

# **NZ Child and Youth Mortality Review Committee**

## **11<sup>th</sup> Data Report**

**2010 – 2014**

**PREPARED BY THE NZ MORTALITY REVIEW DATA GROUP**

**2015**

This report was written for the Child and Youth Mortality Review Committee by the NZ Mortality Review Data Group:  
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URL: <https://secure-www.otago.ac.nz/nzmrhg/>

# Executive summary

This is the 11<sup>th</sup> Data Report released by the Child and Youth Mortality Review Committee. It predominantly reports on data from 2010 to 2014, with some tables and figures for 2002-2014, and some for 1980-2014. These data are primarily 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 New Zealand from 2002 to the present.

Overall, the number of deaths for those aged between 28 days and 24 years has reduced. In 2010, there were 620 deaths and in 2014 there were 488. This reduction has, in part, been driven by a reduction in the number of deaths due to motor vehicle crashes in young people aged between 15 and 24 years. However, there were fewer deaths from nearly all causes in 2014.

For children and young people overall, the leading causes of death were medical conditions (39.3%), including neoplasms and congenital anomalies. Unintentional injury accounted for 28.5% of deaths, with transport crashes being the leading cause of unintentional injury death.

The leading cause of death changes with age, with the main cause of death in post-neonatal infants being Sudden Unexpected Death in Infancy (SUDI), with the predominant cause of SUDI being accidental suffocation and strangulation, usually in bed. Medical conditions were the leading cause of death in age groups one to four years, five to nine years and ten to 14 years. However, a substantial proportion of deaths were due to transport crashes in these age groups. In the 15 to 19 and 20 to 24 year age groups there were similar numbers of deaths from intentional and unintentional injury. The predominant cause of intentional injury death in young people was suicide.

There were statistically significant differences in mortality rates when examined by ethnicity. Māori had the highest mortality rate, followed by Pacific people. Those of Asian ethnicity had the lowest overall mortality rate in children and young people. For all age groups in this report, Māori had higher mortality rates than non-Māori. This was consistently statistically significant in post neonatal infants and those aged 20-24 years.

Mortality rates vary by deprivation, as measured by the NZ Deprivation Index. For children and young people overall there was a pattern of higher mortality rates with increasing deprivation, with those in deciles one and two (least deprived) having statistically significantly lower mortality rates than those in deciles seven to ten (most deprived). Of note, those in decile 10 had a mortality rate nearly three times higher than those in decile one. When examined by age group, this pattern remained for most age groups. In post neonatal infants, those in quintile five (NZ Deprivation Indices nine and ten) had a statistically significantly higher mortality rate than those in less deprived quintiles. In children aged one to four years, those in quintiles one to three had statistically significantly lower mortality rates than children in quintile five. In children aged ten to 14 years, children in quintile five (most deprived) had higher mortality rates than children in quintiles one to three. In 15 to 19 year olds, those in quintiles one and two had statistically lower mortality rates than those in quintiles four and five. There were no statistically significant differences by deprivation in the five to nine and 20 to 24 year age groups.

Males continue to be over-represented in mortality data, accounting for 66% of all deaths during 2010–2014. While males predominated for all causes of death, this was particularly marked in unintentional and intentional injury deaths (74% and 69% respectively).

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# Method

## Overview

The Child and Youth Mortality Review process has evolved since the Committee was established in 2002. 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: information gathering and review of individual deaths in the District Health Board region where the person resided; and national data collection and collation. Steps that are undertaken in the context of case review and data collation include:

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 co-ordinators.
3. Following the review of each death, CYMRC co-ordinators add further information to the national database.
4. The MRDG collate and analyse 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 can be used to inform prevention strategies and support recommendations at both a local and national level.

## Data collection

The Mortality Review Data Group collect, securely store and link 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. Child, Youth and Family (Ministry of Social Development)
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.

Information is provided in varying formats as well as being sent at times and time intervals that suit the data provider. A weekly extract from Birth, 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 only recently started providing information. For example Child, Youth and Family provide information for cases which they have had contact with from June 2006 onwards. (The age range considered has gradually expanded from infant and preschool to include deaths in children and young people up to 24 years of age in 2009.) The majority of coroners have provided information on coronial cases from January 2003.

The Mortality Review Data Group enters and codes all information from the disparate and sometimes conflicting data sources, in order to help facilitate local review as well as national reporting.

Figure M.1: Flow of case information from sources to the Mortality Review Database

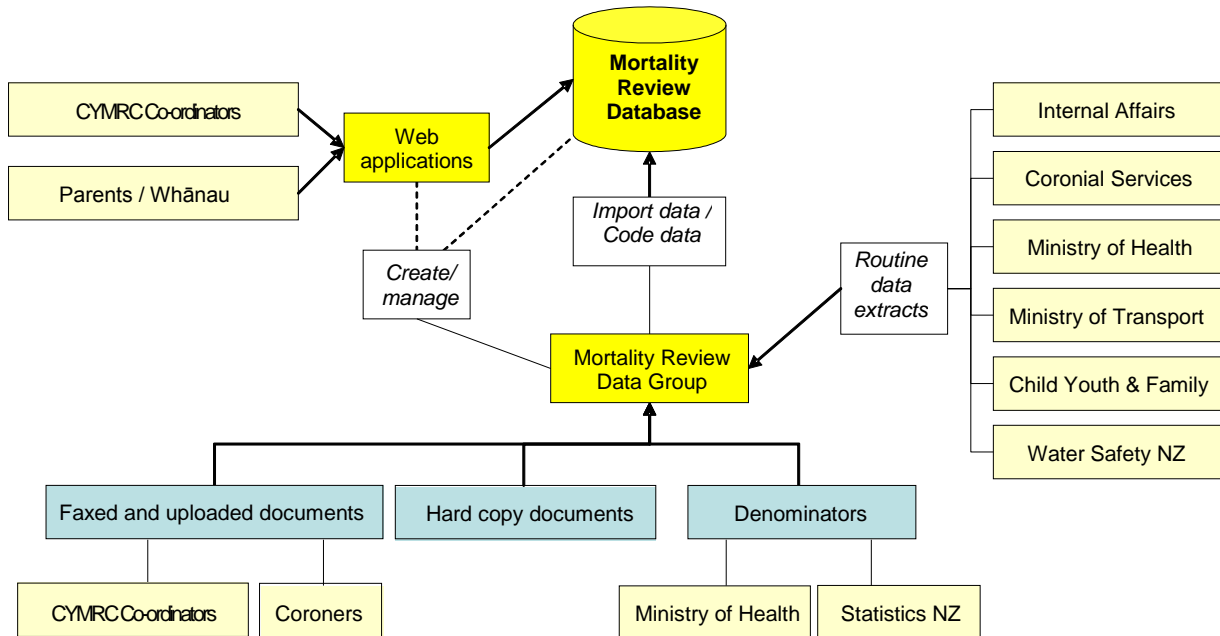


Figure M.1 illustrates these sources of information and some of the processing of this information. The Mortality Review Data Group maintains websites which allow individuals to directly contribute information. A link on the public Health Quality and Safety Commission website (<http://www.hqsc.govt.nz/our-programmes/mrc/cymrc/information-for-parents-and-families/>) allows families, whānau and friends who have lost a child or young person to provide feedback about their experiences. The CYMRC Local Review Group Co-ordinator 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 also includes documents faxed by Coroners, 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 Mortality Review Data Group identifies the NHI of the person for which each item of information is received. They import data into the Mortality Review Database and link the various sources of information that relate to each individual. Data are regularly cleaned to eliminate duplicate or incorrect records, follow up on missing details, and ensure completeness and internal consistency.

When interpreting CYMRC data it must be remembered that it is derived from a database that is constantly being updated. As well as details of new cases, there can also be new information for existing cases, and at times changing information for existing cases. The result of this is that details can change from year to year, even for cases whose death was some years previously. This is particularly true of cases that require an inquest, as in some cases this process may not be completed until years after the death. While this report includes deaths that occurred until 31 December 2014, the 2014 data are the least complete of any year, for the above reasons. The incompleteness of the data is not randomly spread across all causes. Deaths that are referred to the Coroner, such as unexpected deaths and some injury deaths, are less likely to have complete cause of death information available quickly. Therefore, information relating to deaths in 2014 in particular needs to be interpreted with caution. This also means that consecutive annual reports may have slightly different numbers in any one category, but the most recent reports 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 the individual lived in. The purpose of local review is to identify systems issues that can be modified to reduce the likelihood of future deaths. The CYMRC review process relies on information from the DHB of residence of the deceased child or youth. The co-ordinators of the local child and youth mortality review groups collect information from local organisations involved in the life and death of the individual. Some of the new information gathered as part of the local review process is entered into the Mortality Review Database.

Each Local Child and Youth Mortality Review Group has an appointed chair and co-ordinator. When the death of a child or young person aged between 28 days and 24 years occurs within a co-ordinator's region, the co-ordinator will access the secure database to gather initial information on the deceased. The co-ordinator will then initiate information requests to the various members of the local child and youth mortality review group who each act as a representative of their particular organisation.

As official agents of the CYMRC, the local child and youth mortality review group 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. Each review is facilitated by the local chair, whose task it is to bring 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 illegal activity or the safety of others, must be dealt with outside the review process using the normal inter-agency protocols and procedures. This ensures that 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 requirements, but complaints about procedures can be reported to and investigated by the Ombudsman.

A review group might meet several times before all the information has been gathered on a case. Once all the information has been gathered, 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 that the issues and recommendations be presented in a way that does not assign blame but rather focuses on changes that could prevent future deaths.

Once a local death review is completed, the co-ordinator will enter all the relevant data into the secure national database. In this way, issues, recommendations and follow-up actions are forwarded to the national Child and Youth Mortality Review Committee.

The local child and youth mortality review group process allows high levels of detail about the context of death to be obtained. The process itself supports learning from cases to be acted upon locally. Although only a proportion of deaths prior to 2009 have been reviewed, the increased coverage of the local child and youth mortality review groups will allow for many more system improvements.

# Analysis and coding

## Mortality data

The data for this report are from the Mortality Review Database. The data were extracted from the database on 7 October 2015. For the purposes of mortality review in New Zealand, children and young people are defined as those aged between 28 days and less than 25 years. 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, where the year the death is registered is used. 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 their 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 less than one year of age, 'SUDI' (Sudden Unexpected Death in Infancy) is assigned as the cause of death where any one of the following ICD-10-AM codes were listed as the underlying cause of death in the Mortality Collection: 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 one and two years 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 external causes of death as presented in the cause of death tables are arranged according to the International Collaborative Effort on Injury Statistics classification. This assigns ICD-10 groupings to various headings. Under this classification system, unintentional injury is further divided into presumed unintentional injury, injury of undetermined intent, and injuries due to legal intervention or war. The classification system used in this report has been used since 2011, and is slightly different to years prior to 2011; hence data from some previous reports may not match exactly.

## Ethnicity

There are multiple sources of ethnicity data in the database. These are: Births, Deaths and Marriages (BDM), the Ministry of Health, Coronial records and the information entered by co-ordinators when reviewing a death. These data sources are prioritised based on evidence as to their quality and completeness in New Zealand. Prioritised ethnicity is used in this report to assign a single ethnic group to each individual.

## DHB of Residence

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

## Statistics

The data presented in this report were computed from the Mortality Review Database by the NZ Mortality Review Data Group. Percentages are expressed to one decimal point. In some cases, due to rounding, percentages do not sum to 100 exactly.



The denominators used in the main analyses are from two sources. The first is the number of live births in New Zealand, as supplied by the Ministry of Health (MoH). Year is determined using the year of registration of birth, rather than the year of birth itself. Rates for infant deaths are expressed as per 1000 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 2006 and 2013. Linear extrapolation was undertaken to calculate the estimated resident population between 2006 and 2014. The one to four year age group denominator was calculated using the above methods to derive the under four year population, with the number of live births from each year being subtracted off this total to compute the one to four year age group denominator. Rates in this report are presented as per 100 000 age-specific population for most age groups, except for infants less than one year of age where rates are expressed as per thousand live births.

Some of the figures in this document contain historical data dating back to 1980. The numerator for these deaths is as follows: CYMRC data are used for deaths aged 28 days to 24 years from 2002 onwards; prior to this Statistics New Zealand data are used. For neonatal deaths (zero to 27 days), Perinatal and Maternal Mortality Review Committee data are used from 2007 onwards; prior to this Statistics New Zealand data are used. The denominator used to calculate infant mortality rates was live births from Statistics New Zealand (1980-2014). The denominator used to calculate mortality rates for children and young people aged one to 24 years were population estimates from Statistics New Zealand (1980-2014). Statistics New Zealand use a historical de facto population for years prior to 1991, and from 1991 the estimated resident population is used. The historical de facto population estimates are based on counts of all people present at a given time, and does not account for people who are not usually resident, or those who are usually resident but temporarily out of the country.<sup>1</sup> 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.<sup>2</sup> Due to the differences in the way rates are calculated and the different denominators used, there may be variations between the rates presented in this report and 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.

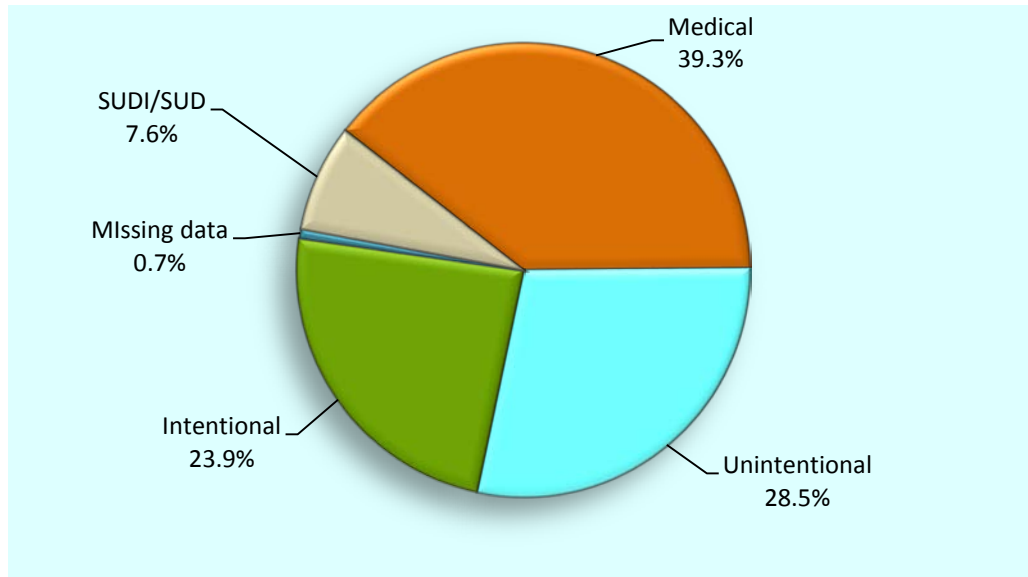
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<sup>1</sup> Statistics New Zealand website: <http://datainfolplus.stats.govt.nz/item/nz.govt.stats/bec27cc6-c9e2-4b7a-b1f4-cb5e096f91ad> accessed 30.11.2015

<sup>2</sup> Statistics New Zealand website: <http://datainfolplus.stats.govt.nz/item/nz.govt.stats/7751f101-7b2d-4e97-a487-3ac4126d22d4> accessed 30.11.2015

# 1. New Zealand National Data Overview

**Figure 1.1** Mortality (%) in children and young people aged 28 days to 24 years by cause of death, New Zealand 2010–2014 (n=2857 deaths)



Source: Mortality Review Database

**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, New Zealand 2010–2014 combined (n=2857 deaths)

Category	<1 year*	1–4 years	5–9 years	10–14 years	15–19 years	20–24 years	Total	Percentage (%)
Medical	291	183	88	92	204	265	1123	39.3
Unintentional injury	21	88	34	63	288	319	813	28.5
Intentional injury	7	10	4	32	292	338	683	23.9
SUDI/SUD	209	9	0	0	0	0	218	7.6
Missing data	7	1	2	3	3	4	20	0.7
<b>Total</b>	<b>535</b>	<b>291</b>	<b>128</b>	<b>190</b>	<b>787</b>	<b>926</b>	<b>2857</b>	<b>100.0</b>

\*This category represents infants 28 days and older, and less than one calendar year in age

Source: Mortality Review Database

**Table 1.2** Mortality (number of deaths and total rate per 100,000 resident population) by cause of death and age group, New Zealand 2010–2014 combined (n=2857 deaths)

Cause of death	<1 year*	1–4 years	5–9 years	10–14 years	15–19 years	20–24 years	Total	%	Rate 2010–2014
<b>Medical</b>									
Infectious and parasitic disease	27	26	3	3	8	3	70	2.5	0.92
Neoplasms	10	37	33	31	64	81	256	9.0	3.35
Diseases of the blood and blood-forming organs and disorders of the immune system	4	3	2	-	3	3	15	0.5	0.20
Endocrine, nutritional and metabolic diseases	10	7	13	5	11	18	64	2.2	0.84
Mental and behavioural disorders	-	1	-	-	2	3	6	0.2	0.08
Diseases of the nervous system	20	24	14	21	35	52	166	5.8	2.17
Diseases of the eye and adnexa	-	-	-	-	-	-	-	-	-
Diseases of the ear and mastoid process	-	-	-	-	-	-	-	-	-
Diseases of the circulatory system	20	10	3	9	26	38	106	3.7	1.39
Diseases of the respiratory system	37	25	9	8	17	11	107	3.7	1.40
Diseases of the digestive system	4	2	-	3	4	7	20	0.7	0.26
Diseases of the skin and subcutaneous tissue	1	-	-	-	3	1	5	0.2	0.07
Diseases of the musculoskeletal system and connective tissue	-	1	-	1	4	3	9	0.3	0.12
Diseases of the genitourinary system	2	-	1	-	1	5	9	0.3	0.12
Pregnancy, childbirth and the puerperium	-	-	-	-	-	5	5	0.2	0.07
Certain conditions originating in the perinatal period	66	9	-	1	-	-	76	2.7	0.99
Congenital anomalies	90	32	10	6	16	22	176	6.2	2.30
Symptoms & abnormal findings not elsewhere classified	-	6	-	4	10	13	33	1.2	0.43
<b>Total medical</b>	<b>291</b>	<b>183</b>	<b>88</b>	<b>92</b>	<b>204</b>	<b>265</b>	<b>1,123</b>	<b>39.3</b>	<b>14.68</b>
<b>Unintentional injury (includes undetermined intent and legal intervention/war)#</b>									
Cut/pierce	-	-	-	-	-	1	1	0.0	s
Drowning	3	27	3	6	28	29	96	3.4	1.25
Fall	1	1	-	1	12	15	30	1.1	0.39
Fire/hot object or substance	-	1	2	1	4	3	11	0.4	0.14
Firearm	-	-	-	-	2	2	4	0.1	0.05
Machinery	-	4	-	-	2	-	6	0.2	0.08
Transport	9	40	22	39	198	218	526	18.4	6.88
Natural/environmental	3	3	1	3	3	12	25	0.9	0.33
Overexertion	-	-	-	-	-	-	-	-	-
Poisoning	1	-	1	2	24	21	49	1.7	0.64
Struck by, against	-	4	2	2	1	6	15	0.5	0.20
Suffocation	1	5	2	7	8	4	27	0.9	0.35
Other specified, classifiable	-	1	1	1	4	6	13	0.5	0.17
Other specified, not elsewhere classified	-	1	-	-	2	-	3	0.1	0.04
Unspecified	3	-	-	-	-	2	5	0.2	0.07
Complications of medical and surgical care	-	1	-	-	-	-	1	0.0	s
Sequelae of surgical and medical care as external cause	-	-	-	1	-	-	1	0.0	s
<b>Total unintentional injury</b>	<b>21</b>	<b>88</b>	<b>34</b>	<b>63</b>	<b>288</b>	<b>319</b>	<b>813</b>	<b>28.5</b>	<b>10.63</b>
<b>Intentional injury</b>									
Assault	7	10	3	2	14	29	65	2.3	0.85
Suicide	-	-	1	30	278	309	618	21.6	8.08
<b>Total intentional injury</b>	<b>7</b>	<b>10</b>	<b>4</b>	<b>32</b>	<b>292</b>	<b>338</b>	<b>683</b>	<b>23.9</b>	<b>8.93</b>
<b>SUDI/SUD</b>									
SUDI (28 days to <1 year) †	209	-	-	-	-	-	209	7.3	2.73
SUD (1-2 years) ‡	-	9	-	-	-	-	9	0.3	0.12
<b>Total SUDI/SUD</b>	<b>209</b>	<b>9</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>218</b>	<b>7.6</b>	<b>2.85</b>
Missing data	7	1	2	3	3	4	20	0.7	0.26
<b>Total</b>	<b>535</b>	<b>291</b>	<b>128</b>	<b>190</b>	<b>787</b>	<b>926</b>	<b>2857</b>	<b>100.0</b>	<b>37.35</b>

‘s’ indicates rate not calculated due to small numbers

\*This category represents infants 28 days and older, and less than one calendar year in age

# See **Table 1.3** for unintentional injury specified further by intent

† See **Table 2.1** for SUDI deaths by ICD-10-AM code

‡ See **Table 3.1** for SUD deaths by ICD-10-AM code

Source: *Numerator* Mortality Review Database; *Denominator* NZ MRDG Estimated Resident Population 2010–2014, 0–24 years

**Table 1.3** Unintentional injury by cause of death, age group and intent sub group, New Zealand 2010–2014 combined (n=813 deaths)

Cause of death	Intent sub group																		Total
	< 1 year*			1-4 years			5-9 years			10-14 years			15-19 years			20-24 years			
	U	D	LW	U	D	LW	U	D	LW	U	D	LW	U	D	LW	U	D	LW	
Cut/pierce	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Drowning	3	-	-	27	-	-	3	-	-	6	-	-	27	1	-	27	2	-	96
Fall	1	-	-	1	-	-	-	-	-	1	-	-	11	1	-	13	2	-	30
Fire/hot object or substance	-	-	-	1	-	-	2	-	-	1	-	-	4	-	-	3	-	-	11
Firearm	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	1	4
Machinery	-	-	-	4	-	-	-	-	-	-	-	-	2	-	-	-	-	-	6
Transport	9	-	-	40	-	-	22	-	-	39	-	-	198	-	-	218	-	-	526
Natural/environmental	3	-	-	3	-	-	1	-	-	3	-	-	3	-	-	12	-	-	25
Overexertion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poisoning	1	-	-	-	-	-	1	-	-	2	-	-	23	1	-	21	-	-	49
Struck by, against	-	-	-	4	-	-	2	-	-	2	-	-	1	-	-	6	-	-	15
Suffocation	1	-	-	5	-	-	2	-	-	4	3	-	3	5	-	3	1	-	27
Other specified, classifiable	-	-	-	1	-	-	1	-	-	1	-	-	3	1	-	6	-	-	13
Other specified, not elsewhere classified	-	-	-	1	-	-	-	-	-	-	-	-	2	-	-	-	-	-	3
Unspecified	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	5
Complications of medical and surgical care	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Sequelae of surgical and medical care as external cause	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
<b>Total unintentional cause of death</b>	<b>21</b>	<b>-</b>	<b>-</b>	<b>88</b>	<b>-</b>	<b>-</b>	<b>34</b>	<b>-</b>	<b>-</b>	<b>60</b>	<b>3</b>	<b>-</b>	<b>277</b>	<b>10</b>	<b>1</b>	<b>313</b>	<b>5</b>	<b>1</b>	<b>813</b>

\*This category represents infants 28 days and older, and less than one calendar year in age

U indicates unintentional intent

D indicates undetermined intent

LW indicates legal intervention/war

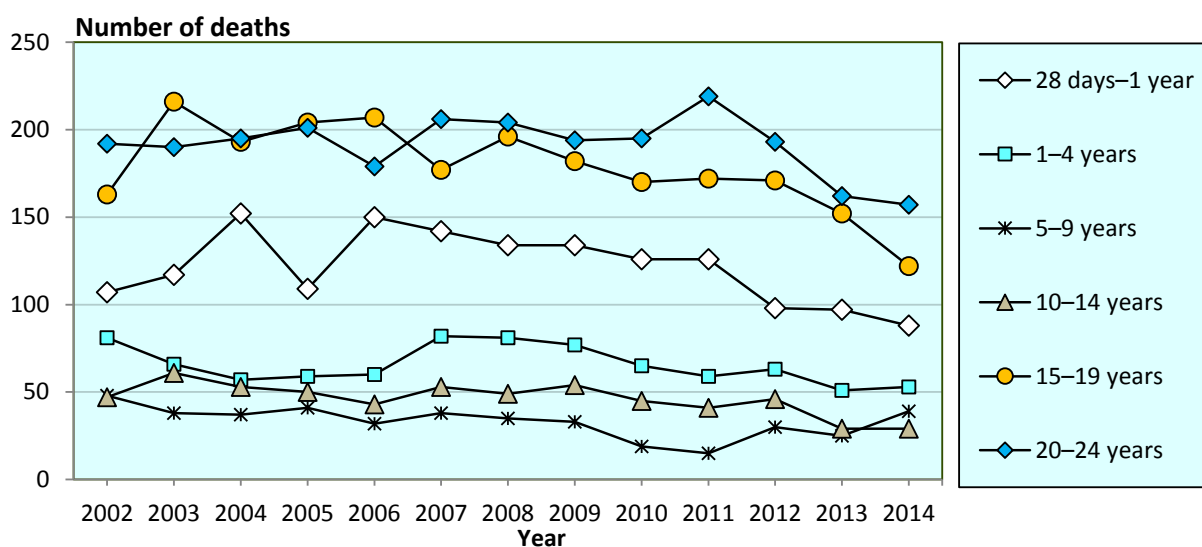
Source: Mortality Review Database

**Table 1.4** Mortality (number of deaths) in children and young people aged 28 days to 24 years by age group and year of death, New Zealand 2010–2014 (n=2857 deaths)

Category	2010	2011	2012	2013	2014	Total	Percentage (%)
28 days – <1 year	126	126	98	97	88	535	18.7
1–4 years	65	59	63	51	53	291	10.2
5–9 years	19	15	30	25	39	128	4.5
10–14 years	45	41	46	29	29	190	6.7
15–19 years	170	172	171	152	122	787	27.5
20–24 years	195	219	193	162	157	926	32.4
<b>Total</b>	<b>620</b>	<b>632</b>	<b>601</b>	<b>516</b>	<b>488</b>	<b>2857</b>	<b>100.0</b>

Source: Mortality Review Database

**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, New Zealand 2002–2014 (n=8276 deaths)



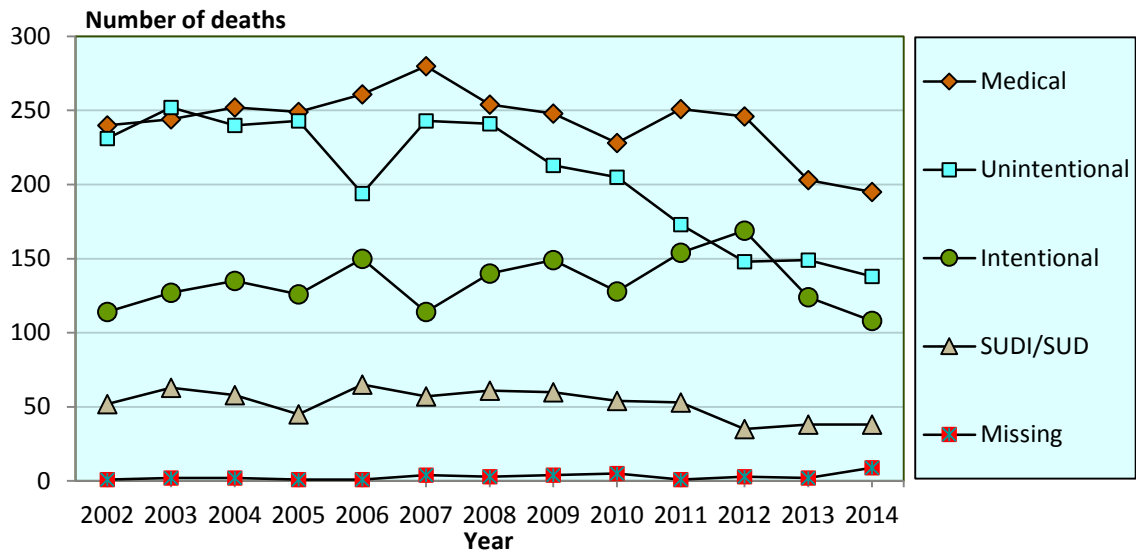
Source: Mortality Review Database

**Table 1.5** Mortality (number of deaths) in children and young people aged 28 days to 24 years by cause of death and year, New Zealand 2010–2014 (n=2857 deaths)

Category	2010	2011	2012	2013	2014	Total	Percentage (%)
Medical	228	251	246	203	195	1123	39.3
Unintentional injury	205	173	148	149	138	813	28.5
Intentional injury	128	154	169	124	108	683	23.9
SUDI/SUD	54	53	35	38	38	218	7.6
Missing data	5	1	3	2	9	20	0.7
<b>Total</b>	<b>620</b>	<b>632</b>	<b>601</b>	<b>516</b>	<b>488</b>	<b>2857</b>	<b>100.0</b>

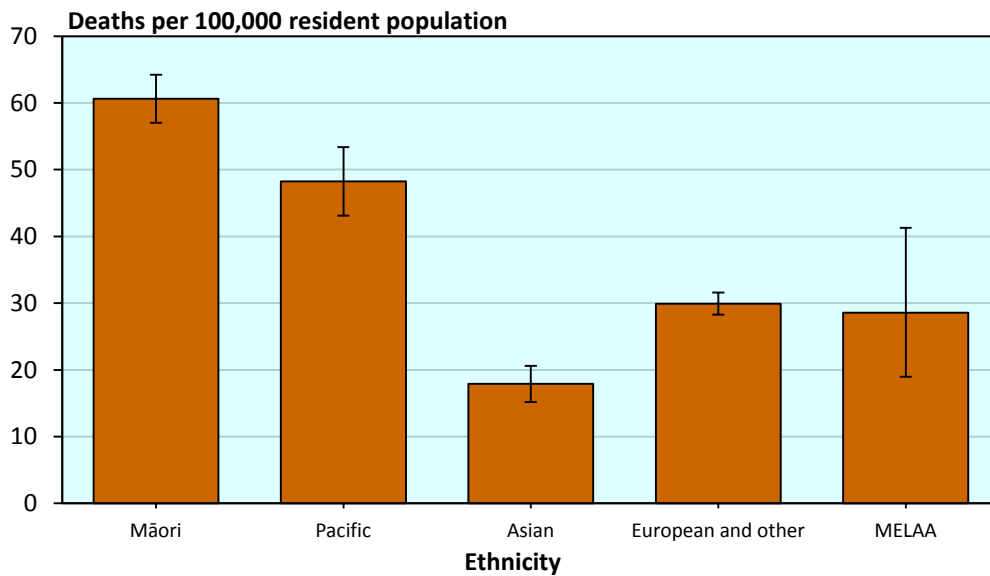
Source: Mortality Review Database

**Figure 1.3** Mortality (number of deaths) in children and young people aged 28 days to 24 years by cause of death and year, New Zealand 2002–2014 (n=8276 deaths)



Source: Mortality Review Database

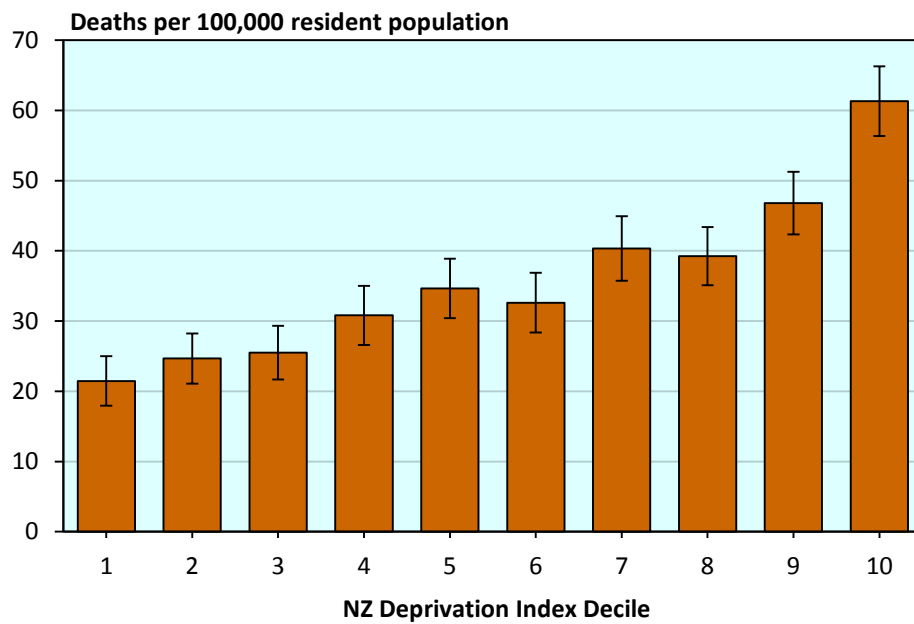
**Figure 1.4** Mortality rates (deaths per 100,000 resident population) and 95% confidence intervals in children and young people aged 28 days to 24 years by ethnicity, New Zealand 2010–2014 combined (n=2851 deaths\*)



\*Excludes 6 cases with no available ethnicity data

Source: *Numerator* Mortality Review Database; *Denominator* NZ MRDG Estimated Resident Population 2010–2014

**Figure 1.5** Mortality rates (deaths 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, New Zealand 2010–2014 combined (n= 2836 deaths\*)

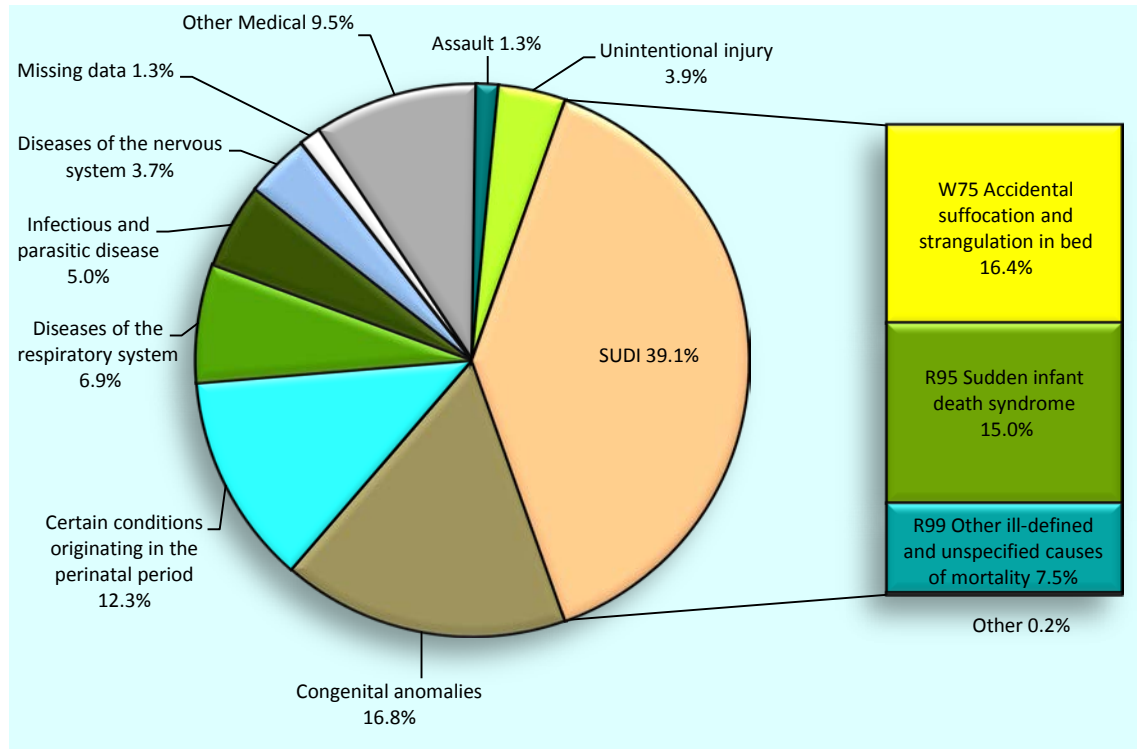


\*Excludes 21 cases with no available deprivation data

Source: *Numerator* Mortality Review Database; *Denominator* NZ MRDG Estimated Resident Population 2010–2014

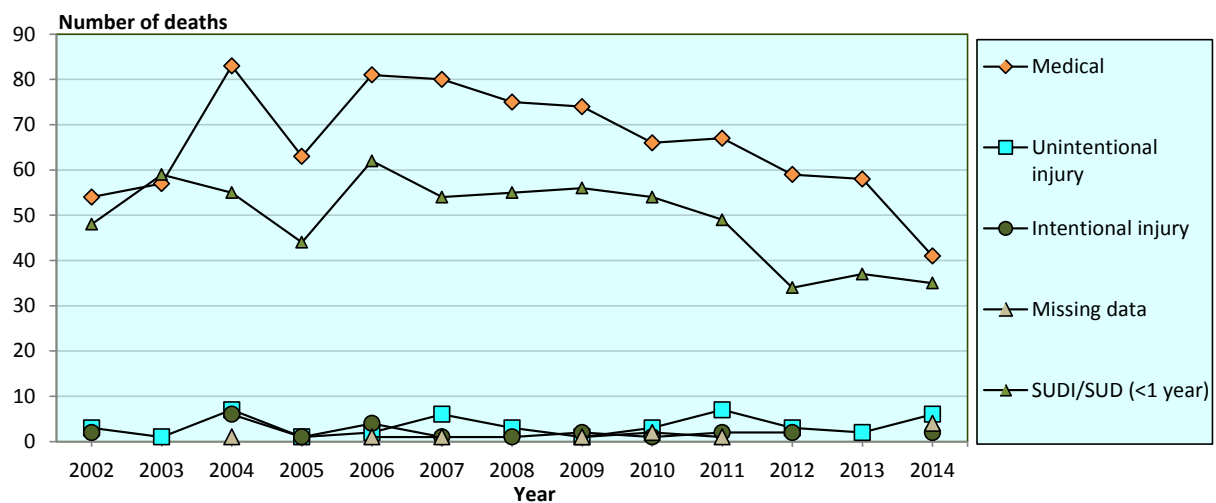
## 2. Infants aged 28 days to less than one year

**Figure 2.1** Post-neonatal infant mortality (%) by cause of death, New Zealand 2010–2014 combined (n=535 deaths)



Source: Mortality Review Database

**Figure 2.2** Post-neonatal infant mortality (number of deaths) by cause of death and year, New Zealand 2002–2014 (n=1580 deaths)



Source: Mortality Review Database



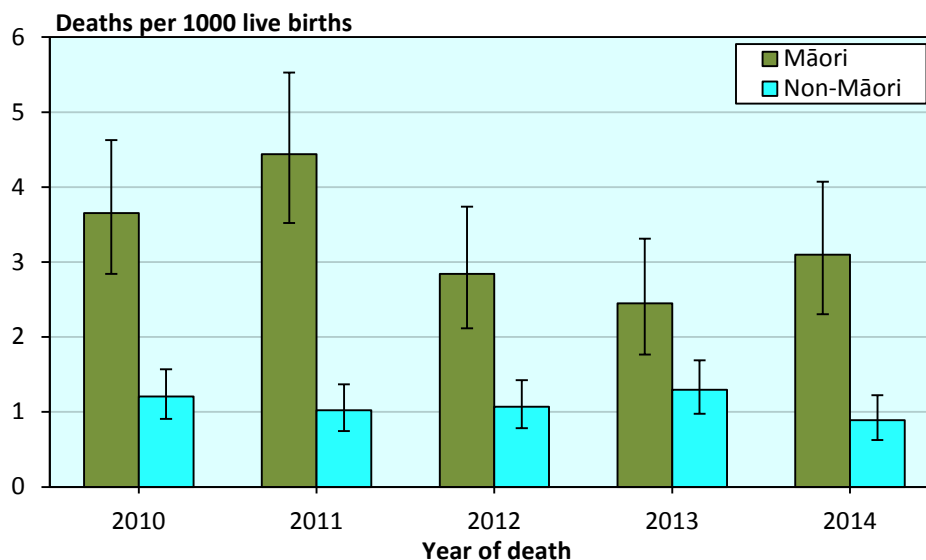
**Table 2.1** Post-neonatal infant mortality (deaths and total rate per 1000 live births) by cause of death and year, New Zealand 2010–2014 (n=535 deaths)

Cause of death	2010	2011	2012	2013	2014	Total	%	Rate 2010–2014
<b>Medical</b>								
Infectious and parasitic disease	4	9	3	7	4	27	5.0	0.09
Neoplasms	2	1	2	3	2	10	1.9	0.03
Diseases of the blood and blood-forming organs and disorders of the immune system	-	-	1	1	2	4	0.7	0.01
Endocrine, nutritional and metabolic diseases	3	2	1	2	2	10	1.9	0.03
Mental and behavioural disorders	-	-	-	-	-	-	-	-
Diseases of the nervous system	4	5	6	3	2	20	3.7	0.07
Diseases of the eye and adnexa	-	-	-	-	-	-	-	-
Diseases of the ear and mastoid process	-	-	-	-	-	-	-	-
Diseases of the circulatory system	4	4	2	4	6	20	3.7	0.07
Diseases of the respiratory system	10	8	12	3	4	37	6.9	0.12
Diseases of the digestive system	-	1	-	2	1	4	0.7	0.01
Diseases of the skin and subcutaneous tissue	1	-	-	-	-	1	0.2	s
Diseases of the musculoskeletal system and connective tissue	-	-	-	-	-	-	-	-
Diseases of the genitourinary system	1	1	-	-	-	2	0.4	s
Pregnancy, childbirth and the puerperium	-	-	-	-	-	-	-	-
Certain conditions originating in the perinatal period	10	13	14	19	10	66	12.3	0.22
Congenital anomalies	27	23	18	14	8	90	16.8	0.29
Symptoms & abnormal findings not elsewhere classified	-	-	-	-	-	-	-	-
<b>Total medical</b>	<b>66</b>	<b>67</b>	<b>59</b>	<b>58</b>	<b>41</b>	<b>291</b>	<b>54.4</b>	<b>0.95</b>
<b>Unintentional injury (includes undetermined intent and legal intervention/war)</b>								
Cut/pierce	-	-	-	-	-	-	-	-
Drowning	1	1	-	-	1	3	0.6	0.01
Fall	-	-	1	-	-	1	0.2	s
Fire/hot object or substance	-	-	-	-	-	-	-	-
Firearm	-	-	-	-	-	-	-	-
Machinery	-	-	-	-	-	-	-	-
Transport	2	1	2	2	2	9	1.7	0.03
Natural/environmental	-	3	-	-	-	3	0.6	0.01
Overexertion	-	-	-	-	-	-	-	-
Poisoning	-	1	-	-	-	1	0.2	s
Struck by, against	-	-	-	-	-	-	-	-
Suffocation	-	1	-	-	-	1	0.2	s
Other specified, classifiable	-	-	-	-	-	-	-	-
Other specified, not elsewhere classified	-	-	-	-	-	-	-	-
Unspecified	-	-	-	-	3	3	0.6	0.01
Complications of medical and surgical care	-	-	-	-	-	-	-	-
Sequelae of surgical and medical care as external cause	-	-	-	-	-	-	-	-
<b>Total unintentional injury</b>	<b>3</b>	<b>7</b>	<b>3</b>	<b>2</b>	<b>6</b>	<b>21</b>	<b>3.9</b>	<b>0.07</b>
<b>Intentional injury</b>								
Assault	1	2	2	-	2	7	1.3	0.02
<b>Total intentional injury</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>-</b>	<b>2</b>	<b>7</b>	<b>1.3</b>	<b>0.02</b>
<b>Sudden Unexpected Death in Infancy (SUDI)</b>								
R95 Sudden infant death syndrome	20	20	19	18	3	80	15.0	0.26
R96 Other sudden death, cause unknown	-	-	-	-	-	-	-	-
R98 Unattended death	-	-	-	-	-	-	-	-
R99 Other ill-defined and unspecified causes of mortality	3	8	2	9	18	40	7.5	0.13
W75 Accidental suffocation and strangulation in bed	30	21	13	10	14	88	16.4	0.29
W78 Inhalation of gastric contents	1	-	-	-	-	1	0.2	0.00
W79 Inhalation and ingestion of food causing obstruction of respiratory tract	-	-	-	-	-	-	-	-
<b>Total SUDI</b>	<b>54</b>	<b>49</b>	<b>34</b>	<b>37</b>	<b>35</b>	<b>209</b>	<b>39.1</b>	<b>0.68</b>
Missing data	2	1	-	-	4	7	1.3	0.02
<b>Total</b>	<b>126</b>	<b>126</b>	<b>98</b>	<b>97</b>	<b>88</b>	<b>535</b>	<b>100.0</b>	<b>1.75</b>

's' indicates rate not calculated due to small numbers

Source: *Numerator* Mortality Review Database; *Denominator* MoH Live Births 2010–2014

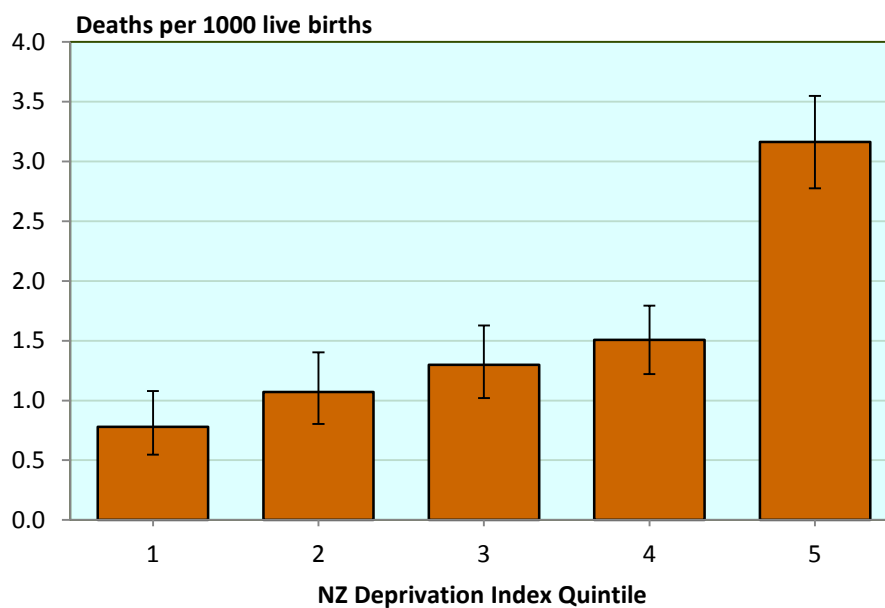
**Figure 2.3** Post-neonatal infant mortality rates (deaths per 1000 live births and 95% confidence intervals) in Māori and non-Māori by year of death, New Zealand 2010-2014 (n=532 deaths\*)



\*Excludes 3 cases with no available ethnicity data

Source: Numerator Mortality Review Database; Denominator MoH Live Births 2010–2014

**Figure 2.4** Post-neonatal infant mortality rates (deaths per 1000 live births and 95% confidence intervals) by NZ Deprivation Index Quintile, New Zealand 2010–2014 combined (n=528 deaths)

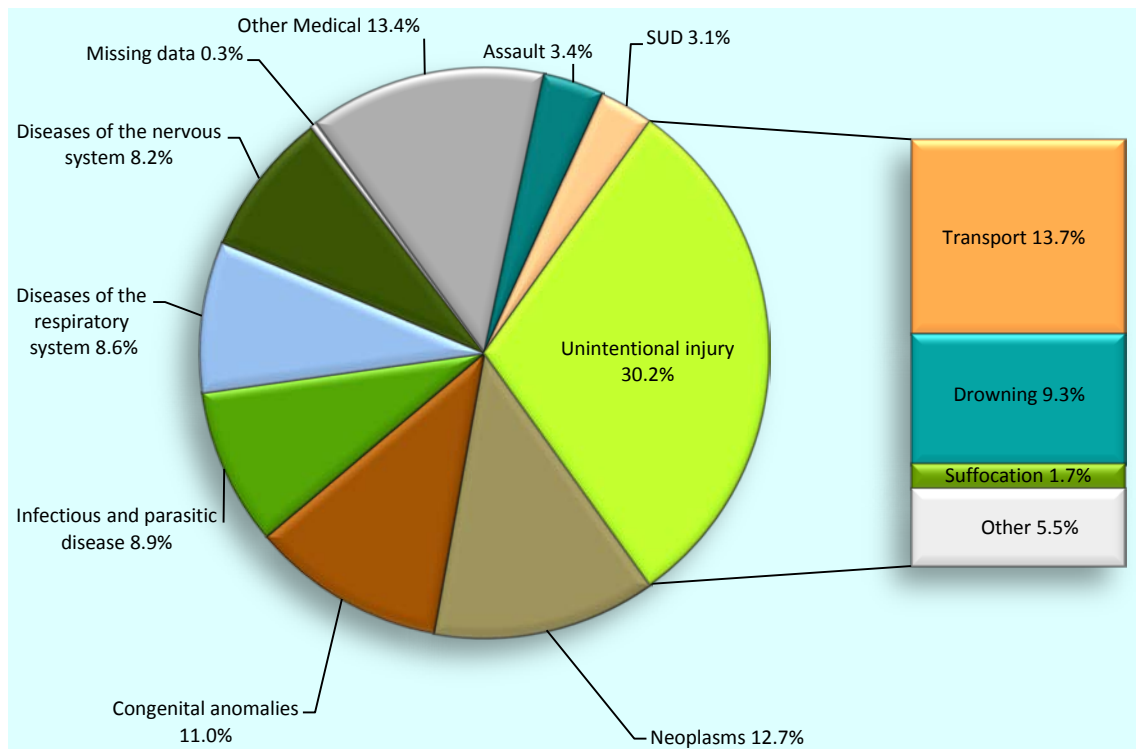


\*Excludes 7 cases with no available deprivation data

Source: Numerator Mortality Review Database; Denominator MoH Live Births 2010–2014

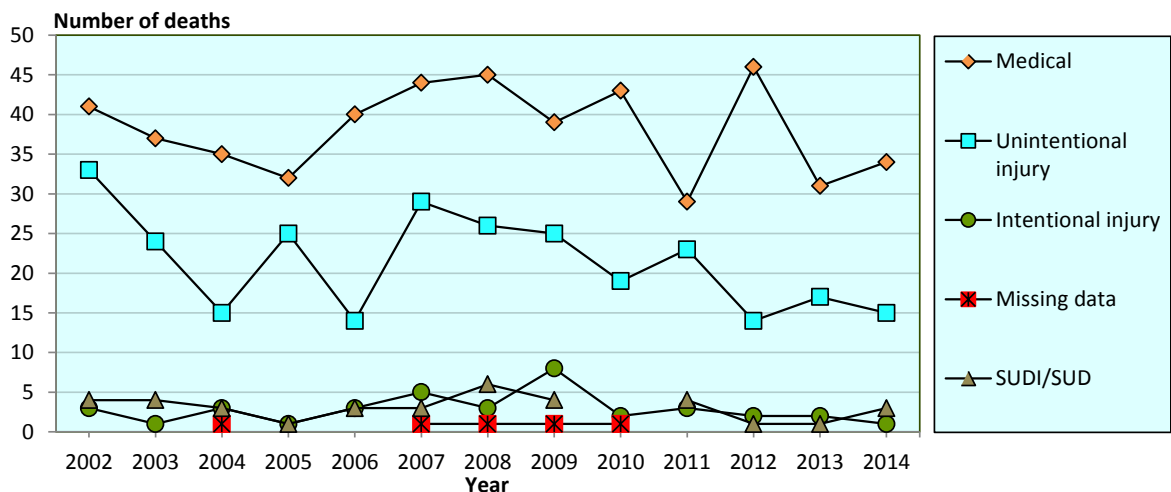
# 3. Children aged one to four years

**Figure 3.1** Mortality (%) in children aged 1–4 years by cause of death, New Zealand 2010–2014 combined (n=291 deaths)



Source: Mortality Review Database

**Figure 3.2** Mortality (number of deaths) in children aged 1–4 years by cause of death and year, New Zealand 2002–2014 (n=854 deaths)



Source: Mortality Review Database

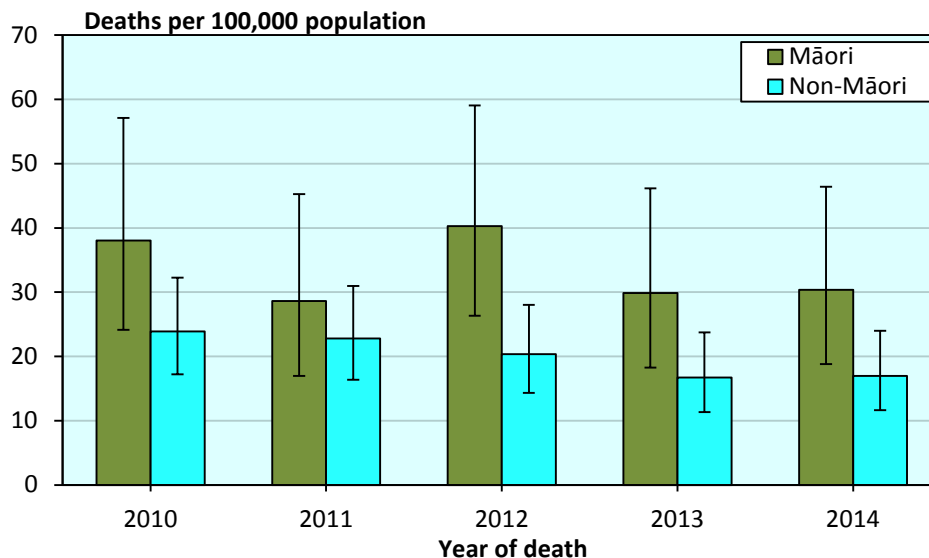
**Table 3.1** Mortality (deaths and total rate per 100,000 resident population) in children aged 1–4 years by cause of death and year, New Zealand 2010–2014 (n=291 deaths)

Cause of death	2010	2011	2012	2013	2014	Total	%	Rate 2010–2014
<b>Medical</b>								
Infectious and parasitic disease	5	6	5	3	7	26	8.9	2.10
Neoplasms	8	7	11	6	5	37	12.7	3.00
Diseases of the blood and blood-forming organs and disorders of the immune system	1	-	1	-	1	3	1.0	0.24
Endocrine, nutritional and metabolic diseases	2	1	1	2	1	7	2.4	0.57
Mental and behavioural disorders	-	-	-	-	1	1	0.3	s
Diseases of the nervous system	6	2	5	8	3	24	8.2	1.94
Diseases of the eye and adnexa	-	-	-	-	-	-	-	-
Diseases of the ear and mastoid process	-	-	-	-	-	-	-	-
Diseases of the circulatory system	4	2	3	1	-	10	3.4	0.81
Diseases of the respiratory system	6	2	8	4	5	25	8.6	2.02
Diseases of the digestive system	1	-	-	-	1	2	0.7	s
Diseases of the skin and subcutaneous tissue	-	-	-	-	-	-	-	-
Diseases of the musculoskeletal system and connective tissue	-	-	1	-	-	1	0.3	s
Diseases of the genitourinary system	-	-	-	-	-	-	-	-
Pregnancy, childbirth and the puerperium	-	-	-	-	-	-	-	-
Certain conditions originating in the perinatal period	2	4	2	-	1	9	3.1	0.73
Congenital anomalies	6	5	9	5	7	32	11.0	2.59
Symptoms & abnormal findings not elsewhere classified	2	-	-	2	2	6	2.1	0.49
<b>Total medical</b>	<b>43</b>	<b>29</b>	<b>46</b>	<b>31</b>	<b>34</b>	<b>183</b>	<b>62.9</b>	<b>14.81</b>
<b>Unintentional injury (includes undetermined intent and legal intervention/war)</b>								
Cut/pierce	-	-	-	-	-	-	-	-
Drowning	4	11	3	5	4	27	9.3	2.19
Fall	-	-	-	1	-	1	0.3	s
Fire/hot object or substance	-	-	-	-	1	1	0.3	s
Firearm	-	-	-	-	-	-	-	-
Machinery	1	1	-	1	1	4	1.4	0.32
Transport	11	6	7	8	8	40	13.7	3.24
Natural/environmental	1	1	-	1	-	3	1.0	0.24
Overexertion	-	-	-	-	-	-	-	-
Poisoning	-	-	-	-	-	-	-	-
Struck by, against	1	1	2	-	-	4	1.4	0.32
Suffocation	-	2	1	1	1	5	1.7	0.40
Other specified, classifiable	-	-	1	-	-	1	0.3	s
Other specified, not elsewhere classified	1	-	-	-	-	1	0.3	s
Unspecified	-	-	-	-	-	-	-	-
Complications of medical and surgical care	-	1	-	-	-	1	0.3	s
Sequelae of surgical and medical care as external cause	-	-	-	-	-	-	-	-
<b>Total unintentional injury</b>	<b>19</b>	<b>23</b>	<b>14</b>	<b>17</b>	<b>15</b>	<b>88</b>	<b>30.2</b>	<b>7.12</b>
<b>Intentional injury</b>								
Assault	2	3	2	2	1	10	3.4	0.81
<b>Total intentional injury</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>10</b>	<b>3.4</b>	<b>0.81</b>
<b>Sudden Unexpected Death (1-2 years)</b>								
R95 Sudden infant death syndrome	-	1	-	-	-	1	0.3	s
R96 Other sudden death, cause unknown	-	-	-	-	-	-	-	-
R98 Unattended death	-	-	-	-	-	-	-	-
R99 Other ill-defined and unspecified causes of mortality	-	3	1	-	2	6	2.1	0.49
W75 Accidental suffocation and strangulation in bed	-	-	-	1	1	2	0.7	s
W78 Inhalation of gastric contents	-	-	-	-	-	-	-	-
<b>Total SUD</b>	<b>-</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>9</b>	<b>3.1</b>	<b>0.73</b>
Missing data	1	-	-	-	-	1	0.3	s
<b>Total</b>	<b>65</b>	<b>59</b>	<b>63</b>	<b>51</b>	<b>53</b>	<b>291</b>	<b>100.0</b>	<b>23.56</b>

's' indicates rate not calculated due to small numbers

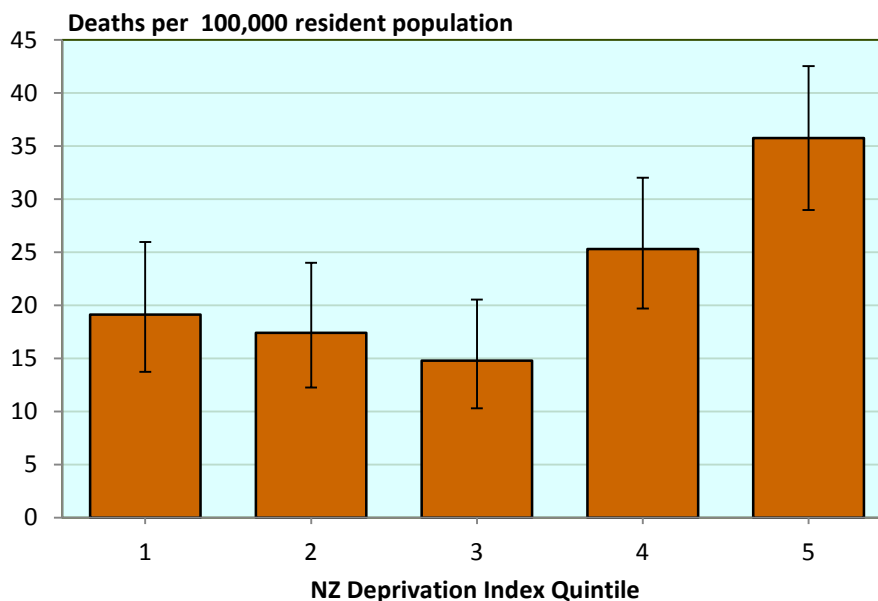
Source: *Numerator* Mortality Review Database; *Denominator* NZ MRDG Estimated Resident Population 2010–2014

**Figure 3.3** Mortality rates (deaths per 100,000 resident population with 95% confidence intervals) in Māori and non-Māori children aged 1–4 years, New Zealand 2010–2014 (n=291 deaths)



Source: Numerator Mortality Review Database; Denominator NZ MRDG Estimated Resident Population 2010–2014

**Figure 3.4** Mortality rates (deaths per 100,000 resident population with 95% confidence intervals) in children aged 1–4 years by NZ Deprivation Index Quintile, New Zealand 2010–2014 combined (289 deaths\*)

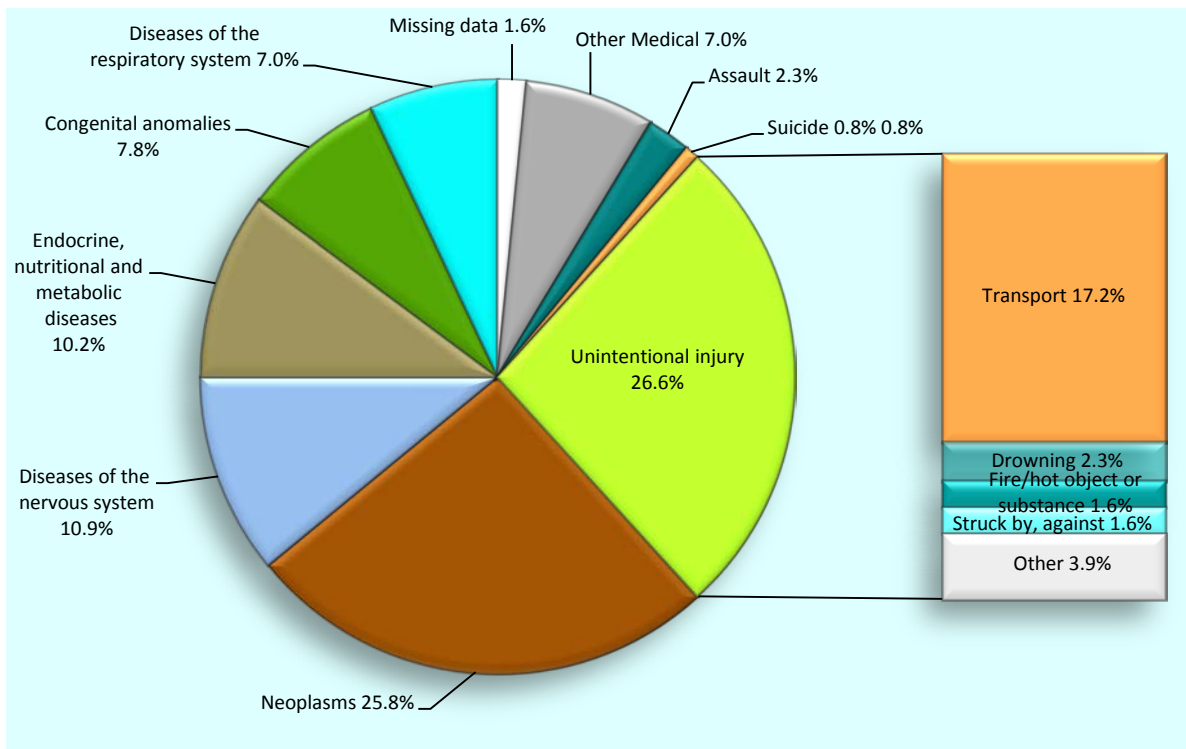


\*Excludes 2 cases with no available deprivation data

Source: Numerator Mortality Review Database; Denominator NZ MRDG Estimated Resident Population 2010–2014

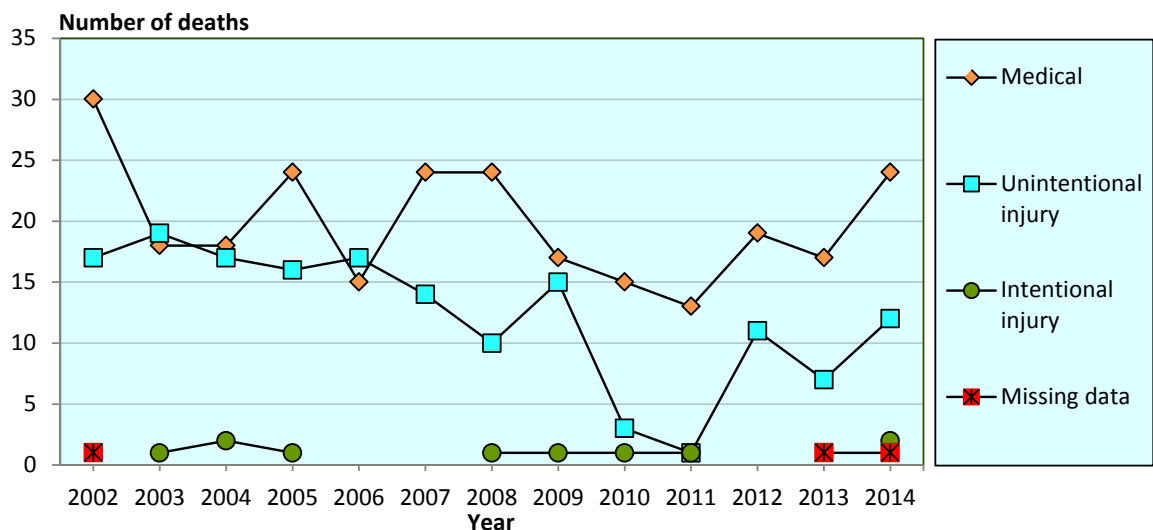
# 4. Children aged five to nine years

**Figure 4.1** Mortality (%) in children aged 5–9 years by cause of death, New Zealand 2010–2014 combined (n=128 deaths)



Source: Mortality Review Database

**Figure 4.2** Mortality (number of deaths) in children aged 5–9 years by cause of death and year, New Zealand 2002–2014 (n=430 deaths)



Source: Mortality Review Database

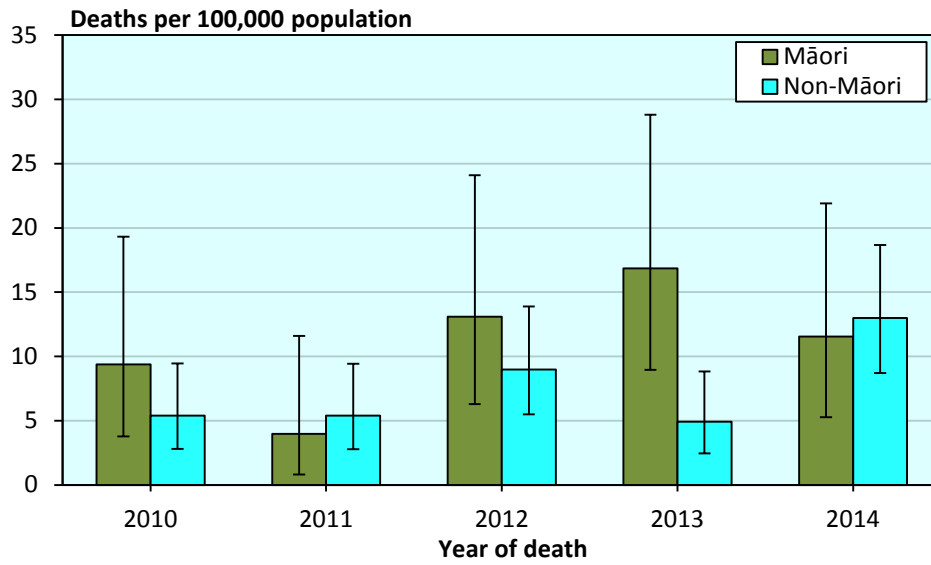
**Table 4.1** Mortality (deaths and total rates per 100,000 resident population) in children aged 5–9 years by cause of death and year, New Zealand 2010–2014 (n=128 deaths)

Cause of death	2010	2011	2012	2013	2014	Total	%	Rate 2010–2014
<b>Medical</b>								
Infectious and parasitic disease	-	1	1	1	-	3	2.3	0.20
Neoplasms	7	3	6	4	13	33	25.8	2.21
Diseases of the blood and blood-forming organs and disorders of the immune system	-	-	-	1	1	2	1.6	s
Endocrine, nutritional and metabolic diseases	1	2	6	2	2	13	10.2	0.87
Mental and behavioural disorders	-	-	-	-	-	-	-	-
Diseases of the nervous system	1	3	3	5	2	14	10.9	0.94
Diseases of the eye and adnexa	-	-	-	-	-	-	-	-
Diseases of the ear and mastoid process	-	-	-	-	-	-	-	-
Diseases of the circulatory system	1	1	-	1	-	3	2.3	0.20
Diseases of the respiratory system	1	2	2	2	2	9	7.0	0.60
Diseases of the digestive system	-	-	-	-	-	-	-	-
Diseases of the skin and subcutaneous tissue	-	-	-	-	-	-	-	-
Diseases of the musculoskeletal system and connective tissue	-	-	-	-	-	-	-	-
Diseases of the genitourinary system	-	-	-	1	-	1	0.8	s
Pregnancy, childbirth and the puerperium	-	-	-	-	-	-	-	-
Certain conditions originating in the perinatal period	-	-	-	-	-	-	-	-
Congenital anomalies	4	1	1	-	4	10	7.8	0.67
Symptoms & abnormal findings not elsewhere classified	-	-	-	-	-	-	-	-
<b>Total medical</b>	<b>15</b>	<b>13</b>	<b>19</b>	<b>17</b>	<b>24</b>	<b>88</b>	<b>68.8</b>	<b>5.89</b>
<b>Unintentional injury (includes undetermined intent and legal intervention/war)</b>								
Cut/pierce	-	-	-	-	-	-	-	-
Drowning	-	-	-	2	1	3	2.3	0.20
Fall	-	-	-	-	-	-	-	-
Fire/hot object or substance	1	-	-	1	-	2	1.6	s
Firearm	-	-	-	-	-	-	-	-
Machinery	-	-	-	-	-	-	-	-
Transport	2	1	9	1	9	22	17.2	1.47
Natural/environmental	-	-	-	1	-	1	0.8	s
Overexertion	-	-	-	-	-	-	-	-
Poisoning	-	-	1	-	-	1	0.8	s
Struck by, against	-	-	1	1	-	2	1.6	s
Suffocation	-	-	-	1	1	2	1.6	s
Other specified, classifiable	-	-	-	-	1	1	0.8	s
Other specified, not elsewhere classified	-	-	-	-	-	-	-	-
Unspecified	-	-	-	-	-	-	-	-
Complications of medical and surgical care	-	-	-	-	-	-	-	-
Sequelae of surgical and medical care as external cause	-	-	-	-	-	-	-	-
<b>Total unintentional injury</b>	<b>3</b>	<b>1</b>	<b>11</b>	<b>7</b>	<b>12</b>	<b>34</b>	<b>26.6</b>	<b>2.28</b>
<b>Intentional injury</b>								
Assault	1	-	-	-	2	3	2.3	0.20
Suicide	-	1	-	-	-	1	0.8	s
<b>Total intentional injury</b>	<b>1</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>2</b>	<b>4</b>	<b>3.1</b>	<b>0.27</b>
Missing data	-	-	-	1	1	2	1.6	s
<b>Total</b>	<b>19</b>	<b>15</b>	<b>30</b>	<b>25</b>	<b>39</b>	<b>128</b>	<b>100.0</b>	<b>8.56</b>

's' indicates rate not calculated due to small numbers

Source: *Numerator* Mortality Review Database; *Denominator* NZ MRDG Estimated Resident Population 2010–2014

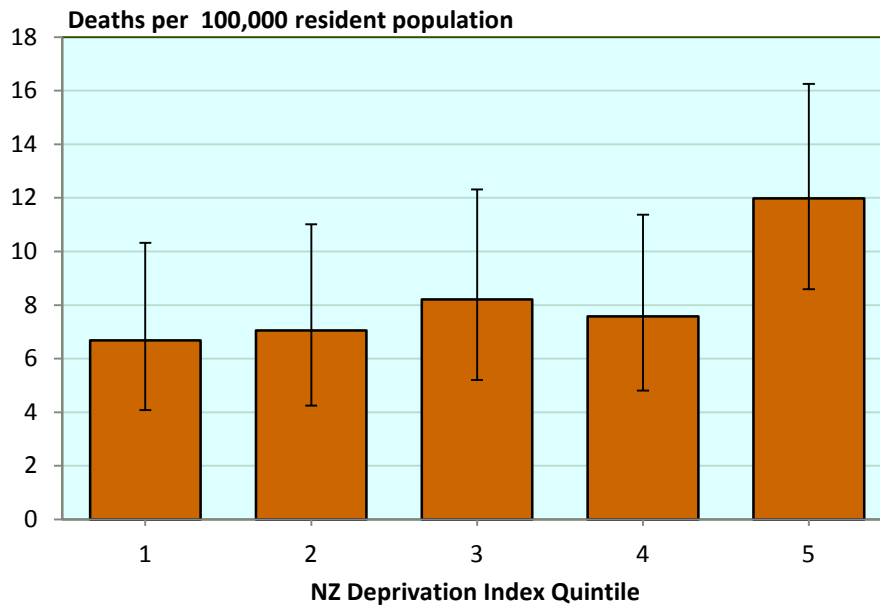
**Figure 4.3** Mortality rates (deaths per 100,000 resident population with 95% confidence intervals) in Māori and non-Māori children aged 5–9 years, New Zealand 2010–2014 (n=126 deaths\*)



\*Excludes 2 cases with no available ethnicity data

Source: Numerator Mortality Review Database; Denominator NZ MRDG Estimated Resident Population 2010–2014

**Figure 4.4** Mortality rates (deaths per 100,000 resident population with 95% confidence intervals) in children aged 5–9 years by NZ Deprivation Index Quintile, New Zealand 2010–2014 combined (n=126 deaths\*)



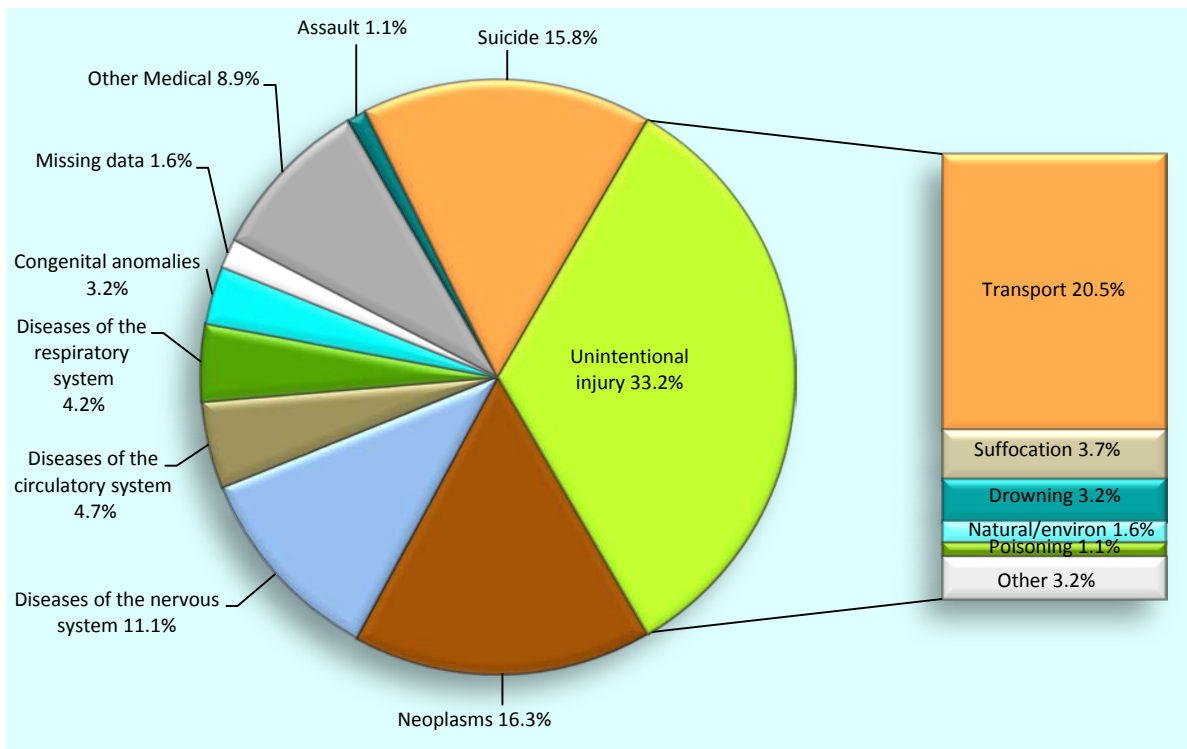
\*Excludes 2 cases with no available deprivation data

Source: Numerator Mortality Review Database; Denominator NZ MRDG Estimated Resident Population 2010–2014



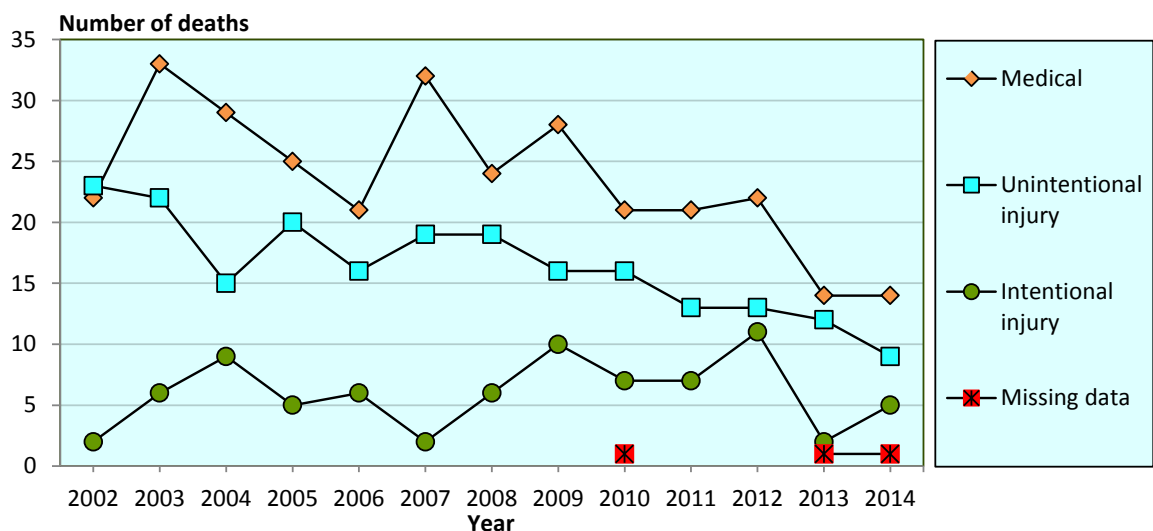
# 5. Children aged 10–14 years

**Figure 5.1** Mortality (%) in children aged 10–14 years by cause of death, New Zealand 2010–2014 combined (n=190 deaths)



Source: Mortality Review Database

**Figure 5.2** Mortality (number of deaths) in children aged 10–14 years by cause of death and year, New Zealand 2002–2014 (n=600 deaths)



Source: Mortality Review Database

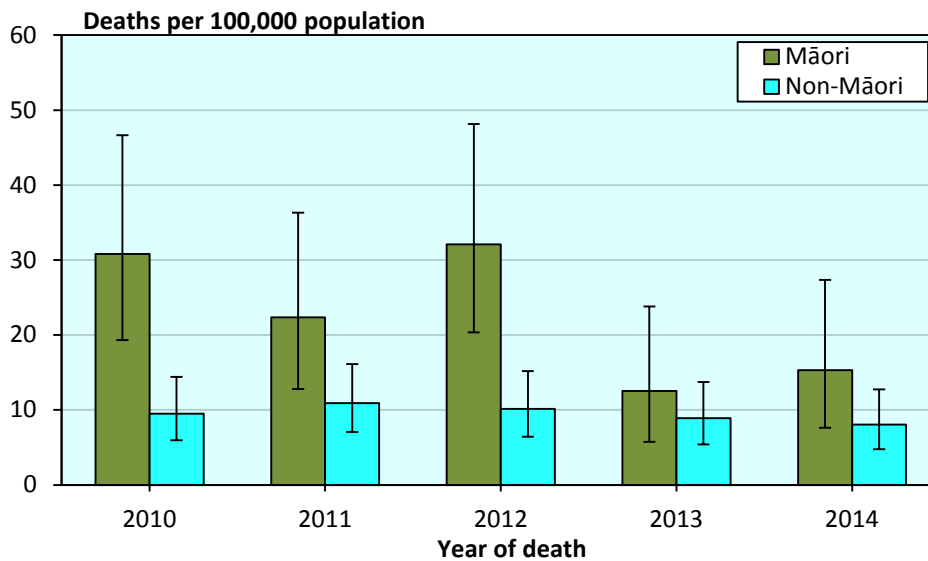
**Table 5.1** Mortality (deaths and total rates per 100,000 resident population) in children aged 10–14 years by cause of death and year, New Zealand 2010–2014 (n=190 deaths)

Cause of death	2010	2011	2012	2013	2014	Total	%	Rate 2010–2014
<b>Medical</b>								
Infectious and parasitic disease	-	1	1	1	-	3	1.6	0.20
Neoplasms	7	6	7	5	6	31	16.3	2.08
Diseases of the blood and blood-forming organs and disorders of the immune system	-	-	-	-	-	-	-	-
Endocrine, nutritional and metabolic diseases	2	2	-	-	1	5	2.6	0.33
Mental and behavioural disorders	-	-	-	-	-	-	-	-
Diseases of the nervous system	3	7	8	1	2	21	11.1	1.41
Diseases of the eye and adnexa	-	-	-	-	-	-	-	-
Diseases of the ear and mastoid process	-	-	-	-	-	-	-	-
Diseases of the circulatory system	3	2	1	2	1	9	4.7	0.60
Diseases of the respiratory system	2	-	2	4	-	8	4.2	0.54
Diseases of the digestive system	-	-	2	1	-	3	1.6	0.20
Diseases of the skin and subcutaneous tissue	-	-	-	-	-	-	-	-
Diseases of the musculoskeletal system and connective tissue	-	-	-	-	1	1	0.5	s
Diseases of the genitourinary system	-	-	-	-	-	-	-	-
Pregnancy, childbirth and the puerperium	-	-	-	-	-	-	-	-
Certain conditions originating in the perinatal period	-	1	-	-	-	1	0.5	s
Congenital anomalies	3	2	1	-	-	6	3.2	0.40
Symptoms & abnormal findings not elsewhere classified	1	-	-	-	3	4	2.1	0.27
<b>Total medical</b>	<b>21</b>	<b>21</b>	<b>22</b>	<b>14</b>	<b>14</b>	<b>92</b>	<b>48.4</b>	<b>6.16</b>
<b>Unintentional injury (includes undetermined intent and legal intervention/war)</b>								
Cut/pierce	-	-	-	-	-	-	-	-
Drowning	1	1	2	2	-	6	3.2	0.40
Fall	-	-	1	-	-	1	0.5	s
Fire/hot object or substance	-	-	-	1	-	1	0.5	s
Firearm	-	-	-	-	-	-	-	-
Machinery	-	-	-	-	-	-	-	-
Transport	10	8	8	5	8	39	20.5	2.61
Natural/environmental	1	1	-	1	-	3	1.6	0.20
Overexertion	-	-	-	-	-	-	-	-
Poisoning	1	-	1	-	-	2	1.1	s
Struck by, against	1	1	-	-	-	2	1.1	s
Suffocation	2	2	1	1	1	7	3.7	0.47
Other specified, classifiable	-	-	-	1	-	1	0.5	s
Other specified, not elsewhere classified	-	-	-	-	-	-	-	-
Unspecified	-	-	-	-	-	-	-	-
Complications of medical and surgical care	-	-	-	-	-	-	-	-
Sequelae of surgical and medical care as external cause	-	-	-	1	-	1	0.5	s
<b>Total unintentional injury</b>	<b>16</b>	<b>13</b>	<b>13</b>	<b>12</b>	<b>9</b>	<b>63</b>	<b>33.2</b>	<b>4.22</b>
<b>Intentional injury</b>								
Assault	1	1	-	-	-	2	1.1	s
Suicide	6	6	11	2	5	30	15.8	2.01
<b>Total intentional injury</b>	<b>7</b>	<b>7</b>	<b>11</b>	<b>2</b>	<b>5</b>	<b>32</b>	<b>16.8</b>	<b>2.14</b>
Missing data	1	-	-	1	1	3	1.6	0.20
<b>Total</b>	<b>45</b>	<b>41</b>	<b>46</b>	<b>29</b>	<b>29</b>	<b>190</b>	<b>100.0</b>	<b>12.72</b>

's' indicates rate not calculated due to small numbers

Source: *Numerator* Mortality Review Database; *Denominator* NZ MRDG Estimated Resident Population 2010–2014

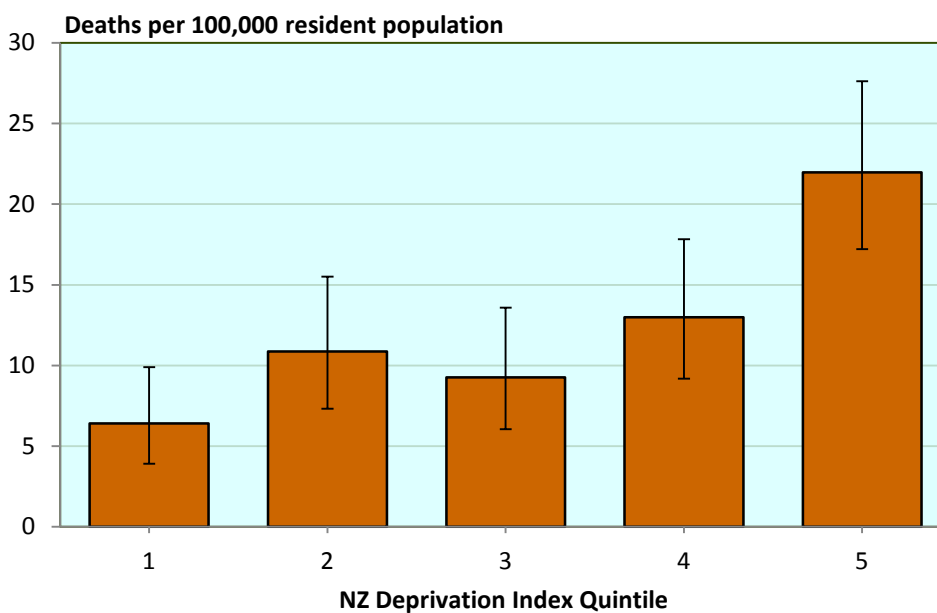
**Figure 5.3** Mortality rates (deaths per 100,000 resident population with 95% confidence intervals) in Māori and non-Māori children aged 10–14 years, New Zealand 2010–2014 (n=189 deaths\*)



\*Excludes 1 case with no available ethnicity data

Source: *Numerator* Mortality Review Database; *Denominator* NZ MRDG Estimated Resident Population 2010–2014

**Figure 5.4** Mortality rates (deaths per 100,000 resident population with 95% confidence intervals) in children aged 10–14 years by NZ Deprivation Index Quintile, New Zealand 2010–2014 combined (n=187 deaths\*)

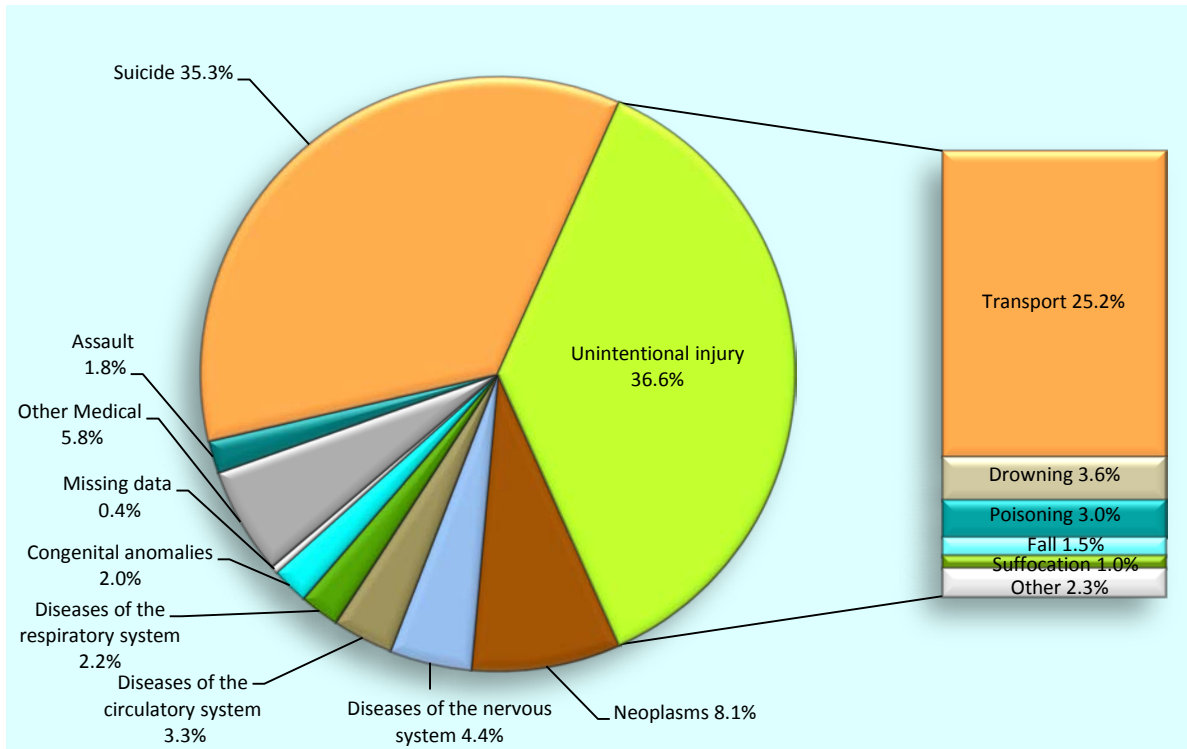


\*Excludes 3 cases with no available deprivation data

Source: *Numerator* Mortality Review Database; *Denominator* NZ MRDG Estimated Resident Population 2010–2014

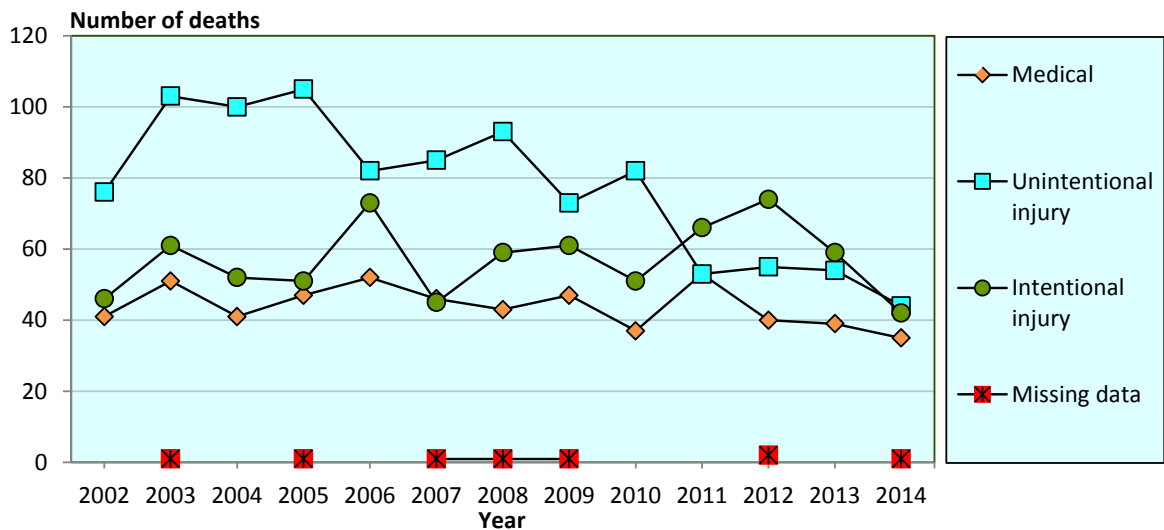
# 6. Young people aged 15–19 years

**Figure 6.1** Mortality (%) in young people aged 15–19 years by cause of death, New Zealand 2010–2014 combined (n=787 deaths)



Source: Mortality Review Database

**Figure 6.2** Mortality (number of deaths) in young people aged 15–19 years by cause of death and year, New Zealand 2002–2014 (n=2325 deaths)



Source: Mortality Review Database

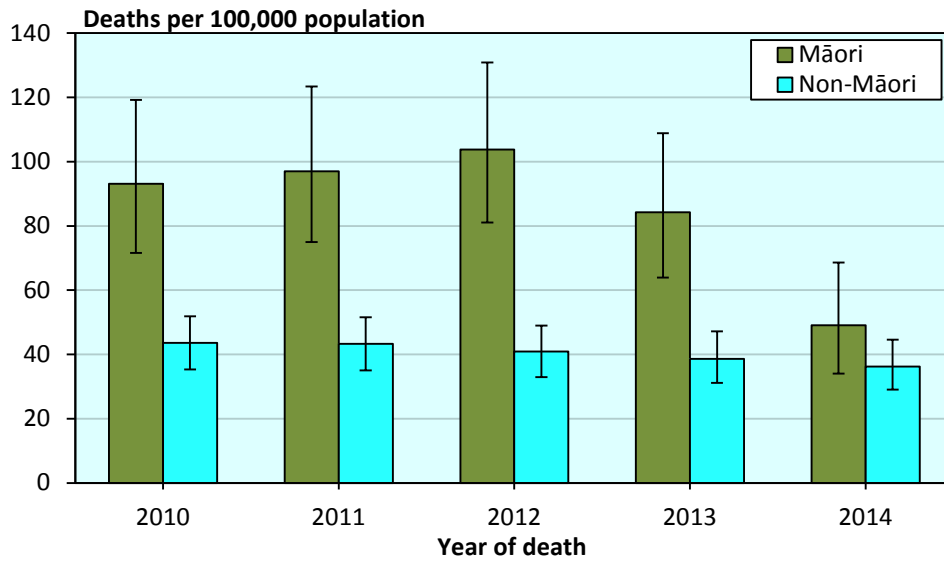
**Table 6.1** Mortality (deaths and total rates per 100,000 resident population) in young people aged 15–19 years by cause of death and year, New Zealand 2010–2014 (n=787 deaths)

Cause of death	2010	2011	2012	2013	2014	Total	%	Rate 2010–2014
<b>Medical</b>								
Infectious and parasitic disease	1	3	-	1	3	8	1.0	0.51
Neoplasms	13	14	12	14	11	64	8.1	4.09
Diseases of the blood and blood-forming organs and disorders of the immune system	-	1	1	-	1	3	0.4	0.19
Endocrine, nutritional and metabolic diseases	3	1	3	3	1	11	1.4	0.70
Mental and behavioural disorders	1	-	-	1	-	2	0.3	s
Diseases of the nervous system	3	14	8	5	5	35	4.4	2.24
Diseases of the eye and adnexa	-	-	-	-	-	-	-	-
Diseases of the ear and mastoid process	-	-	-	-	-	-	-	-
Diseases of the circulatory system	5	8	4	6	3	26	3.3	1.66
Diseases of the respiratory system	4	4	3	4	2	17	2.2	1.09
Diseases of the digestive system	-	1	1	2	-	4	0.5	0.26
Diseases of the skin and subcutaneous tissue	1	1	1	-	-	3	0.4	0.19
Diseases of the musculoskeletal system and connective tissue	1	-	2	1	-	4	0.5	0.26
Diseases of the genitourinary system	-	-	1	-	-	1	0.1	s
Pregnancy, childbirth and the puerperium	-	-	-	-	-	-	-	-
Certain conditions originating in the perinatal period	-	-	-	-	-	-	-	-
Congenital anomalies	4	3	4	-	5	16	2.0	1.02
Symptoms & abnormal findings not elsewhere classified	1	3	-	2	4	10	1.3	0.64
<b>Total medical</b>	<b>37</b>	<b>53</b>	<b>40</b>	<b>39</b>	<b>35</b>	<b>204</b>	<b>25.9</b>	<b>13.05</b>
<b>Unintentional injury (includes undetermined intent and legal intervention/war)</b>								
Cut/pierce	-	-	-	-	-	-	-	-
Drowning	11	1	6	4	6	28	3.6	1.79
Fall	2	1	4	3	2	12	1.5	0.77
Fire/hot object or substance	1	-	-	-	3	4	0.5	0.26
Firearm	-	1	-	1	-	2	0.3	s
Machinery	1	-	-	1	-	2	0.3	s
Transport	54	40	36	38	30	198	25.2	12.67
Natural/environmental	-	3	-	-	-	3	0.4	0.19
Overexertion	-	-	-	-	-	-	-	-
Poisoning	6	4	7	5	2	24	3.0	1.54
Struck by, against	-	-	-	1	-	1	0.1	s
Suffocation	4	2	1	-	1	8	1.0	0.51
Other specified, classifiable	2	1	-	1	-	4	0.5	0.26
Other specified, not elsewhere classified	1	-	1	-	-	2	0.3	s
Unspecified	-	-	-	-	-	-	-	-
Complications of medical and surgical care	-	-	-	-	-	-	-	-
Sequelae of surgical and medical care as external cause	-	-	-	-	-	-	-	-
<b>Total unintentional injury</b>	<b>82</b>	<b>53</b>	<b>55</b>	<b>54</b>	<b>44</b>	<b>288</b>	<b>36.6</b>	<b>18.42</b>
<b>Intentional injury</b>								
Assault	3	3	2	3	3	14	1.8	0.90
Suicide	48	63	72	56	39	278	35.3	17.78
<b>Total intentional injury</b>	<b>51</b>	<b>66</b>	<b>74</b>	<b>59</b>	<b>42</b>	<b>292</b>	<b>37.1</b>	<b>18.68</b>
Missing data	-	-	2	-	1	3	0.4	0.19
<b>Total</b>	<b>170</b>	<b>172</b>	<b>171</b>	<b>152</b>	<b>122</b>	<b>787</b>	<b>100.0</b>	<b>50.34</b>

's' indicates rate not calculated due to small numbers

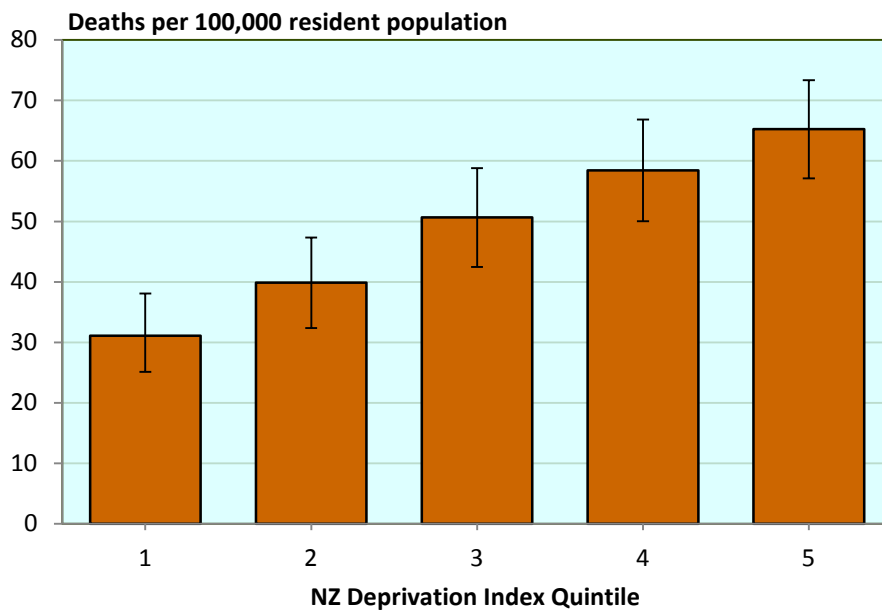
Source: *Numerator* Mortality Review Database; *Denominator* NZ MRDG Estimated Resident Population 2010–2014

**Figure 6.3** Mortality rates (deaths per 100,000 resident population with 95% confidence intervals) in Māori and non-Māori young people aged 15–19 years, New Zealand 2010–2014 (n=787 deaths)



Source: *Numerator* Mortality Review Database; *Denominator* NZ MRDG Estimated Resident Population 2010–2014

**Figure 6.4** Mortality rates (deaths per 100,000 resident population with 95% confidence intervals) in young people aged 15–19 years by NZ Deprivation Index Quintile, New Zealand 2010–2014 combined (n=784 deaths\*)

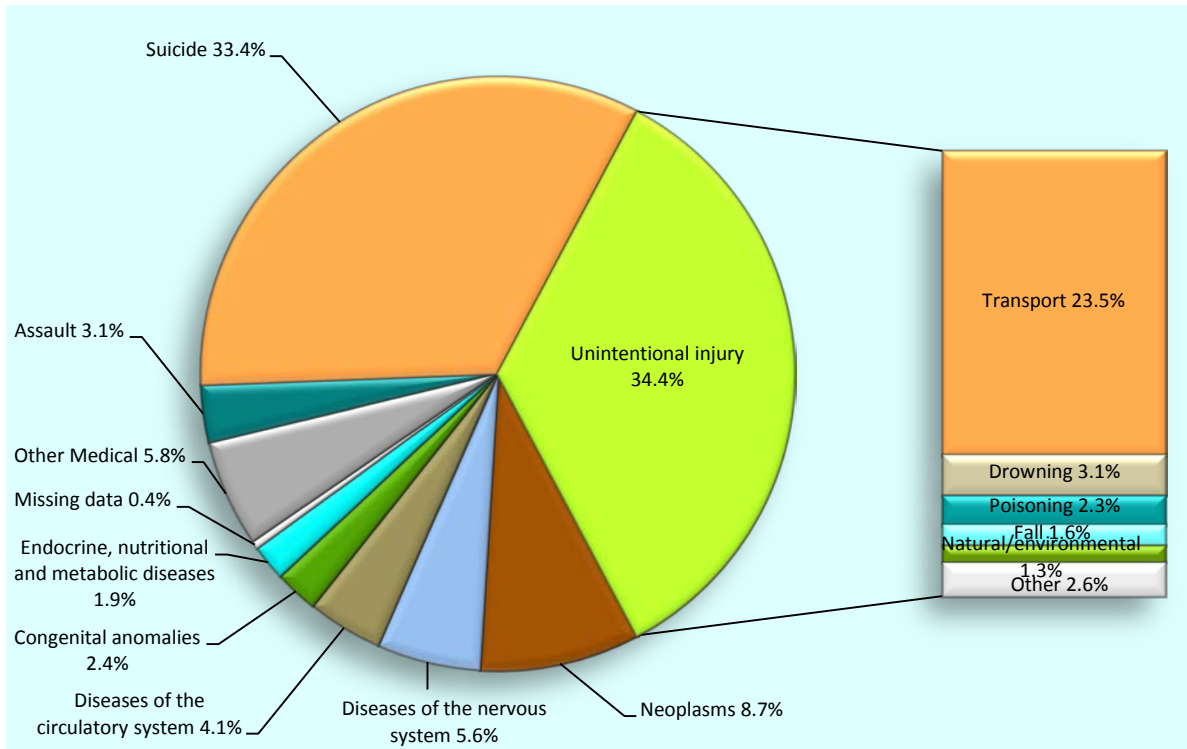


\*Excludes 3 cases with no available deprivation data

Source: *Numerator* Mortality Review Database; *Denominator* NZ MRDG Estimated Resident Population 2010–2014

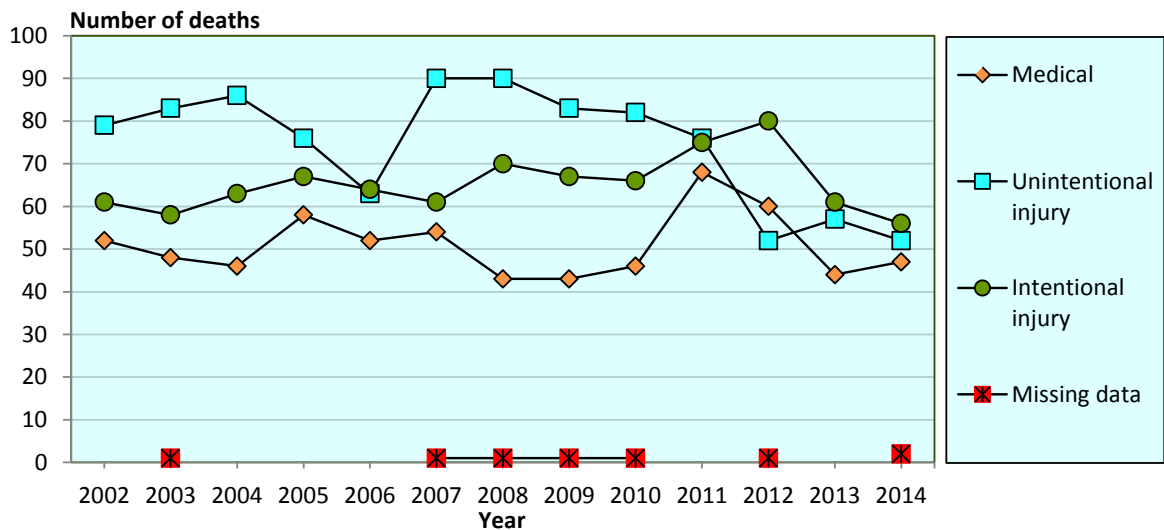
# 7. Young people aged 20–24 years

**Figure 7.1** Mortality (%) in young people aged 20–24 years by cause of death, New Zealand 2010–2014 combined (n=926 deaths)



Source: Mortality Review Database

**Figure 7.2** Mortality (number of deaths) in young people aged 20–24 years by cause of death and year, New Zealand 2002–2014 (n=2847 deaths)



Source: Mortality Review Database

**Table 7.1** Mortality (deaths and total rates per 100,000 resident population) in young people aged 20–24 years by cause of death and year, New Zealand 2010–2014 (n= 926 deaths)

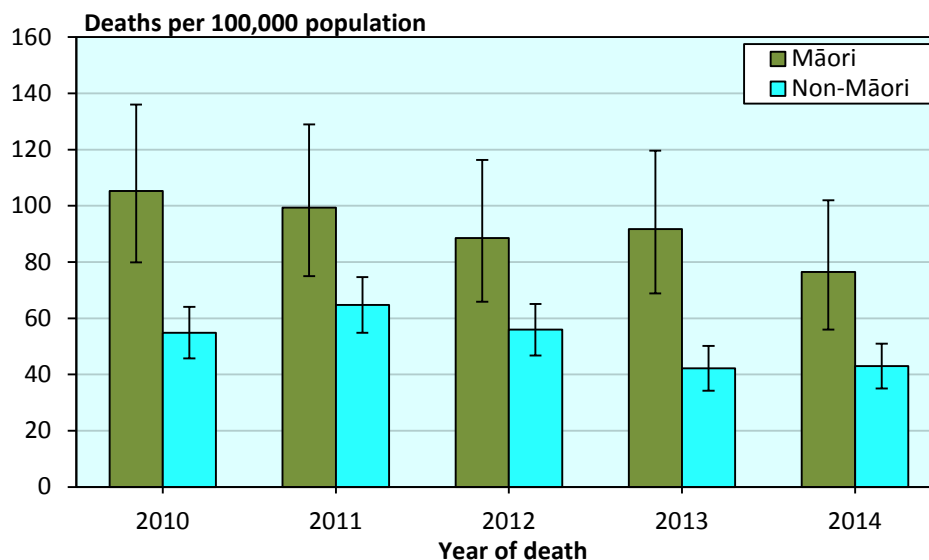
Cause of death	2010	2011	2012	2013	2014	Total	%	Rate 2010–2014
<b>Medical</b>								
Infectious and parasitic disease	-	1	2	-	-	3	0.3	0.19
Neoplasms	16	20	16	12	17	81	8.7	5.20
Diseases of the blood and blood-forming organs and disorders of the immune system	1	-	-	1	1	3	0.3	0.19
Endocrine, nutritional and metabolic diseases	2	7	5	2	2	18	1.9	1.16
Mental and behavioural disorders	1	-	-	-	2	3	0.3	0.19
Diseases of the nervous system	8	13	14	9	8	52	5.6	3.34
Diseases of the eye and adnexa	-	-	-	-	-	-	-	-
Diseases of the ear and mastoid process	-	-	-	-	-	-	-	-
Diseases of the circulatory system	10	9	9	5	5	38	4.1	2.44
Diseases of the respiratory system	3	4	2	1	1	11	1.2	0.71
Diseases of the digestive system	-	1	3	2	1	7	0.8	0.45
Diseases of the skin and subcutaneous tissue	-	1	-	-	-	1	0.1	s
Diseases of the musculoskeletal system and connective tissue	1	1	1	-	-	3	0.3	0.19
Diseases of the genitourinary system	-	2	2	1	-	5	0.5	0.32
Pregnancy, childbirth and the puerperium	-	1	2	2	-	5	0.5	0.32
Certain conditions originating in the perinatal period	-	-	-	-	-	-	-	-
Congenital anomalies	4	6	4	5	3	22	2.4	1.41
Symptoms & abnormal findings not elsewhere classified	-	2	-	4	7	13	1.4	0.83
<b>Total medical</b>	<b>46</b>	<b>68</b>	<b>60</b>	<b>44</b>	<b>47</b>	<b>265</b>	<b>28.6</b>	<b>17.01</b>
<b>Unintentional injury (includes undetermined intent and legal intervention/war)</b>								
Cut/pierce	-	-	1	-	-	1	0.1	s
Drowning	6	5	6	6	6	29	3.1	1.86
Fall	2	4	1	3	5	15	1.6	0.96
Fire/hot object or substance	-	-	1	1	1	3	0.3	0.19
Firearm	-	1	-	1	-	2	0.2	s
Machinery	-	-	-	-	-	-	-	-
Transport	60	48	39	36	35	218	23.5	14.00
Natural/environmental	-	11	1	-	-	12	1.3	0.77
Overexertion	-	-	-	-	-	-	-	-
Poisoning	10	5	1	4	1	21	2.3	1.35
Struck by, against	1	-	1	3	1	6	0.6	0.39
Suffocation	-	1	1	1	1	4	0.4	0.26
Other specified, classifiable	3	1	-	1	1	6	0.6	0.39
Other specified, not elsewhere classified	-	-	-	-	-	-	-	-
Unspecified	-	-	-	1	1	2	0.2	s
Complications of medical and surgical care	-	-	-	-	-	-	-	-
Sequelae of surgical and medical care as external cause	-	-	-	-	-	-	-	-
<b>Total unintentional injury</b>	<b>82</b>	<b>76</b>	<b>52</b>	<b>57</b>	<b>52</b>	<b>319</b>	<b>34.4</b>	<b>20.48</b>
<b>Intentional injury</b>								
Assault	5	6	8	5	5	29	3.1	1.86
Suicide	61	69	72	56	51	309	33.4	19.84
<b>Total intentional injury</b>	<b>66</b>	<b>75</b>	<b>80</b>	<b>61</b>	<b>56</b>	<b>338</b>	<b>36.5</b>	<b>21.70</b>
Missing data	1	-	1	-	2	4	0.4	0.26
<b>Total</b>	<b>195</b>	<b>219</b>	<b>193</b>	<b>162</b>	<b>157</b>	<b>926</b>	<b>100.0</b>	<b>59.45</b>

's' indicates rate not calculated due to small numbers

Source: *Numerator* Mortality Review Database; *Denominator* NZ MRDG Estimated Resident Population 2010–2014



**Figure 7.3** Mortality rates (deaths per 100,000 resident population with 95% confidence intervals) in Māori and non-Māori young people aged 20–24 years, New Zealand 2010–2014 (n=926 deaths)



Source: Numerator Mortality Review Database; Denominator NZ MRDG Estimated Resident Population 2010–2014

**Figure 7.4** Mortality rates (deaths per 100,000 resident population and 95% confidence intervals) in young people aged 20–24 years by NZ Deprivation Index Quintile, New Zealand 2010–2014 combined (n=922 deaths\*)

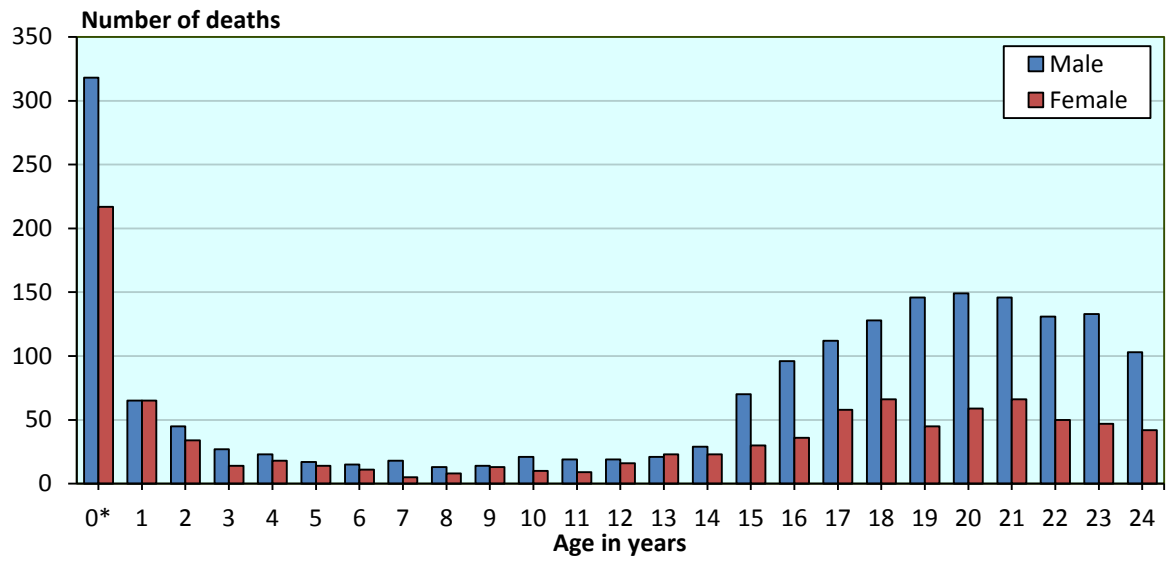


\*Excludes 4 cases with no available deprivation data

Source: Numerator Mortality Review Database; Denominator NZ MRDG Estimated Resident Population 2010–2014

# 8. Additional Data

**Figure 8.1** Mortality (number of deaths) in children and young people aged 28 days to 24 years by year of age and sex, New Zealand 2010–2014 combined (n=2857 deaths)



\*This category represents infants 28 days and older, and less than one calendar year in age  
 Source: Mortality Review Database

**Table 8.1** Mortality (number of deaths) in children and young people aged 28 days to 24 years by year of death and age group, New Zealand 1980–2014

Year	<1 year*	1–4 years	5–9 years	10–14 years	15–19 years	20–24 years	Total
1980	356	138	96	96	306	342	1334
1981	310	160	77	97	316	327	1287
1982	323	130	82	75	287	345	1242
1983	353	111	79	92	279	381	1295
1984	367	120	74	84	274	323	1242
1985	320	113	85	95	307	326	1246
1986	330	135	65	97	312	351	1290
1987	326	112	70	95	324	372	1299
1988	349	117	68	77	298	367	1276
1989	336	111	67	70	335	362	1281
1990	255	120	56	62	299	375	1167
1991	238	98	63	67	239	324	1029
1992	213	102	68	74	245	331	1033
1993	206	110	43	56	248	336	999
1994	209	99	53	50	199	277	887
1995	205	90	53	59	223	331	961
1996	195	96	53	67	258	266	935
1997	181	100	50	60	238	242	871
1998	134	85	52	73	209	222	775
1999	153	75	39	67	199	220	753
2000	144	86	49	61	168	190	698
2001	142	74	48	64	191	208	727
2002	107	81	48	47	163	192	638
2003	117	66	38	61	216	190	688
2004	152	57	37	53	193	195	687
2005	109	59	41	50	204	201	664
2006	150	60	32	43	207	179	671
2007	142	82	38	53	177	206	698
2008	134	81	35	49	196	204	699
2009	134	77	33	54	182	194	674
2010	126	65	19	45	170	195	620
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	88	53	39	29	122	157	488

\*This category represents infants 28 days and older, and less than one calendar year in age

Source: 1980-2001: Statistics New Zealand. 2002-2013: Mortality Review Database

**Table 8.2** Mortality (number of deaths) in children and young people aged 28 days to 24 years, by cause of death and sex, 2010–2014 combined (n=2857 deaths)

	Male	Female	Total
<b>Medical</b>			
Infectious and parasitic disease	37	33	70
Neoplasms	146	110	256
Diseases of the blood and blood-forming organs and disorders of the immune system	7	8	15
Endocrine, nutritional and metabolic diseases	44	20	64
Mental and behavioural disorders	2	4	6
Diseases of the nervous system	104	62	166
Diseases of the eye and adnexa	-	-	-
Diseases of the ear and mastoid process	-	-	-
Diseases of the circulatory system	67	39	106
Diseases of the respiratory system	60	47	107
Diseases of the digestive system	9	11	20
Diseases of the skin and subcutaneous tissue	5	-	5
Diseases of the musculoskeletal system and connective tissue	2	7	9
Diseases of the genitourinary system	7	2	9
Pregnancy, childbirth and the puerperium	-	5	5
Certain conditions originating in the perinatal period	40	36	76
Congenital anomalies	100	76	176
Symptoms & abnormal findings not elsewhere classified	20	13	33
<b>Total medical</b>	<b>650</b>	<b>473</b>	<b>1123</b>
<b>Percentage by sex</b>	<b>57.9</b>	<b>42.1</b>	<b>39.3</b>
<b>Unintentional injury (undetermined intent, legal intervention war)</b>			
Cut/pierce	1	-	1
Drowning	77	19	96
Fall	28	2	30
Fire/hot object or substance	7	4	11
Firearm	4	-	4
Machinery	5	1	6
Transport	386	140	526
Natural/environmental	14	11	25
Overexertion	-	-	-
Poisoning	33	16	49
Struck by, against	12	3	15
Suffocation	20	7	27
Other specified, classifiable	10	3	13
Other specified, not elsewhere classified	3	-	3
Unspecified	3	2	5
Complications of medical and surgical care	-	1	1
Sequelae of surgical and medical care as external cause	1	-	1
<b>Total unintentional injury</b>	<b>604</b>	<b>209</b>	<b>813</b>
<b>Percentage by sex</b>	<b>74.3</b>	<b>25.7</b>	<b>28.5</b>
<b>Intentional injury</b>			
Assault	39	26	65
Suicide	435	183	618
<b>Total intentional injury</b>	<b>474</b>	<b>209</b>	<b>683</b>
<b>Percentage by sex</b>	<b>69.4</b>	<b>30.6</b>	<b>23.9</b>
<b>SUDI/SUD</b>			
SUDI (28 days to <1 year)	131	78	209
SUD (1-2 years)	4	5	9
<b>Total SUDI/SUD</b>	<b>135</b>	<b>83</b>	<b>218</b>
<b>Percentage by sex</b>	<b>61.9</b>	<b>38.1</b>	<b>7.6</b>
Missing data	15	5	20
<b>Total</b>	<b>1878</b>	<b>979</b>	<b>2857</b>
<b>Percentage by sex</b>	<b>65.7</b>	<b>34.3</b>	<b>100.0</b>

Source: Mortality Review Database

# Overseas residents

**Table 8.3** 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, 2010–2014 combined (n=68 deaths)

Category	<1 year*	1–4 years	5–9 years	10–14 years	15–19 years	20–24 years	Total	%
Medical	2	3	-	2	1	4	12	17.6
Unintentional injury	-	1	-	1	21	31	54	79.4
Intentional injury	2	-	-	-	-	-	2	2.9
SUDI/SUD	-	-	-	-	-	-	-	-
Missing data	-	-	-	-	-	-	-	-
<b>Total</b>	<b>4</b>	<b>4</b>	<b>-</b>	<b>3</b>	<b>22</b>	<b>35</b>	<b>68</b>	<b>100.0</b>

\* This category represents infants 28 days and older, and less than one calendar year in age

Source: Mortality Review Database

**Table 8.4** 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, 2010–2014 (n=68 deaths)

Country	Deaths per year					Total deaths	
	2010	2011	2012	2013	2014	Number	%
Australia	3	2	-	2	4	11	16.2
Canada	-	1	-	1	-	2	2.9
China	1	-	-	-	1	2	2.9
Cook Islands	-	1	-	-	-	1	1.5
England	1	-	-	-	-	1	1.5
Fiji	-	1	-	-	1	2	2.9
France	-	1	1	-	-	2	2.9
French Polynesia	2	-	-	-	1	3	4.4
Germany	2	1	1	1	-	5	7.4
India	-	1	1	-	1	3	4.4
Ireland	1	-	-	-	-	1	1.5
Israel	-	3	-	-	-	3	4.4
Italy	-	-	1	-	-	1	1.5
Japan	-	12	-	-	-	12	17.6
Kazakhstan	-	-	-	1	-	1	1.5
Malaysia	-	-	-	-	1	1	1.5
Mexico	-	-	1	-	-	1	1.5
Samoa	3	-	1	1	-	5	7.4
South Korea	1	2	-	-	-	3	4.4
Tonga	1	-	-	-	1	2	2.9
Uruguay	1	-	-	-	-	1	1.5
USA	1	-	2	-	-	3	4.4
Vanuatu	-	-	-	-	1	1	1.5
Vietnam	1	-	-	-	-	1	1.5
<b>Total</b>	<b>18</b>	<b>25</b>	<b>8</b>	<b>6</b>	<b>11</b>	<b>68</b>	<b>100.0</b>

Source: Mortality Review Database

# Mortality by District Health Board of residence

**Table 8.5** Mortality (number of deaths and age-specific mortality rates) by DHB of residence and age group, New Zealand 2010–2014 (n=2857 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	33	2.89	17	35.16	6	9.93	10	16.34	46	82.95	38	92.67	150	5.3	53.99	20	130	13.3
Waitemata	33	0.84	37	23.82	13	7.06	18	9.84	49	25.17	94	49.82	244	8.5	25.82	77	167	31.6
Auckland	39	1.22	20	17.11	13	9.69	6	4.64	56	36.05	67	31.11	201	7.0	25.66	35	166	17.4
Counties Manukau	101	2.37	48	29.71	14	7.16	30	15.47	90	45.89	116	63.90	399	14.0	41.07	108	291	27.1
Waikato	68	2.51	20	17.89	13	9.63	23	17.16	95	69.27	80	60.34	299	10.5	44.12	42	257	14.0
Lakes	19	2.52	8	25.22	2	s	10	25.50	28	77.49	24	78.69	91	3.2	49.40	19	72	20.9
Bay of Plenty	28	1.94	19	31.97	9	11.88	16	20.69	49	70.12	52	93.56	173	6.1	49.09	41	132	23.7
Tairāwhiti	11	3.00	7	44.88	3	15.16	3	15.36	11	63.00	11	77.43	46	1.6	50.97	10	36	21.7
Hawke's Bay	27	2.41	15	32.38	6	10.52	9	15.32	38	69.08	38	89.20	133	4.7	49.10	17	116	12.8
Taranaki	10	1.28	7	21.29	4	10.16	3	7.57	22	59.36	14	44.13	60	2.1	31.84	9	51	15.0
Whanganui	14	3.29	5	28.23	4	18.79	4	18.00	12	55.37	10	56.92	49	1.7	46.79	13	36	26.5
MidCentral	13	1.17	8	17.43	2	s	9	15.65	35	55.30	52	82.56	119	4.2	39.95	20	99	16.8
Capital & Coast	26	1.37	15	19.60	8	8.88	5	5.67	38	36.80	46	36.06	138	4.8	27.35	19	119	13.8
Hutt Valley	20	2.01	8	19.26	3	6.02	5	10.06	29	58.52	23	51.06	88	3.1	35.83	21	67	23.9
Wairarapa	2	s	4	36.39	0	0.00	3	21.08	14	102.71	10	98.74	33	1.2	50.17	10	23	30.3
Nelson Marlborough	11	1.39	2	s	2	s	1	s	16	37.04	23	71.48	55	1.9	26.23	15	40	27.3
West Coast	1	s	2	s	3	28.99	2	s	16	163.28	12	141.09	36	1.3	72.19	7	29	19.4
Canterbury	46	1.50	24	18.63	10	6.38	19	12.08	76	44.39	121	65.88	296	10.4	35.74	14	282	4.7
South Canterbury	3	0.97	7	50.35	2	s	3	16.12	21	114.32	13	93.44	49	1.7	57.51	7	42	14.3
Southern	30	1.68	18	23.53	11	11.92	11	11.76	46	40.12	82	67.38	198	6.9	38.33	15	183	7.6
<b>Total</b>	<b>535</b>	<b>1.75</b>	<b>291</b>	<b>23.56</b>	<b>128</b>	<b>8.56</b>	<b>190</b>	<b>12.72</b>	<b>787</b>	<b>50.35</b>	<b>926</b>	<b>59.47</b>	<b>2857</b>	<b>100.0</b>	<b>37.35</b>	<b>519</b>	<b>2338</b>	<b>18.2</b>

's' indicates rate not calculated due to small numbers

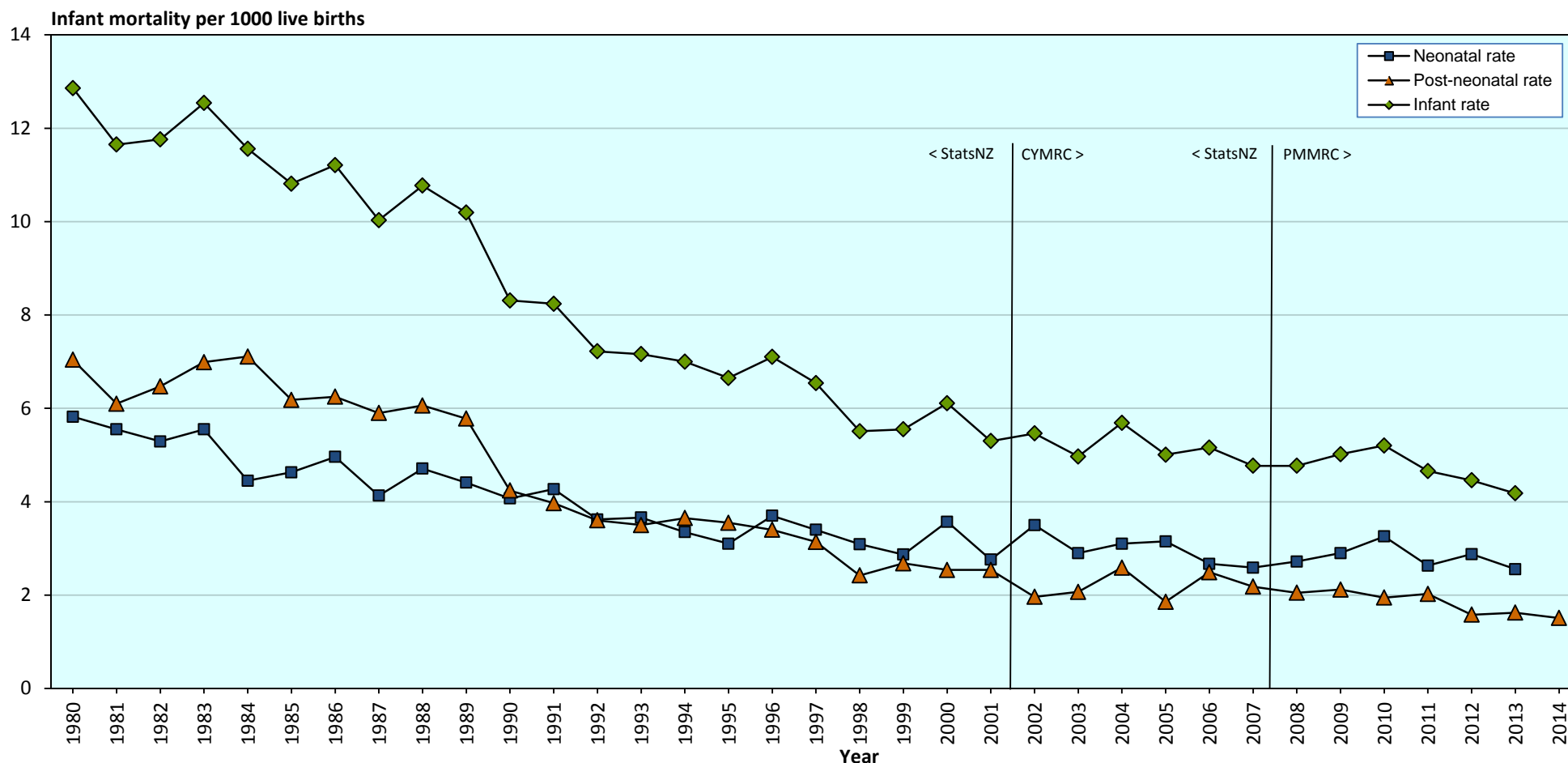
\* rate per 1000 live births

‡ rate per 100,000 resident population

Source: Numerator Mortality Review Database; Denominator MoH Live Births 2010–2014 for 28 days to less than one year, NZ MRDG Estimated Resident Population 2010–2014 for ages 1-24 years.

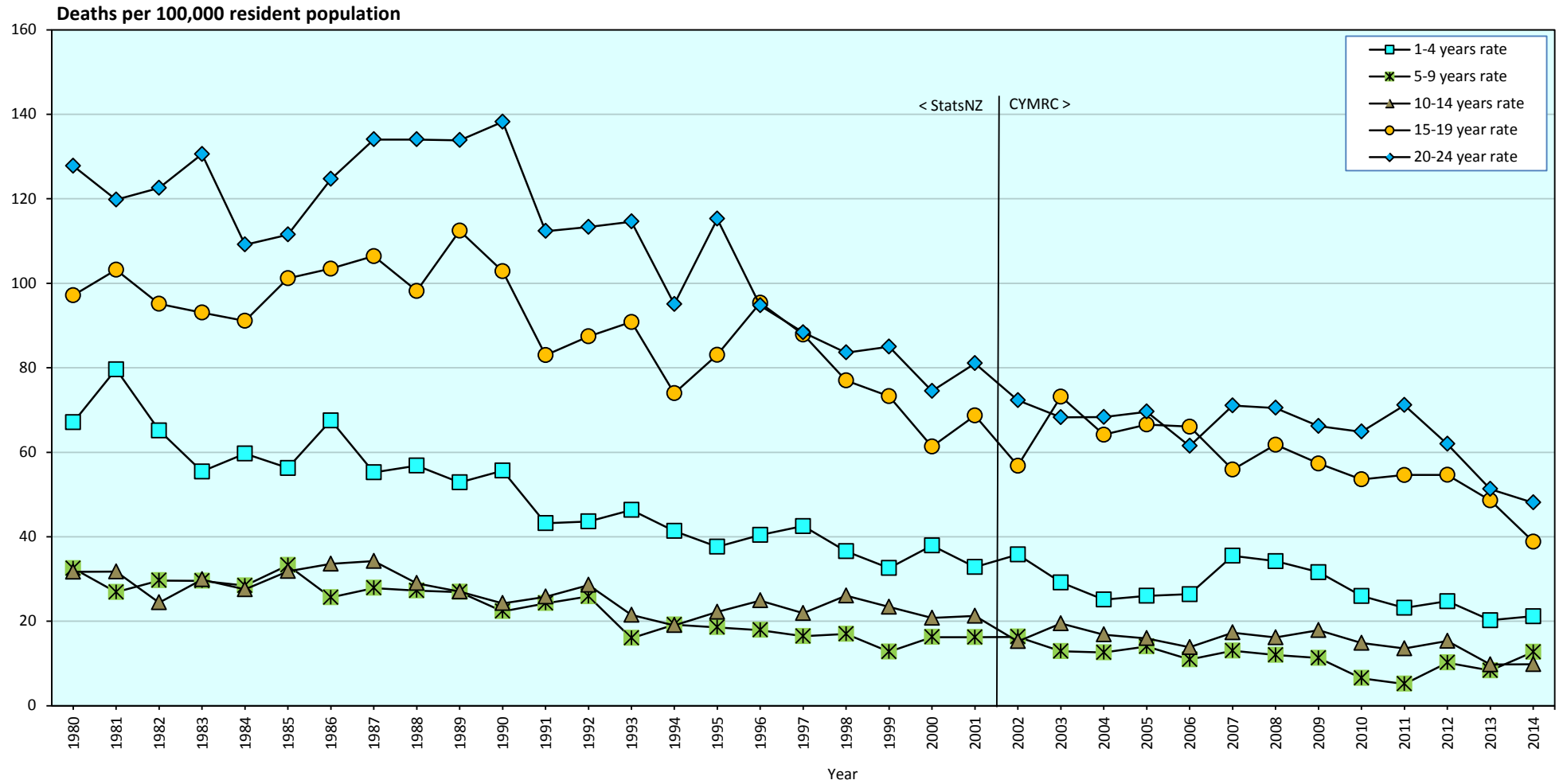
# 9. Appendix

**Figure A.1** Neonatal, post-neonatal and infant mortality rates (deaths per 1000 live births) in infants 0 days to less than 1 year of age, New Zealand 1980–2014



Source: *Numerator* Neonatal deaths (0-27 days): 1980-2006: Statistics New Zealand. 2007-2014: Mortality Review Database (PMMRC data); Note: 2014 data for neonatal deaths not yet available.  
 Post-neonatal deaths (28 days to less than one year): 1980-2001: Statistics New Zealand. 2002-2014: 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 1980-2014.

**Figure A.2** Mortality (age-specific rates per 100,000 population) by age group, 1-24 years, New Zealand 1980–2014



Source: Numerator 1980-2001: Statistics New Zealand. 2002-2014: Mortality Review Database; Denominator Statistics New Zealand estimated population 1980-2014.