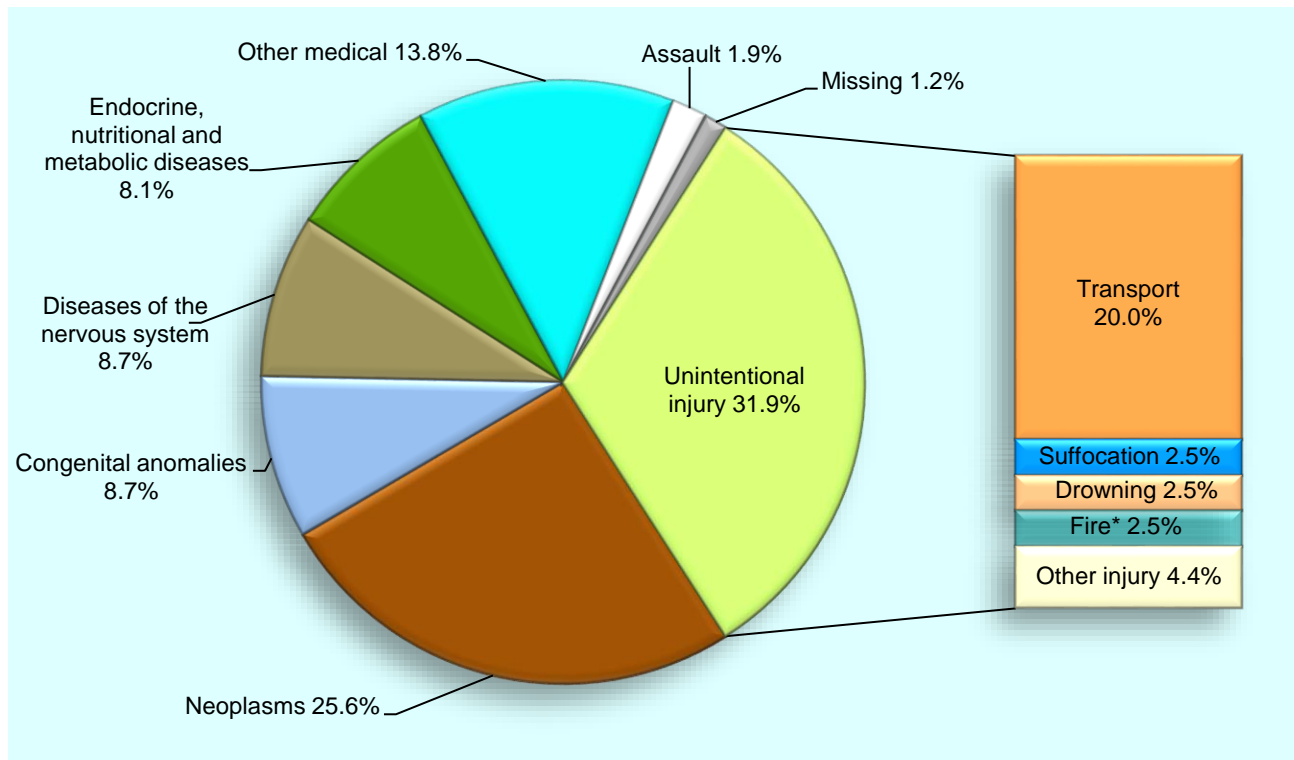
Figure 7.3: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children aged one to four years by NZ Deprivation Index quintile, Aotearoa/New Zealand 2012–16 combined (n=264 deaths)



Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, one to four years.

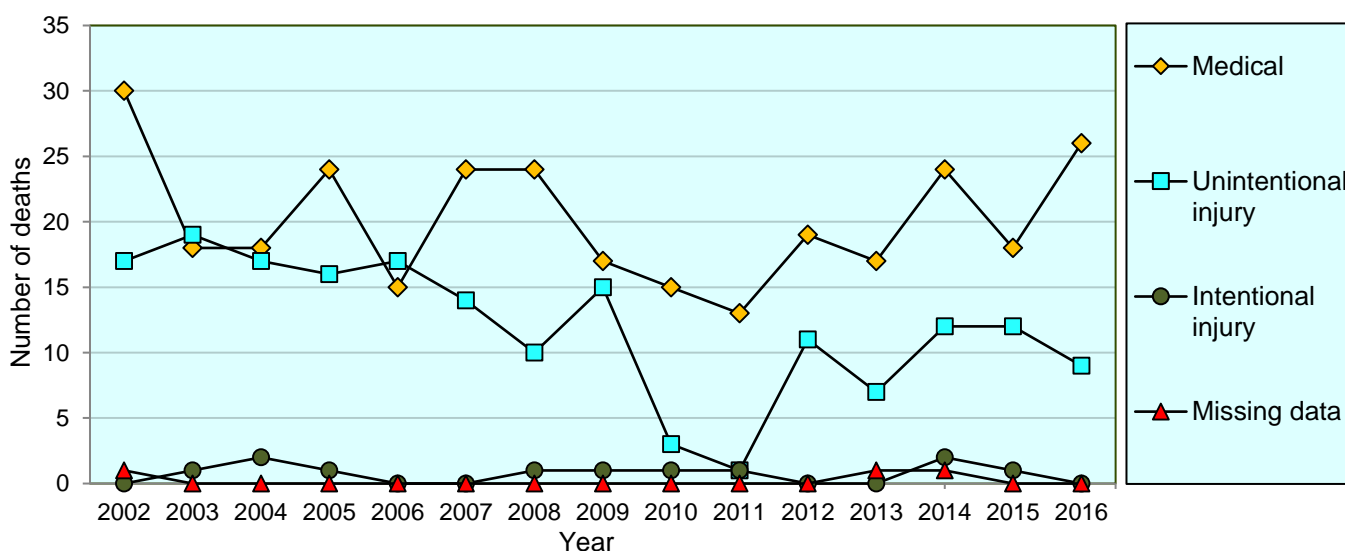
8 Children aged five to nine years

Figure 8.1: Mortality (%) in children aged five to nine years by cause of death, Aotearoa/ New Zealand 2012–16 combined (n=160 deaths)



* Includes fire/hot object or substance.
Source: Mortality Review Database.

Figure 8.2: Mortality (number of deaths) in children aged five to nine years by cause of death and year, Aotearoa/New Zealand 2002–16 (n=496 deaths)



Source: Mortality Review Database.

Table 8.1: Mortality (number of deaths and total rates per 100,000 resident population) in children aged five to nine years by cause of death and year, Aotearoa/New Zealand 2012–16 (n=160 deaths)

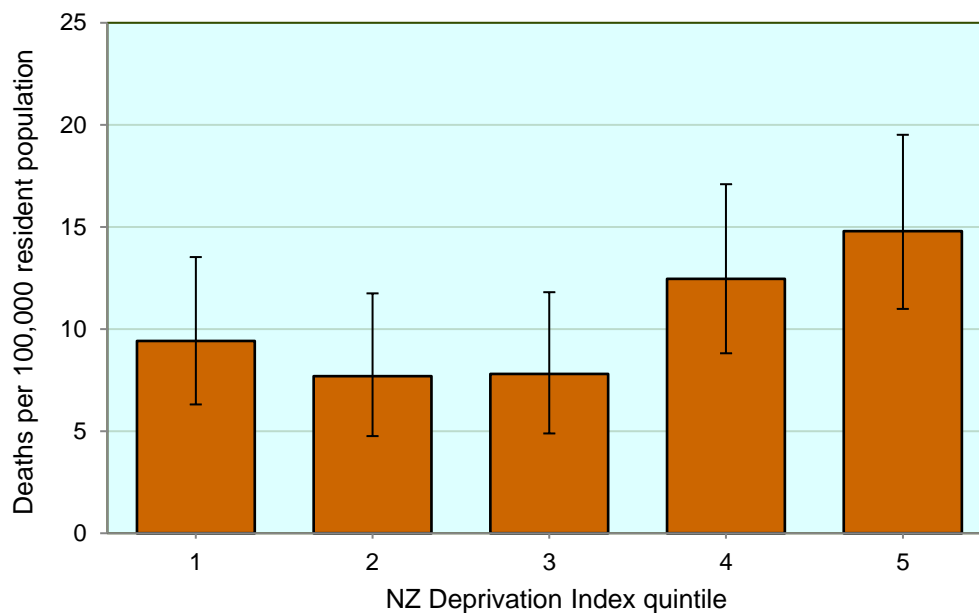
Cause of death	2012	2013	2014	2015	2016	Total	%	Rate 2012–16
Medical								
Infectious and parasitic disease	<3	<3	0	0	<3	3	1.9	0.2
Neoplasms	6	4	13	7	11	41	25.6	2.72
Diseases of the blood and blood-forming organs and disorders of the immune system	0	<3	<3	0	0	<3	x	s
Endocrine, nutritional and metabolic diseases	6	<3	3	<3	<3	13	8.1	0.86
Mental and behavioural disorders	0	0	0	0	0	0	-	-
Diseases of the nervous system	3	5	<3	<3	3	14	8.8	0.93
Diseases of the circulatory system	0	<3	0	0	<3	3	1.9	0.2
Diseases of the respiratory system	<3	<3	<3	4	<3	10	6.3	0.66
Diseases of the digestive system	0	0	0	<3	<3	<3	x	s
Diseases of the skin and subcutaneous tissue	0	0	0	0	0	0	-	-
Diseases of the musculoskeletal system and connective tissue	0	0	0	0	0	0	-	-
Diseases of the genitourinary system	0	<3	0	0	0	<3	x	s
Pregnancy, childbirth and the puerperium	0	0	0	0	0	0	-	-
Certain conditions originating in the perinatal period	0	0	0	0	0	0	-	-
Congenital anomalies	<3	<3	4	4	4	14	8.8	0.93
Symptoms and abnormal findings not elsewhere classified	0	0	0	0	<3	<3	x	s
Total medical	19	17	24	18	26	104	65	6.9
Unintentional injury								
Cut/pierce	0	0	0	0	0	0	-	-
Drowning	0	<3	<3	0	<3	4	2.5	0.27
Fall	0	0	0	0	<3	<3	x	0.07
Fire/hot object or substance	0	<3	0	<3	<3	4	2.5	0.27
Firearm	0	0	0	0	0	0	-	-
Machinery	0	0	0	0	0	0	-	-
Transport	9	<3	9	7	6	32	20	2.12
Natural/environmental	0	<3	0	0	0	<3	x	s
Poisoning	<3	0	0	<3	0	<3	x	s
Struck by, against	<3	<3	0	0	0	<3	x	s
Suffocation	0	<3	<3	<3	0	4	2.5	0.27
Other specified, classifiable	0	0	<3	0	0	<3	x	s
Other specified, not elsewhere classified	0	0	0	0	0	0	-	-
Unspecified	0	0	0	0	0	0	-	-
Complications of medical and surgical care	0	0	0	0	0	0	-	-
Sequelae of surgical and medical care as external cause	0	0	0	0	0	0	-	-
Total unintentional injury	11	7	12	12	9	51	31.9	3.39
Intentional injury								
Assault	0	0	<3	<3	0	3	1.9	0.2
Suicide	0	0	0	0	0	0	-	-
Total intentional injury	0	0	<3	<3	0	3	1.9	0.2
Missing data	0	<3	<3	0	0	<3	x	s
Total	30	25	39	31	35	160	100	10.62

'x' indicates percentage not calculated due to small numbers.

's' indicates rate not calculated due to small numbers.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, five to nine years.

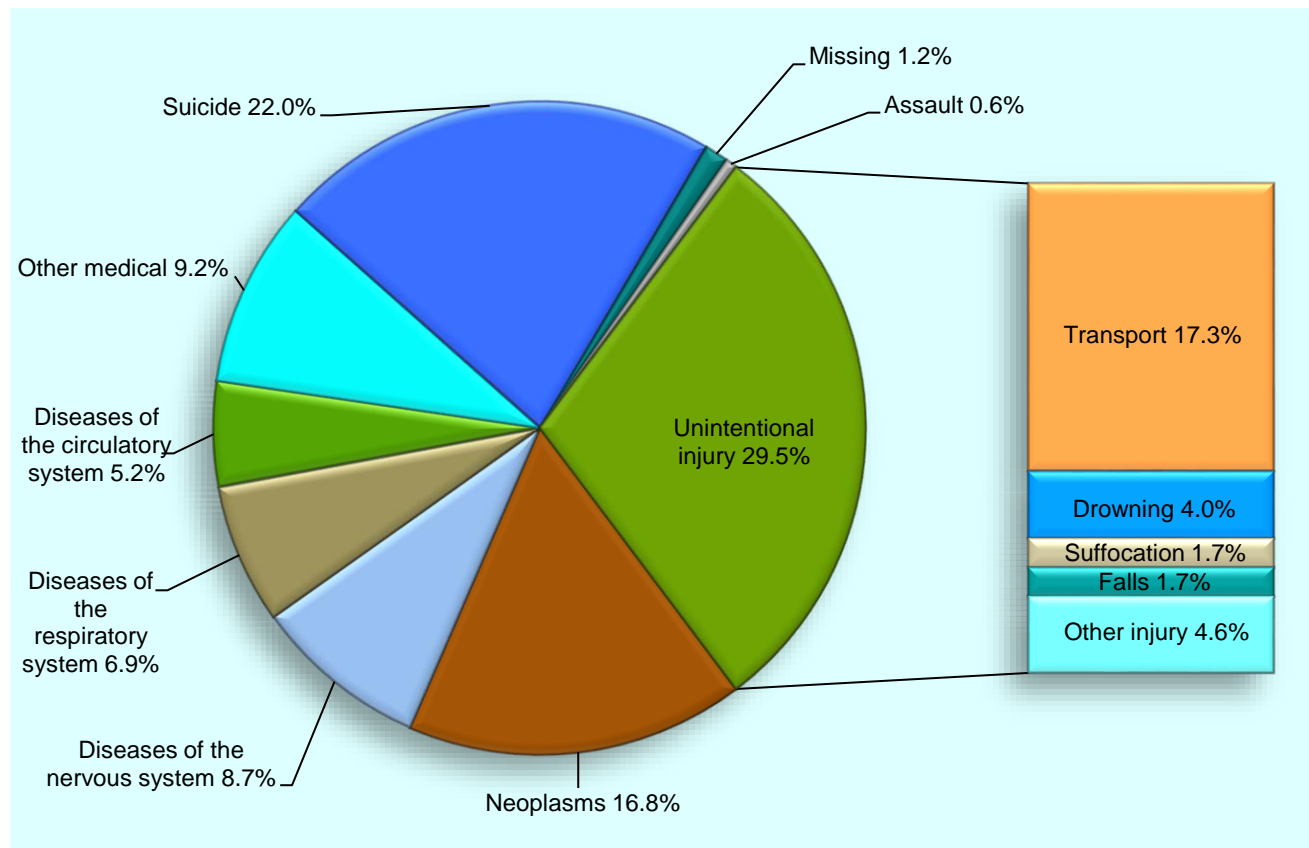
Figure 8.3: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children aged five to nine years by NZ Deprivation Index quintile, Aotearoa/New Zealand 2012–16 combined (n=160 deaths)



Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, five to nine years.

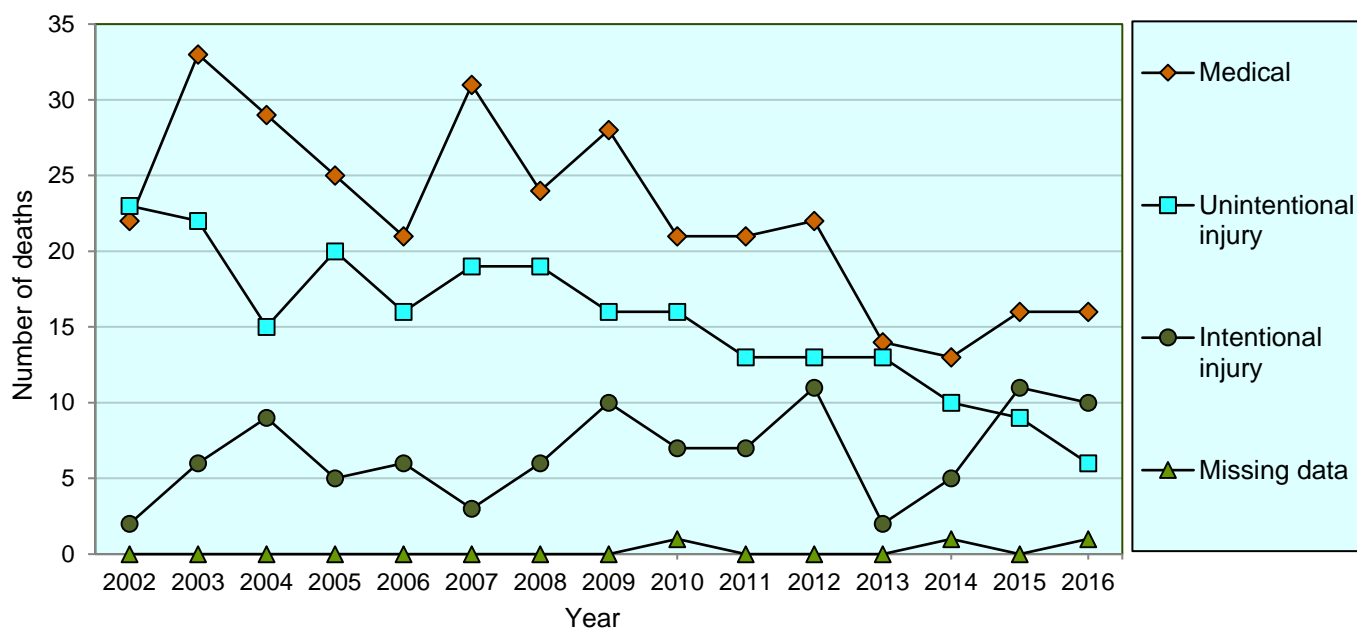
9 Children aged 10–14 years

Figure 9.1: Mortality (%) in children aged 10–14 years by cause of death, Aotearoa/New Zealand 2012–16 combined (n=173 deaths)



Source: Mortality Review Database.

Figure 9.2: Mortality (number of deaths) in children aged 10–14 years by cause of death and year, Aotearoa/New Zealand 2002–16 (n=669 deaths)



Source: Mortality Review Database.

Table 9.1: Mortality (number of deaths and total rates per 100,000 resident population) in children aged 10–14 years by cause of death and year, Aotearoa/New Zealand 2012–16 (n=173 deaths)

Cause of death	2012	2013	2014	2015	2016	Total	%	Rate 2012–16
Medical								
Infectious and parasitic disease	<3	<3	0	0	0	<3	x	s
Neoplasms	7	5	6	6	5	29	16.8	1.97
Diseases of the blood and blood-forming organs and disorders of the immune system	0	0	0	0	0	0	-	-
Endocrine, nutritional and metabolic diseases	0	0	<3	<3	<3	4	2.3	0.27
Mental and behavioural disorders	0	0	0	0	<3	<3	x	s
Diseases of the nervous system	8	<3	<3	3	<3	15	8.7	1.02
Diseases of the circulatory system	<3	<3	<3	<3	3	9	5.2	0.61
Diseases of the respiratory system	<3	4	<3	<3	3	12	6.9	0.81
Diseases of the digestive system	<3	<3	0	0	0	3	1.7	0.2
Diseases of the skin and subcutaneous tissue	0	0	0	0	0	0	-	-
Diseases of the musculoskeletal system and connective tissue	0	0	<3	0	<3	<3	x	s
Diseases of the genitourinary system	0	0	0	0	0	0	-	-
Pregnancy, childbirth and the puerperium	0	0	0	0	0	0	-	-
Certain conditions originating in the perinatal period	0	0	0	0	0	0	-	-
Congenital anomalies	<3	0	0	<3	<3	3	1.7	0.2
Symptoms and abnormal findings not elsewhere classified	0	0	<3	0	0	<3	x	s
Total medical	22	14	13	16	16	81	46.8	5.5

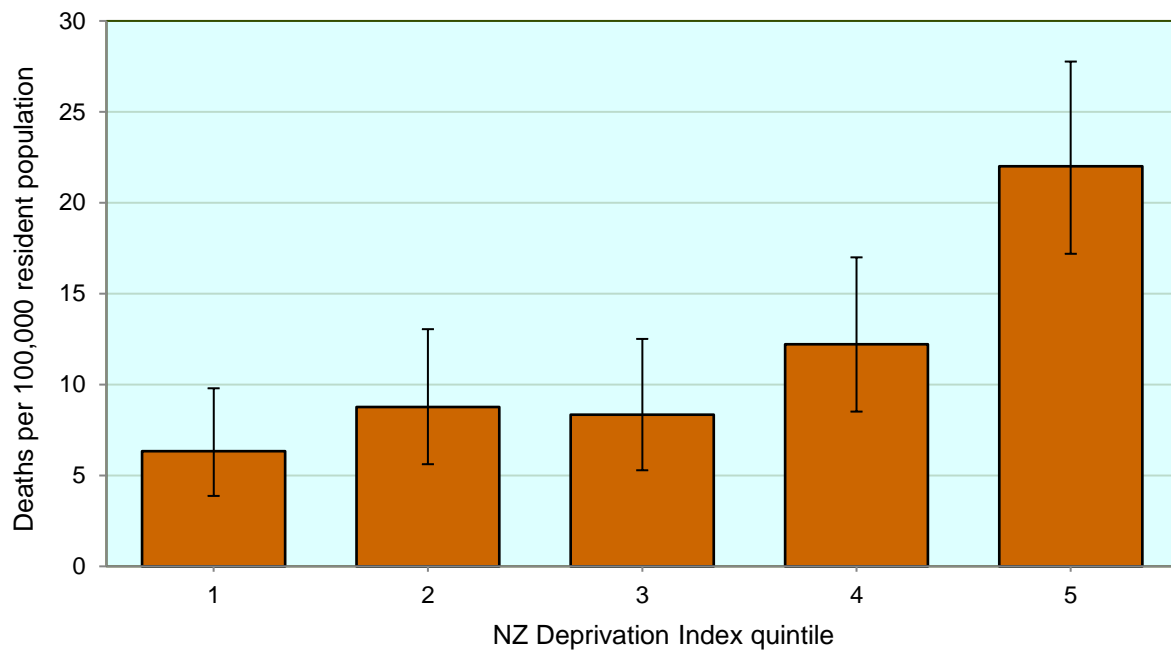
Cause of death	2012	2013	2014	2015	2016	Total	%	Rate 2012–16
Unintentional injury								
Cut/pierce	0	0	0	0	0	0	-	-
Drowning	<3	<3	0	<3	<3	7	4	0.47
Fall	<3	0	0	<3	0	3	1.7	0.2
Fire/hot object or substance	0	<3	0	0	0	<3	x	s
Firearm	0	0	<3	<3	0	<3	x	s
Machinery	0	0	0	0	0	0	-	-
Transport	8	6	8	4	4	30	17.3	2.04
Natural/environmental	0	<3	0	0	0	<3	x	s
Poisoning	<3	0	0	0	0	<3	x	s
Struck by, against	0	0	0	0	0	0	-	-
Suffocation	<3	<3	<3	0	0	3	1.7	0.2
Other specified, classifiable	0	<3	0	0	0	<3	x	s
Other specified, not elsewhere classified	0	0	0	0	0	0	-	-
Unspecified	0	0	0	<3	0	<3	x	s
Complications of medical and surgical care	0	0	0	0	0	0	-	-
Sequelae of surgical and medical care as external cause	0	<3	0	0	0	<3	x	s
Total unintentional injury	13	13	10	9	6	51	29.5	3.46
Intentional injury								
Assault	0	0	0	<3	0	<3	x	s
Suicide	11	<3	5	10	10	38	22	2.58
Total intentional injury	11	<3	5	11	10	39	22.5	2.65
Missing data	0	0	<3	0	<3	<3	x	s
Total	46	29	29	36	33	173	100	11.74

'x' indicates percentage not calculated due to small numbers.

's' indicates rate not calculated due to small numbers.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 10–14 years.

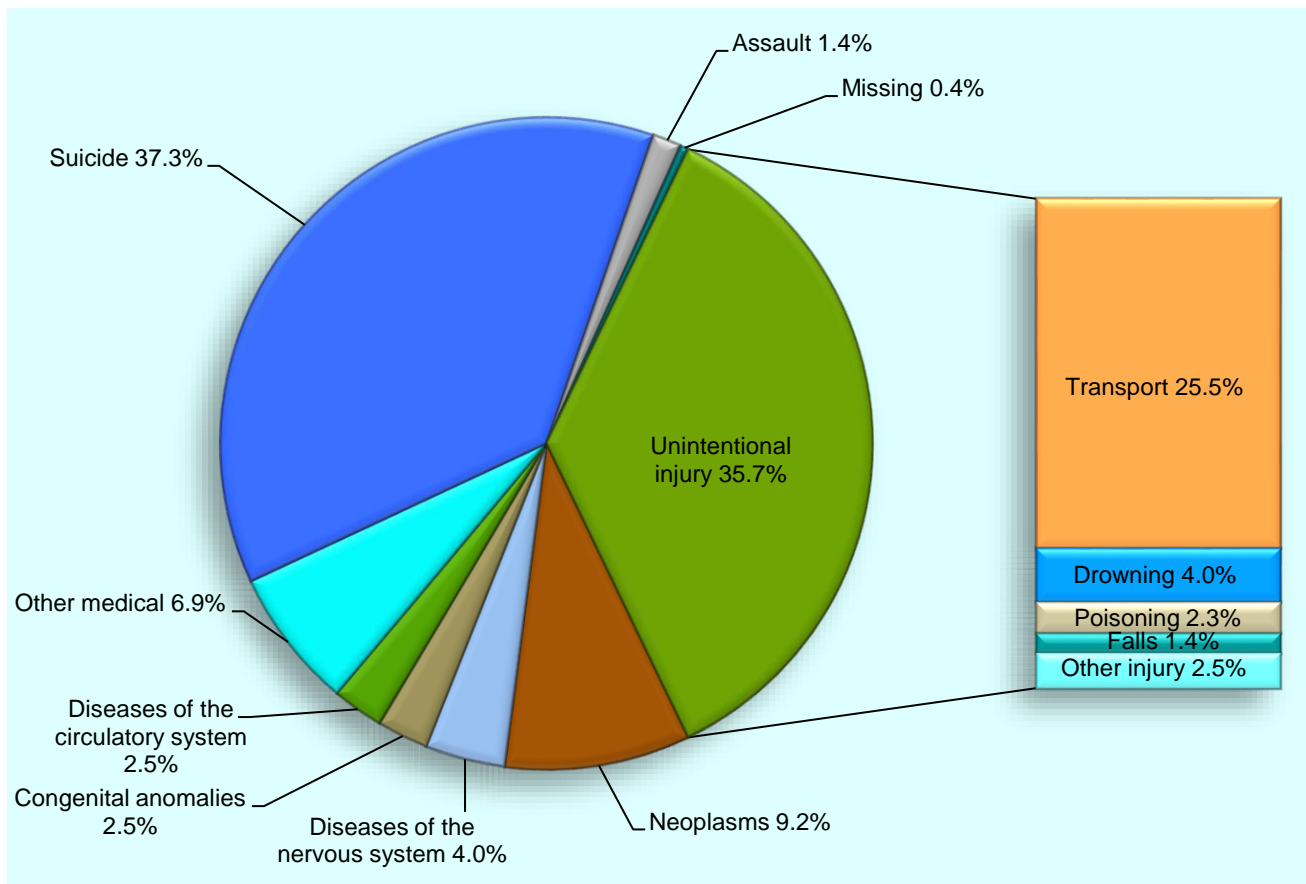
Figure 9.3: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children aged 10–14 years by NZ Deprivation Index quintile, Aotearoa/New Zealand 2012–16 combined (n=173 deaths)



Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 10–14 years.

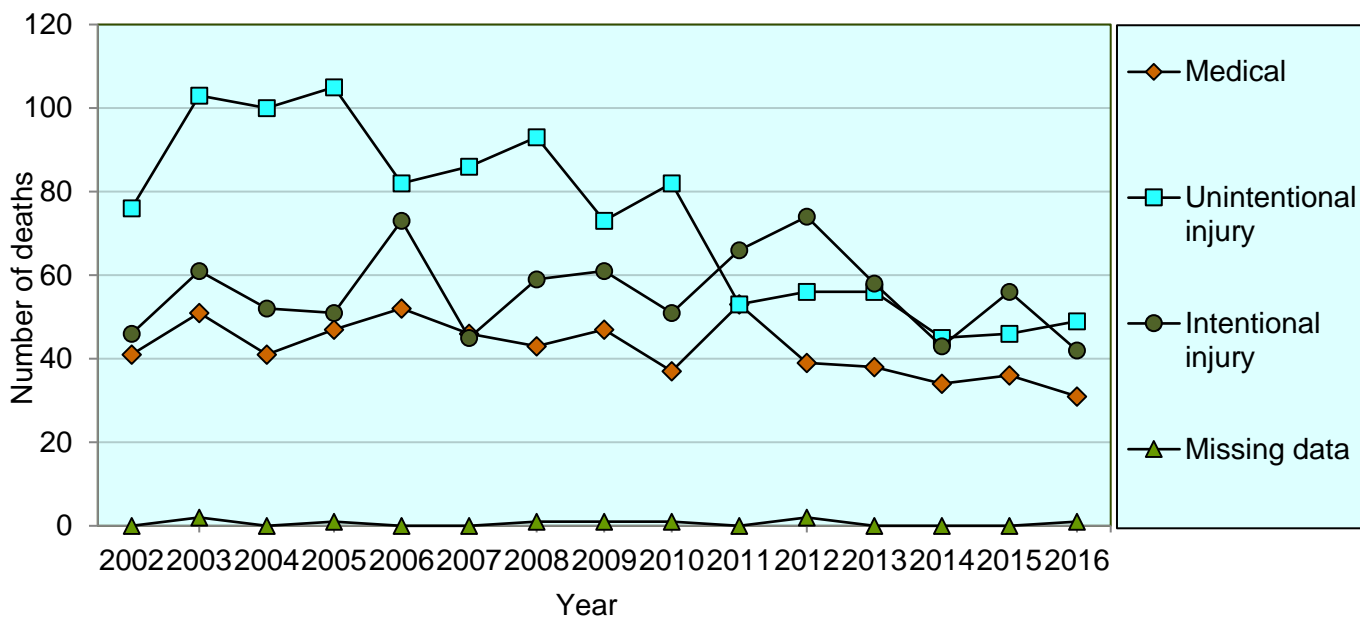
10 Young people aged 15–19 years

Figure 10.1: Mortality (%) in young people aged 15–19 years by cause of death, Aotearoa/ New Zealand 2012–16 combined (n=706 deaths)



Source: Mortality Review Database.

Figure 10.2: Mortality (number of deaths) in young people aged 15–19 years by cause of death and year, Aotearoa/New Zealand 2002–16 (n=2,588 deaths)



Source: Mortality Review Database.

Table 10.1: Mortality (number of deaths and rate per 100,000 resident population) in young people aged 15–19 years by cause of death and year, Aotearoa/New Zealand 2012–16 (n=706 deaths)

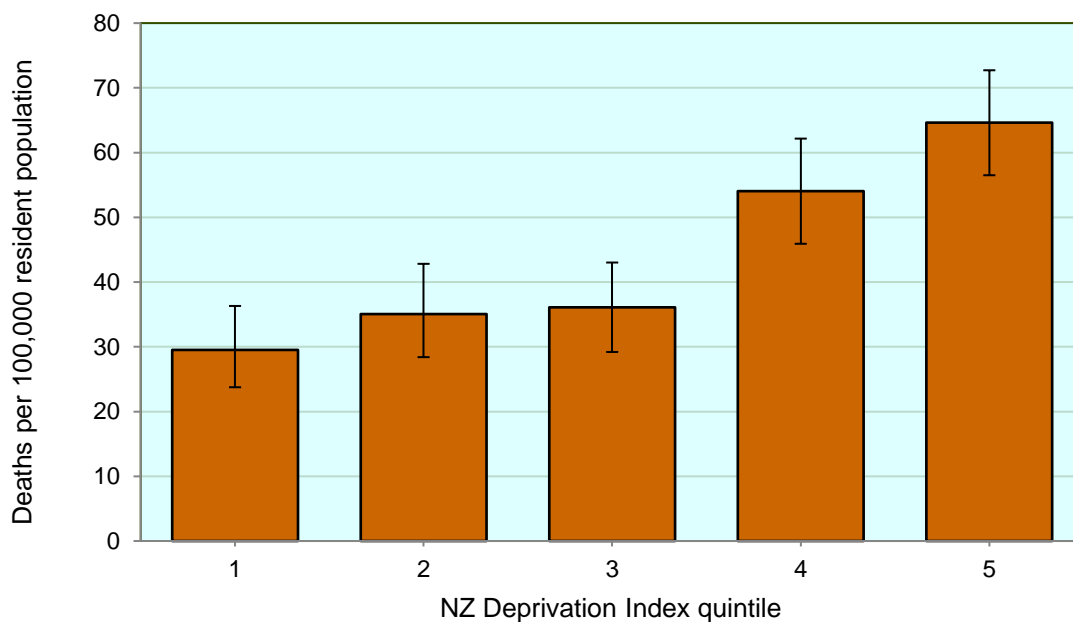
Cause of death	2012	2013	2014	2015	2016	Total	%	Rate 2012–16
Medical								
Infectious and parasitic disease	0	<3	3	<3	0	5	0.7	0.32
Neoplasms	12	14	11	14	14	65	9.2	4.16
Diseases of the blood and blood-forming organs and disorders of the immune system	<3	<3	<3	<3	<3	6	0.8	0.38
Endocrine, nutritional and metabolic diseases	3	3	<3	3	<3	11	1.6	0.7
Mental and behavioural disorders	0	<3	0	<3	0	<3	x	s
Diseases of the nervous system	8	4	5	6	5	28	4	1.79
Diseases of the circulatory system	4	6	4	<3	<3	18	2.5	1.15
Diseases of the respiratory system	3	4	<3	0	<3	10	1.4	0.64
Diseases of the digestive system	0	<3	0	0	0	<3	x	s
Diseases of the skin and subcutaneous tissue	<3	0	0	0	0	<3	x	s
Diseases of the musculoskeletal system and connective tissue	<3	<3	0	0	<3	4	0.6	0.26
Diseases of the genitourinary system	<3	0	0	0	0	<3	x	s
Pregnancy, childbirth and the puerperium	0	0	0	0	0	0	-	-
Certain conditions originating in the perinatal period	0	0	0	0	0	0	-	-
Congenital anomalies	4	0	6	7	1	18	2.5	1.15
Symptoms and abnormal findings not elsewhere classified	0	1	1	1	4	7	1	0.45
Total medical	39	38	34	36	31	178	25.2	11.4
Unintentional injury								
Cut/pierce	0	0	0	0	0	0	-	-
Drowning	6	5	6	6	5	28	4	1.79
Fall	4	3	<3	<3	0	10	1.4	0.64
Fire/hot object or substance	0	0	3	0	<3	4	0.6	0.26
Firearm	0	<3	0	<3	0	<3	x	s
Machinery	0	<3	0	0	0	<3	x	s
Transport	36	37	30	36	41	180	25.5	11.53
Natural/environmental	0	0	0	0	0	0	-	-
Poisoning	7	6	<3	<3	0	16	2.3	1.02
Struck by, against	0	<3	<3	0	0	<3	x	s
Suffocation	<3	<3	<3	<3	<3	6	0.8	0.38
Other specified, classifiable	0	<3	0	0	0	<3	x	s
Other specified, not elsewhere classified	<3	0	0	0	0	<3	x	s
Unspecified	0	0	0	0	0	0	-	-
Complications of medical and surgical care	<3	0	0	0	0	<3	x	s
Sequelae of surgical and medical care as external cause	0	0	0	0	0	0	-	-
Total unintentional injury	56	56	45	46	49	252	35.7	16.14
Intentional injury								
Assault	<3	<3	3	<3	<3	10	1.4	0.64
Suicide	72	56	40	55	40	263	37.3	16.84
Total intentional injury	74	58	43	56	42	273	38.7	17.48
Missing data	<3	0	0	0	<3	3	0.4	0.19
Total	171	152	122	138	123	706	100	45.21

'x' indicates percentage not calculated due to small numbers.

's' indicates rate not calculated due to small numbers.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 15–19 years.

Figure 10.3: Mortality (rate per 100,000 resident population and 95% confidence intervals) in young people aged 15–19 years by NZ Deprivation Index quintile, Aotearoa/New Zealand 2012–16 combined (n=705 deaths*)

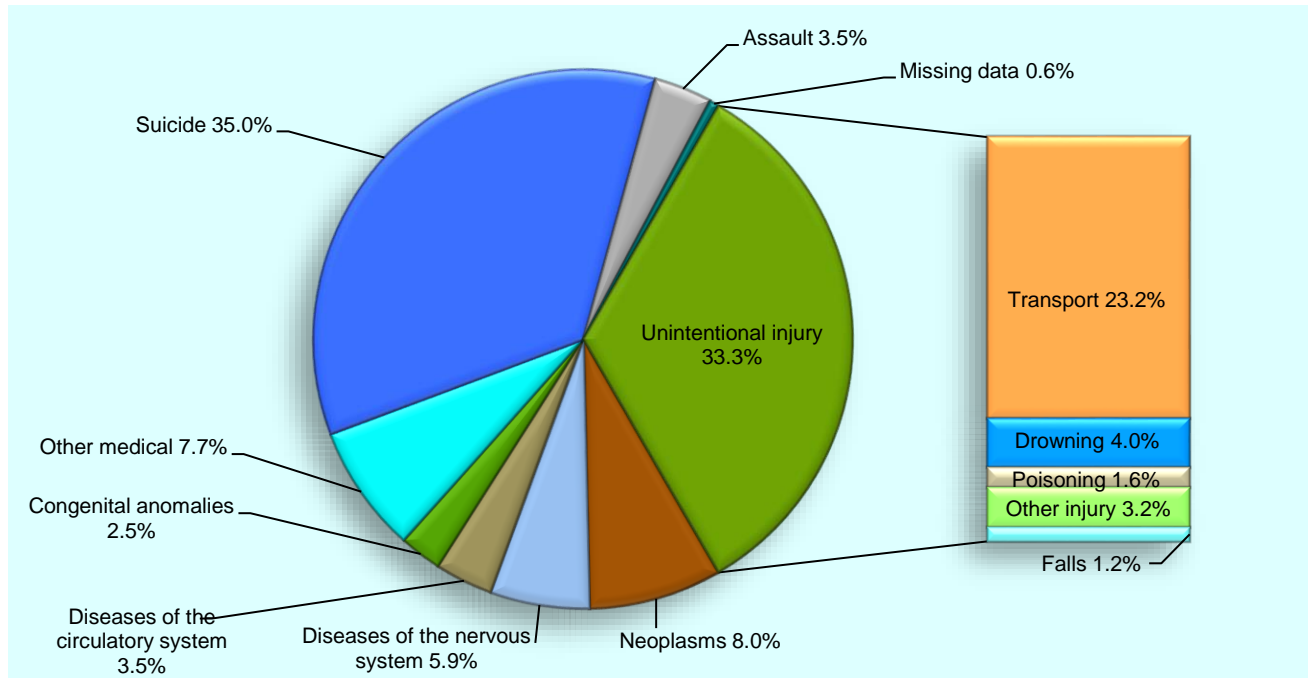


* Excludes one case with no available deprivation data.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 15–19 years.

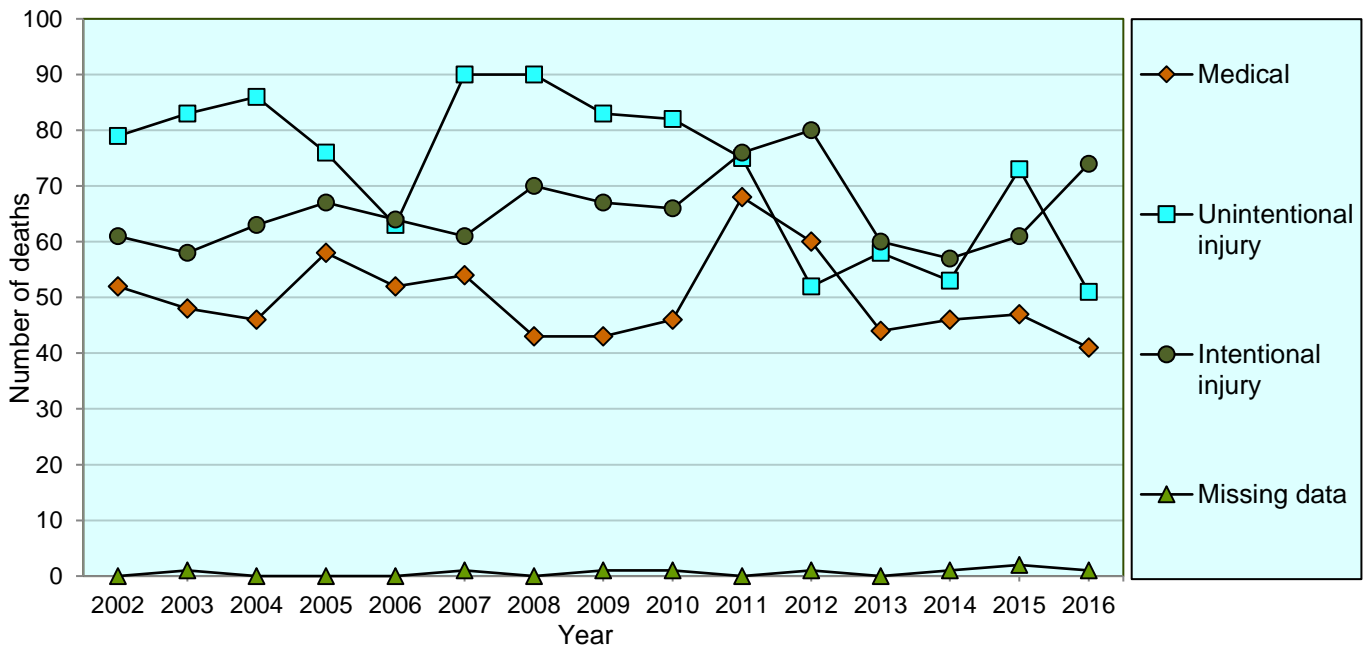
11 Young people aged 20–24 years

Figure 11.1: Mortality (%) in young people aged 20–24 years by cause of death, Aotearoa/ New Zealand 2012–16 combined (n=862 deaths)



Source: Mortality Review Database.

Figure 11.2: Mortality (number of deaths) in young people aged 20–24 years by cause of death and year, Aotearoa/New Zealand 2002–16 (n=2,836 deaths)



Source: Mortality Review Database.

Table 11.1: Mortality (number of deaths and rate per 100,000 resident population) in young people aged 20–24 years by cause of death and year, Aotearoa/New Zealand 2012–16 (n=862 deaths)

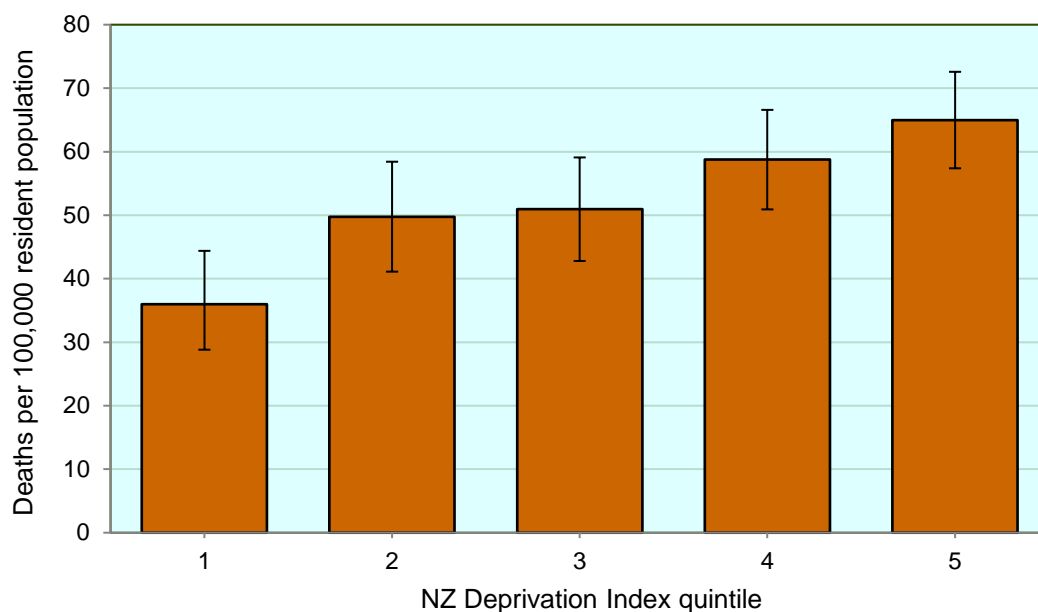
Cause of death	2012	2013	2014	2015	2016	Total	%	Rate 2012–16
Medical								
Infectious and parasitic disease	<3	0	0	0	<3	3	0.3	0.19
Neoplasms	16	12	18	10	13	69	8	4.34
Diseases of the blood and blood-forming organs and disorders of the immune system	0	<3	<3	0	0	<3	x	0.13
Endocrine, nutritional and metabolic diseases	5	<3	<3	4	<3	14	1.6	0.88
Mental and behavioural disorders	0	<3	<3	3	<3	7	0.8	0.44
Diseases of the nervous system	14	10	9	10	8	51	5.9	3.2
Diseases of the circulatory system	9	6	5	5	5	30	3.5	1.88
Diseases of the respiratory system	<3	<3	<3	<3	4	9	1	0.57
Diseases of the digestive system	3	<3	<3	0	0	6	0.7	0.38
Diseases of the skin and subcutaneous tissue	0	0	0	<3	0	<3	x	s
Diseases of the musculoskeletal system and connective tissue	<3	0	0	<3	0	<3	x	s
Diseases of the genitourinary system	<3	<3	0	<3	<3	5	0.6	0.31
Pregnancy, childbirth and the puerperium	<3	<3	0	<3	<3	6	0.7	0.38
Certain conditions originating in the perinatal period	0	0	0	0	0	0	0	0
Congenital anomalies	4	5	4	7	<3	22	2.6	1.38
Symptoms and abnormal findings not elsewhere classified	0	<3	3	3	4	11	1.3	0.69
Total medical	60	44	46	47	41	238	27.6	14.95
Unintentional injury								
Cut/pierce	<3	0	0	<3	0	<3	x	s
Drowning	6	6	5	12	6	35	4.1	2.2
Fall	<3	3	5	<3	0	10	1.2	0.63
Fire/hot object or substance	<3	<3	<3	0	<3	4	0.5	0.25
Firearm	0	<3	0	3	<3	5	0.6	0.31
Machinery	0	0	0	<3	0	<3	x	s
Transport	39	36	36	50	39	200	23.2	12.57
Natural/environmental	<3	0	<3	0	0	<3	x	s
Poisoning	<3	4	3	3	3	14	1.6	0.88
Struck by, against	<3	3	<3	0	<3	6	0.7	0.38
Suffocation	<3	3	0	<3	0	5	0.6	0.31
Other specified, classifiable	0	<3	<3	<3	0	3	0.3	0.19
Other specified, not elsewhere classified	0	0	0	0	0	0	-	-
Unspecified	0	0	0	0	0	0	-	-
Complications of medical and surgical care	0	0	0	0	0	0	-	-
Sequelae of surgical and medical care as external cause	0	0	0	0	0	0	-	-
Total unintentional injury	52	58	53	73	51	287	33.3	18.03
Intentional injury								
Assault	8	5	5	6	6	30	3.5	1.88
Suicide	72	55	52	55	68	302	35	18.98
Total intentional injury	80	60	57	61	74	332	38.5	20.86
Missing data	<3	0	<3	<3	<3	5	0.6	0.31
Total	193	162	157	183	167	862	100	54.16

'x' indicates percentage not calculated due to small numbers.

's' indicates rate not calculated due to small numbers.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 20–24 years.

Figure 11.3: Mortality (rate per 100,000 resident population and 95% confidence intervals) in young people aged 20–24 years by NZ Deprivation Index quintile, Aotearoa/New Zealand 2012–16 combined (n=861 deaths*)

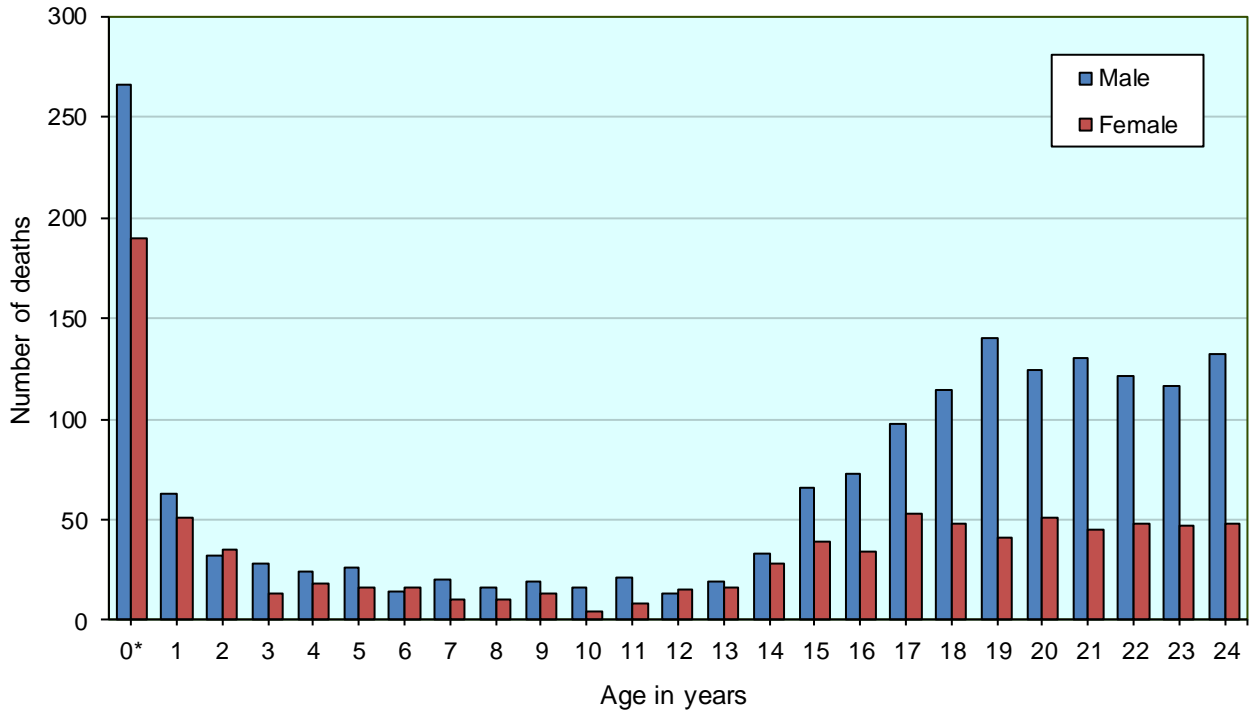


* Excludes one case with no available deprivation data.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 20–24 years.

12 Mortality by sex

Figure 12.1: Mortality (number of deaths) in children and young people aged 28 days to 24 years by age and sex, Aotearoa/New Zealand 2012–16 combined (n=2,621 deaths)



* This category represents infants aged from 28 days onwards but younger than one calendar year.
Source: Mortality Review Database.

Table 12.1: Mortality (number of deaths) in children and young people aged 28 days to 24 years, by cause of death and sex, Aotearoa/New Zealand 2012–16 combined (n=2,621 deaths)

Cause of death	Male	Female	Total
Medical			
Infectious and parasitic disease	24	27	51
Neoplasms	148	103	251
Diseases of the blood and blood-forming organs and disorders of the immune system	9	10	19
Endocrine, nutritional and metabolic diseases	33	24	57
Mental and behavioural disorders	3	8	11
Diseases of the nervous system	89	61	150
Diseases of the circulatory system	53	28	81
Diseases of the respiratory system	47	48	95
Diseases of the digestive system	9	10	19
Diseases of the skin and subcutaneous tissue	<3	0	<3
Diseases of the musculoskeletal system and connective tissue	<3	7	9
Diseases of the genitourinary system	5	<3	7
Pregnancy, childbirth and the puerperium	0	6	6
Certain conditions originating in the perinatal period	43	26	69
Congenital anomalies	95	67	162
Symptoms and abnormal findings not elsewhere classified	16	11	27
Total medical	578	438	1,016
Percentage by sex	56.9	43.1	100.0
Unintentional injury			
Cut/pierce	<3	0	<3
Drowning	79	14	93
Fall	25	<3	26
Fire/hot object or substance	8	6	14
Firearm	9	<3	10
Machinery	3	0	3
Transport	352	130	482
Natural/environmental	5	<3	6
Poisoning	26	9	35
Struck by, against	13	<3	15
Suffocation	19	5	24
Other specified, classifiable	6	<3	8
Other specified, not elsewhere classified	<3	0	<3
Unspecified	4	<3	6
Complications of medical and surgical care	<3	0	<3
Sequelae of surgical and medical care as external cause	<3	0	<3
Total unintentional injury	554	173	727
Percentage by sex	76.2	23.8	100.0
Intentional injury			
Assault	35	24	59
Suicide	420	183	603
Total intentional injury	455	207	662
Percentage by sex	68.7	31.3	100.0

Cause of death	Male	Female	Total
SUDI/SUD			
SUDI (28 days to less than 1 year)	115	71	186
SUD (12–23 months)	9	4	13
Total SUDI/SUD	124	75	199
Percentage by sex	62.3	37.7	100.0
Missing data	13	4	17
Total	1,724	897	2,621
Percentage by sex	65.8	34.2	100.0

Source: Mortality Review Database.

13 Overseas residents

Table 13.1: Mortality (number of deaths) in children and young people aged 28 days to 24 years among non-New Zealand residents, by cause of death and age group, 2012–16 combined (n=58 deaths)

Category	<1 year*	1–4 years	5–9 years	10–14 years	15–19 years	20–24 years	Total	%
Medical	<3	<3	0	0	4	<3	10	17.2
Unintentional injury	0	<3	0	3	12	27	44	75.9
Intentional injury	<3	0	0	0	<3	0	<3	x
SUDI/SUD	<3	0	0	0	0	0	<3	x
Missing data	0	0	0	0	<3	0	<3	x
Total	4	4	0	3	18	29	58	100.0

'x' indicates percentage not calculated due to small numbers.

* This category represents infants aged 28 days onwards but younger than one calendar year.

Source: Mortality Review Database.

Table 13.2: Mortality (number of deaths) in children and young people aged 28 days to 24 years among non-New Zealand residents by country of residence and year of death, 2012–16 (n=58 deaths)

Country	Deaths per year					Total deaths	
	2012	2013	2014	2015	2016	Number	%
Australia	0	<3	4	4	4	14	24.1
Canada	0	<3	0	<3	0	3	5.2
China	0	0	<3	<3	<3	4	6.9
England	0	0	0	<3	0	<3	x
Fiji	0	0	<3	0	0	<3	x
France	<3	0	0	<3	0	3	5.2
French Polynesia	0	0	<3	0	<3	<3	x
Germany	<3	<3	3	0	4	9	15.5
India	<3	0	<3	0	0	<3	x
Italy	<3	0	0	0	0	<3	x
Kazakhstan	0	<3	0	0	0	<3	x
Malaysia	0	0	<3	0	0	<3	x
Mexico	<3	0	0	0	0	<3	x
Samoa	<3	<3	0	<3	0	3	5.2
Tonga	0	0	<3	0	<3	<3	x
USA	<3	0	0	5	<3	9	15.5
Vanuatu	0	0	<3	0	0	<3	x
Total	8	6	14	17	13	58	100.0

'x' indicates percentage not calculated due to small numbers.

Source: Mortality Review Database.

14 Mortality by DHB of residence

Table 14.1: Mortality (number of deaths and age-specific mortality rates) by DHB of residence and age, Aotearoa/New Zealand 2012–16 (n=2,620 deaths*)

DHB	28 days–<1 year	Rate†: 28 days–<1 year	1–4 years	Rate‡: 1–4 years	5–9 years	Rate‡: 5–9 years	10–14 years	Rate‡: 10–14 years	15–19 years	Rate‡: 15–19 years	20–24 years	Rate‡: 20–24 years	Total	%	Rate‡ per DHB	Number of deaths outside DHB of residence	Number of deaths in DHB of residence	% resident deaths outside DHB
Northland	25	2.21	19	37.48	6	9.82	9	15.02	43	77.98	47	109.58	149	5.7	53.02	25	124	16.8
Waitemata	23	0.58	30	18.45	22	11.81	16	8.82	50	25.49	84	43.25	225	8.6	23.44	77	148	34.2
Auckland	30	0.97	18	14.81	12	8.77	3	2.32	39	24.72	66	30.44	168	6.4	21.18	33	135	19.6
Counties Manukau	91	2.16	43	25.75	15	7.61	24	12.45	84	42.43	99	52.50	356	13.6	36.12	100	256	28.1
Waikato	67	2.46	23	19.81	16	11.70	19	14.33	81	58.89	85	62.40	291	11.1	42.40	37	254	12.7
Lakes	12	1.60	7	22.00	<3	s	9	23.56	27	75.92	30	95.85	87	3.3	47.52	16	71	18.4
Bay of Plenty	21	1.46	14	22.81	9	11.80	15	19.57	51	73.37	46	79.56	156	6.0	43.82	33	123	21.2
Tairāwhiti	9	2.49	<3	s	3	15.14	<3	s	8	46.67	12	81.12	36	1.4	39.89	7	29	19.4
Hawke's Bay	18	1.65	15	31.41	9	15.85	6	10.41	33	60.67	38	86.76	119	4.5	43.86	10	109	8.4
Taranaki	12	1.55	10	28.82	4	10.07	4	10.30	20	55.50	17	51.87	67	2.6	35.30	10	57	14.9
Whanganui	14	3.31	4	22.21	3	14.49	6	28.60	12	57.89	15	84.61	54	2.1	52.74	13	41	24.1
MidCentral	10	0.93	4	8.47	5	8.79	11	19.58	33	52.96	44	68.95	107	4.1	36.01	20	87	18.7
Capital & Coast	27	1.49	15	19.09	8	8.77	7	7.96	32	30.61	44	34.00	133	5.1	26.09	22	111	16.5
Hutt Valley	16	1.62	6	14.40	4	8.15	5	10.37	27	56.20	28	61.46	86	3.3	35.48	27	59	31.4
Wairarapa	<3	s	4	35.26	0	-	<3	s	14	103.16	6	56.22	27	1.0	40.65	9	18	33.3
Nelson Marlborough	8	1.06	<3	s	<3	s	<3	s	7	16.47	22	67.86	43	1.6	20.44	12	31	27.9
West Coast	<3	s	4	43.38	4	38.65	<3	s	14	145.83	9	101.20	34	1.3	68.37	8	26	23.5
Canterbury	40	1.30	22	16.78	18	11.41	11	7.09	77	45.22	86	46.13	254	9.7	30.54	18	236	7.1
South Canterbury	<3	s	5	34.71	4	23.27	3	16.59	13	71.32	8	54.47	35	1.3	40.79	4	31	11.4
Southern	29	1.66	17	21.35	14	15.02	17	18.44	41	35.83	75	61.52	193	7.4	37.20	26	167	13.5
Total	456	1.51	264	20.68	160	10.62	173	11.74	706	45.21	861	54.11	2620	100.0	33.97	507	2,113	19.4

* Excludes one case with missing DHB of residence data.

's' indicates rate not calculated due to small numbers.

† Rate per 1,000 live births.

‡ Rate per 100,000 resident population.

Sources: Numerator: Mortality Review Database; Denominator: Ministry of Health Live Birth Registrations 2012–16 for 28 days to less than one year, NZ MRDG Estimated Resident Population 2012–16 for ages 1–24 years.

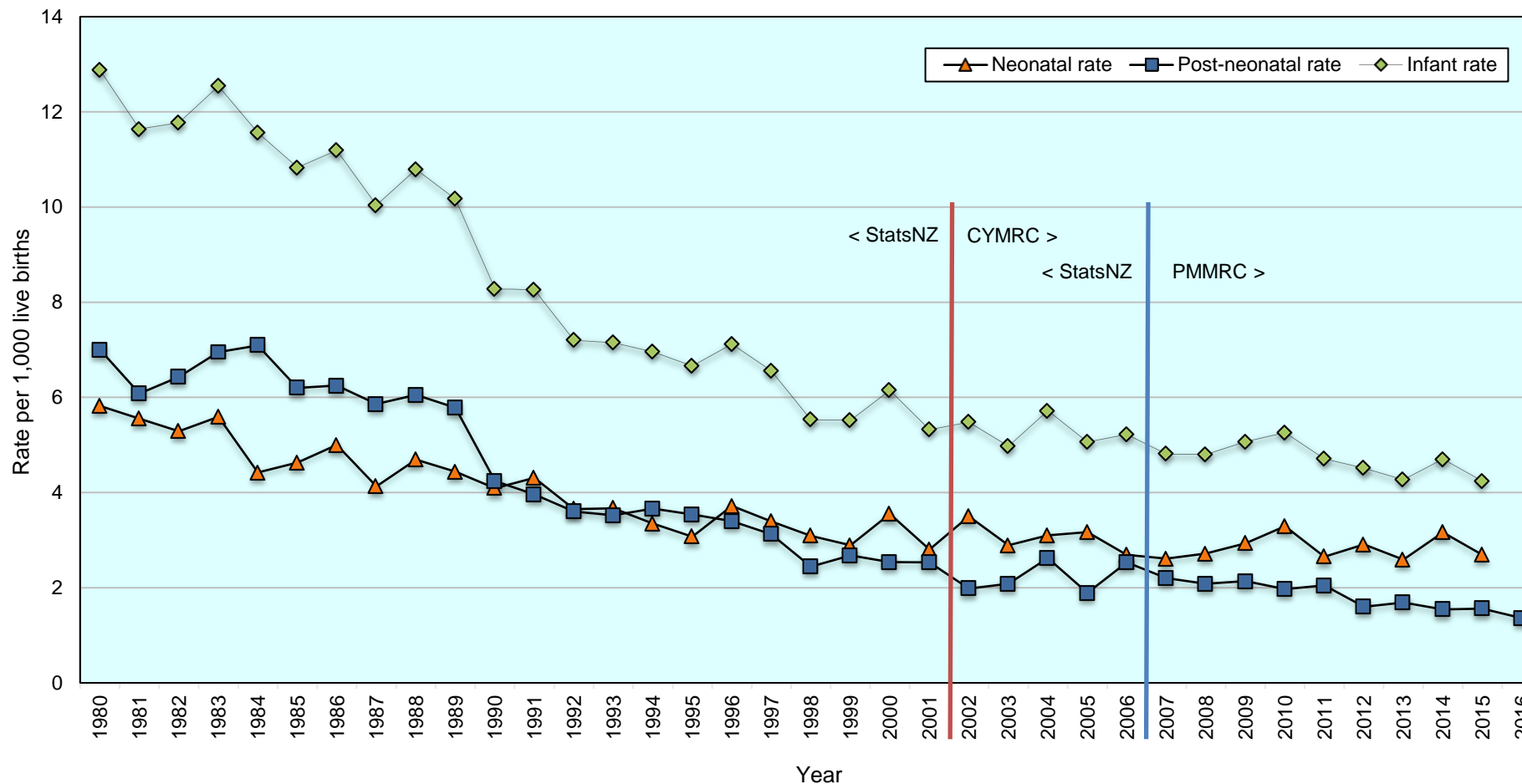
15 Historical data

Table 15.2: Mortality (number of deaths) in children and young people aged 28 days to 24 years by year of death and age group, Aotearoa/New Zealand 1980–2016

Year	28 days– <1 year	1–4 years	5–9 years	10–14 years	15–19 years	20–24 years	Total
1980	354	138	96	96	306	342	1,332
1981	309	159	78	96	318	327	1,287
1982	321	132	81	75	285	345	1,239
1983	351	111	78	93	279	381	1,293
1984	366	120	75	84	276	324	1,245
1985	321	111	87	96	306	324	1,245
1986	330	135	66	99	312	351	1,293
1987	324	111	72	93	324	372	1,296
1988	348	117	69	75	297	366	1,272
1989	336	111	66	69	336	360	1,278
1990	255	120	57	63	300	375	1,170
1991	237	96	63	66	240	324	1,026
1992	213	102	66	75	243	333	1,032
1993	207	111	42	57	249	336	1,002
1994	210	99	54	48	198	279	888
1995	204	90	54	60	222	330	960
1996	195	96	54	66	258	267	936
1997	180	99	51	60	237	240	867
1998	135	84	51	72	210	222	774
1999	153	75	39	66	198	219	750
2000	144	84	48	60	168	189	693
2001	141	75	48	63	189	210	726
2002	107	81	48	47	163	192	638
2003	117	66	38	61	217	190	689
2004	152	57	37	53	193	195	687
2005	109	59	41	50	204	201	664
2006	150	61	32	43	207	179	672
2007	141	81	38	53	177	206	696
2008	134	81	35	49	196	203	698
2009	134	77	33	54	182	194	674
2010	126	65	19	45	171	195	621
2011	126	59	15	41	172	219	632
2012	98	63	30	46	171	193	601
2013	97	51	25	29	152	162	516
2014	87	52	39	29	122	157	486
2015	93	54	31	36	138	183	535
2016	81	44	35	33	123	167	483

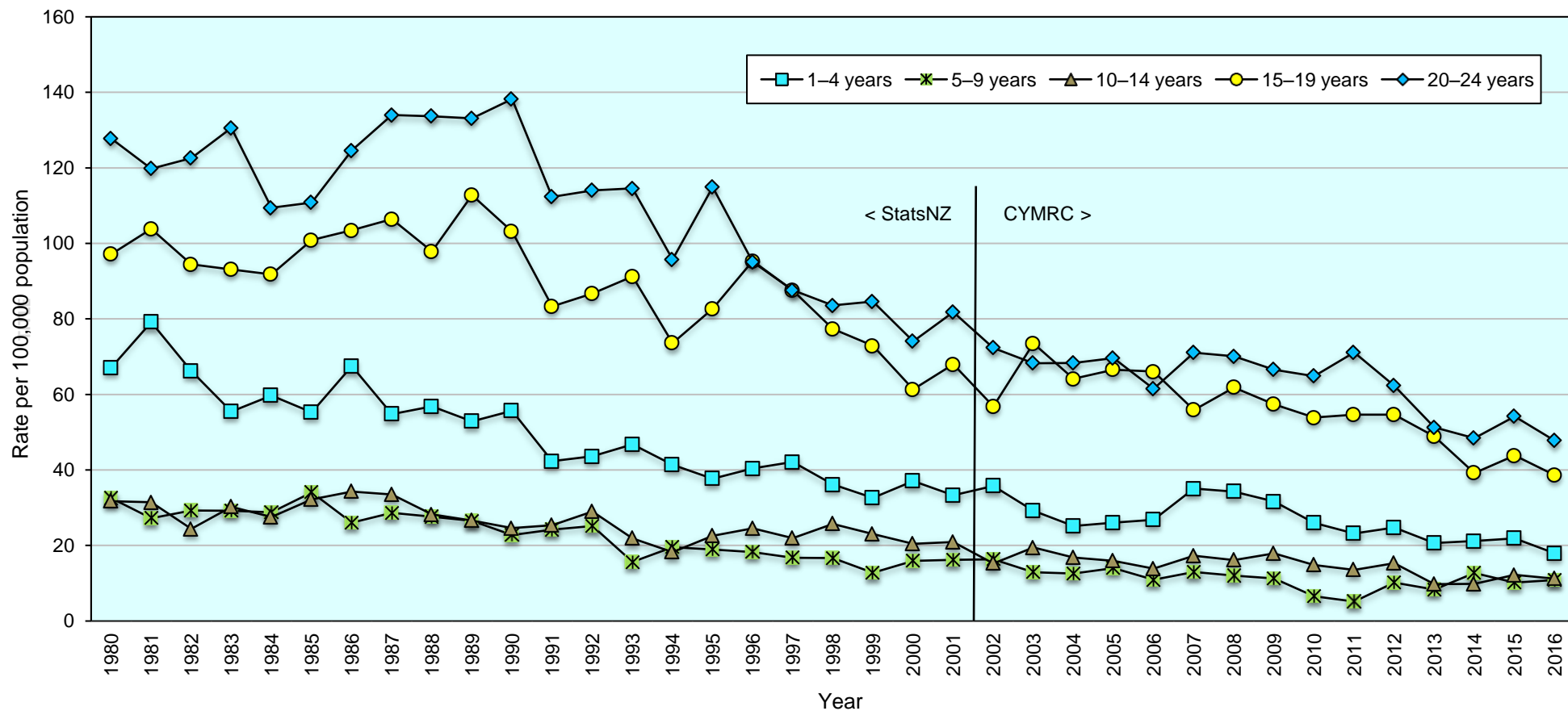
Sources: 1980–2001: Statistics New Zealand. 2002–16: Mortality Review Database.

Figure 15.1: Neonatal, post-neonatal and infant mortality rates (deaths per 1,000 live births) in infants 0 days to less than one year of age, Aotearoa/New Zealand 1980–2016



Sources: Numerator: Neonatal deaths (0–27 days): 1980–2006: Statistics New Zealand. 2007–16: Mortality Review Database (Perinatal and Maternal Mortality Review Committee data); Note: 2016 data for neonatal deaths are not yet available. Post-neonatal deaths (28 days to less than one year): 1980–2001: Statistics New Zealand. 2002–16: Mortality Review Database (CYMRC data). Infant deaths (0 days to less than one year): Sum of neonatal and post-neonatal deaths, as described above. Denominator: (all) Statistics New Zealand live births 1980–2016.

Figure 15.2: Mortality (age-specific rates per 100,000 population) in children and young people aged 1–24 years by age group, Aotearoa/ New Zealand 1980–2016



Sources: Numerator: 1980–2001: Statistics New Zealand. 2002–15: Mortality Review Database; Denominator: Statistics New Zealand estimated population 1980–2016.

16 Tables of data for figures in this report

Table for Figure 1.1: Mortality (%) in children and young people aged 28 days to 24 years by cause of death, Aotearoa/New Zealand 2012–16 combined (n=2,621 deaths)

Category	Number of deaths	Percentage (%)
Medical	1,016	38.8
Unintentional injury	727	27.7
Intentional injury	662	25.3
SUDI/SUD	199	7.6
Missing data	17	0.6
Total	2,621	100

Source: Mortality Review Database.

Table for Figure 1.2: Mortality (number of deaths) in children and young people aged 28 days to 24 years by age group and year of death, Aotearoa/New Zealand 2002–16 (n=9,292 deaths)

Category	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
28 days–1 year	107	117	152	109	150	141	134	134	126	126	98	97	87	93	81	1,752
1–4 years	81	66	57	59	61	81	81	77	65	59	63	51	52	54	44	951
5–9 years	48	38	37	41	32	38	35	33	19	15	30	25	39	31	35	496
10–14 years	47	61	53	50	43	53	49	54	45	41	46	29	29	36	33	669
15–19 years	163	217	193	204	207	177	196	182	171	172	171	152	122	138	123	2,588
20–24 years	192	190	195	201	179	206	203	194	195	219	193	162	157	183	167	2,836
Total	638	689	687	664	672	696	698	674	621	632	601	516	486	535	483	9,292

Source: Mortality Review Database.

Table for Figure 1.3: Mortality (number of deaths) in children and young people aged 28 days to 24 years by cause and year of death, Aotearoa/New Zealand 2002–16 (n=9,292 deaths)

Category	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Medical	240	244	252	249	261	279	254	248	228	251	245	205	193	199	174	3,522
Unintentional injury	231	252	240	243	194	244	241	213	205	171	150	153	140	152	132	2,961
Intentional injury	114	127	135	126	151	115	140	149	128	156	168	120	111	136	127	2,003
SUDI/SUD	52	63	58	45	65	57	61	60	54	53	35	37	39	45	43	767
Missing	<3	3	<3	<3	<3	<3	<3	4	6	<3	3	<3	3	3	7	39
Total	638	689	687	664	672	696	698	674	621	632	601	516	486	535	483	9,292

Source: Mortality Review Database.

Table for Figure 1.4: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children and young people aged 28 days to 24 years by ethnic group, Aotearoa/New Zealand 2012–16 combined (n=2,616 deaths*)

Category	Mortality rate (per 100,000 resident population)	95% confidence interval
Māori	52.28	48.96–55.6
Pacific	45.36	40.43–50.29
Asian	19.10	16.36–21.84
MELAA	24.13	15.61–35.62
European and Other	27.52	25.92–29.13

* Excludes five cases with no available ethnicity data.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 0–24 years.

Table for Figure 1.5: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children and young people aged 28 days to 24 years by NZ Deprivation Index decile, Aotearoa/New Zealand 2012–16 combined (n=2,619 deaths*)

NZ Deprivation Index decile	Mortality rate (per 100,000 resident population)	95% confidence interval
1 (least deprived)	18.98	15.69–22.27
2	22.07	18.73–25.41
3	23.90	20.22–27.58
4	28.63	24.57–32.69
5	26.17	22.50–29.84
6	27.26	23.40–31.13
7	38.02	33.58–42.47
8	36.86	32.87–40.85
9	45.51	41.13–49.90
10 (most deprived)	59.27	54.37–64.18

* Excludes two cases with no available deprivation data.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 0–24 years.

Table for Figure 2.1: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children and young people aged 28 days to 24 years by NZ Deprivation Index decile, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 combined (n= 2,289 deaths*)

NZ Deprivation Index decile	Māori		Non-Māori non-Pacific	
	Mortality rate (per 100,000 resident population)	95% confidence interval	Mortality rate (per 100,000 resident population)	95% confidence interval
1 (least deprived)	18.38	9.79–31.43	18.63	15.15–22.11
2	27.33	17.85–40.04	21.24	17.68–24.80
3	32.52	21.94–46.43	22.44	18.54–26.34
4	38.50	27.98–51.69	25.79	21.45–30.12
5	30.60	22.23–41.07	24.85	20.75–28.95
6	40.02	30.82–51.11	22.39	18.24–26.54
7	55.25	44.69–65.82	29.13	24.36–33.91
8	53.58	44.64–62.52	29.89	25.27–34.51
9	62.28	53.47–71.09	35.92	30.45–41.38
10 (most deprived)	75.87	67.26–84.48	36.25	29.21–43.28

* Excludes two cases with no available deprivation data.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 0–24 years.

Table for Figure 2.2: Post-neonatal infant* mortality (rate per 1,000 live births and 95% confidence intervals) by year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=223 Māori, 162 non-Māori non-Pacific deaths)

Year of death	Māori		Non-Māori non-Pacific	
	Mortality rate (per 1,000 live births)	95% confidence interval	Mortality rate (per 1,000 live births)	95% confidence interval
2012	2.84	2.12–3.74	0.94	0.66–1.31
2013	2.45	1.77–3.31	1.14	0.81–1.54
2014	3.03	2.25–4.00	0.70	0.45–1.04
2015	1.97	1.37–2.74	1.00	0.71–1.37
2016	2.60	1.89–3.47	0.62	0.39–0.93

* This age group includes infants aged 28 days onwards but younger than one calendar year.

Sources: Numerator: Mortality Review Database; Denominator: Ministry of Health Live Birth Registrations 2012–16.

Table for Figure 2.3: Post-neonatal infant* mortality (rate per 1,000 live births and 95% confidence interval) by NZ Deprivation Index quintile, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 combined (n=223 Māori, 162 non-Māori non-Pacific deaths)

NZ Deprivation Index quintile	Māori		Non-Māori non-Pacific	
	Mortality rate (per 1,000 live births)	95% confidence interval	Mortality rate (per 1,000 live births)	95% confidence interval
1 (least deprived)	1.26	0.54–2.48	0.73	0.49–1.06
2	1.24	0.62–2.22	0.83	0.57–1.18
3	1.64	1.04–2.46	0.70	0.47–1.01
4	1.91	1.38–2.58	0.97	0.69–1.32
5 (most deprived)	3.93	3.28–4.59	1.34	0.93–1.88

* This age group includes infants aged 28 days onwards but younger than one calendar year.

Sources: Numerator: Mortality Review Database; Denominator: Ministry of Health Live Birth Registrations 2012–16.

Table for Figure 2.4: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children aged one to four years by year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=101 Māori, 125 non-Māori non-Pacific deaths)

Year of death	Māori		Non-Māori non-Pacific	
	Mortality rate (per 100,000 resident population)	95% confidence interval	Mortality rate (per 100,000 resident population)	95% confidence interval
2012	40.30	26.32–59.05	17.06	11.25–24.83
2013	29.90	18.26–46.18	15.53	10.05–22.92
2014	30.38	18.80–46.43	14.69	9.42–21.86
2015	23.05	13.18–37.44	17.82	11.93–25.59
2016	25.20	14.93–39.83	12.10	7.39–18.68

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, one to four years.

Table for Figure 2.5: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children aged one to four years by NZ Deprivation Index quintile, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 combined (n=101 Māori, 125 non-Māori non-Pacific deaths)

NZ Deprivation Index quintile	Māori		Non-Māori non-Pacific	
	Mortality rate (per 100,000 resident population)	95% confidence interval	Mortality rate (per 100,000 resident population)	95% confidence interval
1 (least deprived)	6.84	0.83–24.70	15.68	10.50–22.52
2	21.00	9.06–41.37	16.09	10.69–23.26
3	15.84	7.24–30.07	9.66	5.63–15.46
4	32.31	21.47–46.7	17.47	11.79–24.94
5 (most deprived)	41.33	31.05–53.92	20.10	12.44–30.72

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, one to four years.

Table for Figure 2.6: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children aged five to nine years by year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=48 Māori and 93 non-Māori non-Pacific deaths)

Year of death	Māori		Non-Māori non-Pacific	
	Mortality rate (per 100,000 resident population)	95% confidence interval	Mortality rate (per 100,000 resident population)	95% confidence interval
2012	13.1	6.28–24.09	8.75	5.1–14.01
2013	16.85	8.97–28.81	4.63	2.12–8.78
2014	11.54	5.28–21.91	11.81	7.49–17.72
2015	3.81	0.78–11.12	12.31	7.89–18.31
2016	16.32	8.69–27.91	10.24	6.26–15.82

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, five to nine years.

Table for Figure 2.7: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children aged five to nine years by NZ Deprivation Index quintile, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 combined (n=48 Māori and 93 non-Māori non-Pacific deaths)

NZ Deprivation Index quintile	Māori		Non-Māori non-Pacific	
	Mortality rate (per 100,000 resident population)	95% confidence interval	Mortality rate (per 100,000 resident population)	95% confidence interval
1 (least deprived)	8.06	1.66–23.57	9.86	6.44–14.45
2	8.89	2.42–22.76	6.38	3.49–10.71
3	7.70	2.50–17.97	6.41	3.41–10.96
4	19.07	11.30–30.14	10.56	6.36–16.49
5 (most deprived)	12.13	7.19–19.16	19.42	12.02–29.69

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, five to nine years.

Table for Figure 2.8: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children aged 10–14 years by year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=64 Māori and 82 non-Māori non-Pacific deaths)

Year of death	Māori		Non-Māori non-Pacific	
	Mortality rate (per 100,000 resident population)	95% confidence interval	Mortality rate (per 100,000 resident population)	95% confidence interval
2012	32.1	20.35–48.16	7.55	4.23–12.45
2013	12.54	5.73–23.8	6.62	3.53–11.32
2014	15.29	7.63–27.36	7.73	4.33–12.75
2015	15.26	7.62–27.31	9.91	5.97–15.48
2016	13.85	6.64–25.47	10.56	6.45–16.31

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 10–14 years.

Table for Figure 2.9: Mortality (rate per 100,000 resident population and 95% confidence intervals) in children aged 10–14 years by NZ Deprivation Index quintile, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 combined (n=64 Māori and 82 non-Māori non-Pacific deaths)

NZ Deprivation Index quintile	Māori		Non-Māori non-Pacific	
	Mortality rate (per 100,000 resident population)	95% confidence interval	Mortality rate (per 100,000 resident population)	95% confidence interval
1 (least deprived)	11.24	3.06–28.77	5.87	3.35–9.53
2	7.07	1.46–20.65	9.44	5.84–14.43
3	9.80	3.60–21.33	6.99	3.82–11.72
4	13.09	6.53–23.42	10.45	6.19–16.52
5 (most deprived)	29.34	20.96–39.96	12.69	6.76–21.71

Source: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 10–14 years.

Table for Figure 2.10: Mortality (rate per 100,000 resident population and 95% confidence intervals) in young people aged 15–19 years by year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=270 Māori and 357 non-Māori non-Pacific deaths)

Year of death	Māori		Non-Māori non-Pacific	
	Mortality rate (per 100,000 resident population)	95% confidence interval	Mortality rate (per 100,000 resident population)	95% confidence interval
2012	103.72	81.01–130.83	36.54	28.93–45.53
2013	84.23	63.96–108.89	34.83	27.39–43.65
2014	49.08	33.99–68.59	34.5	27.09–43.31
2015	81.81	61.96–105.99	31.36	24.31–39.83
2016	71.34	52.95–94.05	29.14	22.34–37.36

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 15–19 years.

Table for Figure 2.11: Mortality (rate per 100,000 resident population and 95% confidence intervals) in young people aged 15–19 years by NZ Deprivation Index quintile, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 combined (n=270 Māori and 356 non-Māori non-Pacific deaths*)

NZ Deprivation Index quintile	Māori		Non-Māori non-Pacific	
	Mortality rate (per 100,000 resident population)	95% confidence interval	Mortality rate (per 100,000 resident population)	95% confidence interval
1 (least deprived)	39.63	21.1–67.76	27.54	21.59–34.63
2	61.98	39.71–92.22	31.35	24.49–39.55
3	52.62	35.5–75.12	32.1	25.02–40.56
4	94.93	75.15–118.31	36.79	28.89–46.18
5 (most deprived)	92.13	75.92–108.35	42.06	32.66–53.33

* Excludes one case with no available deprivation data.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 15–19 years.

Table for Figure 2.12: Mortality (rate per 100,000 resident population and 95% confidence intervals) in young people aged 20–24 years by year of death, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 (n=248 Māori and 518 non-Māori non-Pacific deaths)

Year of death	Māori		Non-Māori non-Pacific	
	Mortality rate (per 100,000 resident population)	95% confidence interval	Mortality rate (per 100,000 resident population)	95% confidence interval
2012	88.49	65.89–116.35	51.59	42.28–60.9
2013	91.70	68.89–119.64	39.52	31.82–48.53
2014	76.48	55.99–102.01	38.83	31.23–47.73
2015	83.06	61.84–109.20	49.72	40.68–58.77
2016	73.41	53.75–97.92	43.87	35.39–52.34

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 20–24 years.

Table for Figure 2.13: Mortality (rate per 100,000 resident population and 95% confidence intervals) in young people aged 20–24 years by NZ Deprivation Index quintile, Māori compared with non-Māori non-Pacific, Aotearoa/New Zealand 2012–16 combined (n=248 Māori and 517 non-Māori non-Pacific deaths*)

NZ Deprivation Index quintile	Māori		Non-Māori non-Pacific	
	Mortality rate (per 100,000 resident population)	95% confidence interval	Mortality rate (per 100,000 resident population)	95% confidence interval
1 (least deprived)	36.49	16.69–69.27	35.57	27.98–44.59
2	71.90	46.07–106.99	45.58	36.96–55.61
3	70.39	49.03–97.90	48.18	39.22–57.15
4	84.11	64.92–107.21	46.73	38.47–54.99
5 (most deprived)	99.40	81.23–117.57	45.95	37.40–54.50

* Excludes one case with no available deprivation data.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 20–24 years.

Table for Figure 3.1: Pacific mortality (number of deaths) in children and young people aged 28 days to 24 years by age and sex, Aotearoa/New Zealand 2002–16 combined (n=1,301 deaths)

Age (years)	Number of male deaths	Number of female deaths
0	214	196
1	38	31
2	16	23
3	12	12
4	12	10
5	8	5
6	11	6
7	16	6
8	7	5
9	4	4
10	6	5
11	11	3
12	7	7
13	9	10
14	17	12
15	26	11
16	28	14
17	54	25
18	34	24
19	36	13
20	42	14
21	45	23
22	58	19
23	37	16
24	40	19

Source: Mortality Review Database.

Table for Figure 3.2: Pacific mortality (number of deaths) in children and young people aged 28 days to 24 years by cause of death and year, Aotearoa/New Zealand 2002–16 (n=1,301 deaths)

Category	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Medical	29	42	44	33	45	47	47	47	42	49	53	33	42	34	33	620
Unintentional	21	22	23	20	14	18	22	23	20	10	16	16	15	15	15	270
Intentional	11	9	13	12	20	21	20	21	14	26	18	15	13	13	10	236
SUDI/SUD	15	8	9	10	15	14	18	12	11	7	6	10	10	17	10	172
Missing data	0	0	0	0	0	0	0	<3	0	0	0	0	<3	0	0	3
Total	76	81	89	75	94	100	107	105	87	92	93	74	81	79	68	1,301

Source: Mortality Review Database.

Table for Figure 3.3: Mortality in post-neonatal infants* (percentage of deaths) by cause of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 combined

Category	Pacific (%)	Non-Pacific non-Māori (%)
Medical	46.5	67.9
Unintentional injury	1.0	6.2
Intentional injury	0.0	0.6
SUDI	52.5	25.3
Missing data	0.0	0.0
Total	100.0	100.0

* This age group includes infants aged 28 days onwards but younger than one calendar year.

Source: Mortality Review Database.

Table for Figure 3.4: Mortality (percentage of deaths) in children aged one to four years by cause of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 combined

Category	Pacific (%)	Non-Pacific non-Māori (%)
Medical	67.4	64.8
Unintentional injury	32.6	28.0
Intentional injury	0.0	3.2
SUD	0.0	3.2
Missing data	0.0	0.8
Total	100.0	100.0

Source: Mortality Review Database.

Table for Figure 3.5: Mortality (percentage of deaths) in children aged five to nine years by cause of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 combined

Category	Pacific (%)	Non-Pacific non-Māori (%)
Medical	76.2	67.7
Unintentional injury	23.8	29.0
Intentional injury	0.0	3.2
Missing data	0.0	0.0
Total	100.0	100.0

Source: Mortality Review Database.

Table for Figure 3.6: Mortality (percentage of deaths) in children aged 10–14 years by cause of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 combined

Category	Pacific (%)	Non-Pacific non-Māori (%)
Medical	57.6	53.7
Unintentional injury	18.2	31.7
Intentional injury	24.2	14.6
Missing data	0.0	0.0
Total	100.0	100.0

Source: Mortality Review Database.

Table for Figure 3.7: Mortality (percentage of deaths) in young people aged 15–19 years by cause of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 combined

Category	Pacific (%)	Non-Pacific non-Māori (%)
Medical	37.2	25.2
Unintentional injury	22.1	42.0
Intentional injury	40.7	32.5
Missing data	0.0	0.3
Total	100.0	100.0

Source: Mortality Review Database.

Table for Figure 3.8: Mortality (percentage of deaths) in young people aged 20–24 years by cause of death, Pacific compared with non-Pacific non-Māori, Aotearoa/New Zealand 2012–16 combined

Category	Pacific (%)	Non-Pacific non-Māori (%)
Medical	46.3	25.9
Unintentional injury	28.7	37.3
Intentional injury	24.1	36.3
SUDI	0.9	0.6
Total	100.0	100.0

Source: Mortality Review Database.

Table for Figure 4.1: Post-neonatal SUDI mortality (number of deaths, rate per 1,000 live births and 95% confidence intervals) by year, Aotearoa/New Zealand 2002–16 (n=722 deaths)

Year of death	Number of deaths	Rate	95% CI
2002	48	0.89	0.66–1.18
2003	59	1.05	0.80–1.36
2004	55	0.94	0.71–1.22
2005	44	0.75	0.55–1.01
2006	62	1.03	0.79–1.32
2007	54	0.83	0.63–1.09
2008	55	0.84	0.64–1.10
2009	56	0.89	0.67–1.15
2010	54	0.84	0.63–1.09
2011	49	0.79	0.59–1.05
2012	34	0.55	0.38–0.77
2013	36	0.60	0.42–0.84
2014	37	0.64	0.45–0.88
2015	41	0.66	0.47–0.90
2016	38	0.63	0.45–0.86

Sources: Numerator: Mortality Review Database; Denominator: Ministry of Health Live Birth Registrations 2002–16.

Table for Figure 4.2: Post-neonatal SUDI mortality (rate per 1,000 live births) by ethnic group and year of death (three-year rolling rates), Aotearoa/New Zealand 2002–16 (n=722 deaths)

Ethnic group	2002–04	2003–05	2004–06	2005–07	2006–08	2007–09	2008–10	2009–11	2010–12	2011–13	2012–14	2013–15	2014–16
Māori	2.49	2.42	2.18	1.9	1.83	1.87	1.92	2.06	1.71	1.53	1.32	1.28	1.3
Pacific	0.78	0.49	0.91	1.03	1.27	0.99	1.03	0.7	0.71	0.59	0.82	1.27	1.46
Non-Māori non-Pacific	0.3	0.28	0.3	0.33	0.35	0.31	0.3	0.27	0.25	0.24	0.21	0.22	0.2

Sources: Numerator: Mortality Review Database; Denominator: Ministry of Health Live Birth Registrations 2002–16.

Table for Figure 5.1: Suicide mortality (number of deaths, rate per 100,000 population and 95% confidence intervals) in children and young people aged 10–24 years by year of death, Aotearoa/New Zealand 2002–16 (n=1,757 deaths)

Year of death	Number of deaths	Rate	95% CI
2002	93	10.94	8.83–13.40
2003	106	12.23	9.90–14.56
2004	117	13.25	10.85–15.66
2005	112	12.46	10.15–14.77
2006	127	13.88	11.46–16.29
2007	98	10.69	8.68–13.03
2008	123	13.4	11.03–15.77
2009	124	13.49	11.12–15.87
2010	115	12.5	10.21–14.78
2011	139	15.08	12.57–17.59
2012	155	16.8	14.15–19.44
2013	113	12.23	9.97–14.48
2014	97	10.48	8.50–12.79
2015	120	12.95	10.63–15.27
2016	118	12.72	10.42–15.01

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2002–16, 10–24 years.

Table for Figure 5.2: Suicide mortality (number of deaths) in children and young people aged 10–24 years by age and sex, Aotearoa/New Zealand 2002–16 (n=1,757 deaths)

Age (years)	Male	Female
10	3	0
11	0	<3
12	4	7
13	12	10
14	28	22
15	64	38
16	85	51
17	117	53
18	130	55
19	134	48
20	149	47
21	148	48
22	138	41
23	128	39
24	119	37

Source: Mortality Review Database.

Table for Figure 5.3: Suicide mortality (number of deaths) in children and young people aged 10–24 years by age and prioritised ethnic group, Aotearoa/New Zealand 2002–16 combined (n=1,754 deaths*)

Ethnic group	Age (years)														
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Māori	<3	<3	5	15	30	55	74	65	61	63	73	68	61	41	46
Pacific	0	<3	3	<3	3	5	10	27	22	17	13	13	21	12	13
Asian	0	0	0	<3	<3	5	<3	7	8	8	6	9	7	11	11
MELAA	0	0	0	0	0	0	0	<3	<3	<3	0	<3	<3	<3	<3
Other	0	0	0	0	0	<3	<3	<3	3	<3	0	0	0	0	0
European	<3	0	3	4	16	35	48	69	89	89	104	105	89	102	85

* Excludes three cases where ethnicity was unknown.

Source: Mortality Review Database.

Table for Figure 5.4: Suicide mortality (rate per 100,000 population and 95% confidence intervals) in children and young people aged 10–24 years by NZ Deprivation Index decile, Aotearoa/New Zealand 2012–16 (n=602 deaths*)

NZ Deprivation Index decile	Rate per 100,000 population	95% CI
1 (least deprived)	7.43	5.01–10.61
2	8.08	5.69–11.13
3	8.68	6.05–12.07
4	11.01	8.00–14.78
5	11.34	8.42–14.96
6	10.71	7.81–14.32
7	16.12	12.57–20.37
8	16.09	12.87–19.87
9	15.85	12.73–19.51
10 (most deprived)	20.31	16.61–24.01

* Excludes one case where deprivation unknown.

Sources: Numerator: Mortality Review Database; Denominator: NZ MRDG Estimated Resident Population 2012–16, 10–24 years.