1. Unintentional injury of tamariki: snapshot of trends

This chapter provides an overview of tamariki deaths from injuries (with a focus on the years from 2014 to 2018) and hospitalisations for unintentional injury (with a focus on the years 2017 to 2021).

Detailed descriptions of data related to specific causes of injury (especially in relation to hospitalisations), along with policy recommendations, are provided in chapters 2 through to 9.

Deaths

Data from the Child and Youth Mortality Review Committee (CYMRC) shows that unintentional injuries are the second most common cause of death in tamariki, making up almost a quarter (23.9%) of all-cause deaths for tamariki in Aotearoa. [17]

This section sets out time trend data on tamariki deaths from injury in Aotearoa between 2014 and 2018, with some trends over time presented for the years 2009 to 2018, and analysis by age, prioritised ethnicity, socio-economic status, and gender.

17. The 15th CYMRC data report examines deaths of children and young people between the years 2015 and 2019. The total number of deaths for children aged 0 to 14 years was 1,046. Of these, 250 were related to unintentional injury. The figure of 250 excludes all medical, assault, suicide and missing data deaths, and only includes sudden unexpected death in infancy (SUDI) relating to the following ICD-10 codes: W75 Accidental suffocation and strangulation in bed; W78 Inhalation of gastric contents; and W79 Inhalation and ingestion of food causing obstruction of respiratory tract. The CYMRC report identifies that medical conditions were the most common cause of death in children aged younger than 15 years. Te Rōpū Arotake Auau Mate o te Hunga Tamariki, Taiohi | Child and Youth Mortality Review Committee, 2021

In brief

There were 106 SUDI deaths from 2014 – 2018. These have been excluded from the analyses in this chapter and are addressed separately within Chapter 3 which details the 15th data report from the Child and Youth Mortality Review Committee (CYMRC) as the most authoritative current analyses on deaths occurring from SUDI in Aotearoa.

Tamariki deaths from injury for 0 -14 year olds have decreased over time, from a rate of 6.1 per 100,000 in 2009 to 3.1 per 100,000 in 2018.

Tamariki aged 0- 4 years had the highest rate of deaths from injury (excl. SUDI) of all the age groups, although the rate for this age group has also decreased in time from 8.4 per 100, 000 in 2009 to 3.9 per 100, 000 in 2018.

For the years 2014 – 2018 there were 184 deaths from injury for tamariki aged 0- 14 years.

- 45.1% were for tamariki aged 0-4 years (n=83);
- 26.6% were for tamariki aged 5-9 years (n=49);
- 28.3% were for tamariki aged 10-14 years (n=52)

  - Excluding SUDI as a cause of tamariki death from injury, the greatest proportions of death were from 'motor vehicle traffic' incidents (36%, n=66) and drowning (16%, n=30). [18]

  - For tamariki aged 0 to 4 years, excluding SUDI as a cause of death from injury, drowning was the next highest rate (1.4 per 100,000), followed by death from 'motor vehicle traffic' incidents (1.2 per 100,000).

  - For tamariki aged 5 to 9 years and 10 to 14 years, the most common cause of death from injury was 'motor vehicle traffic' incidents (aggregated rate of 1.5 per 100,000), followed by drowning (aggregated rate of 0.3 per 100,00) and suffocation (aggregated rate of 0.3 per 100,000).

  - Excluding SUDI deaths, tamariki Māori (n=67) had the highest rate of deaths from injury (5.4 per 100,000) of all the ethnic groups, followed by European/ other children (n=80, rate of 3.6 per 100,000), Pacific children (n=16, rate of 3.5 per 100,000), and Asian children (n=16, rate of 2.6 per 100,000). [19]

  - Of these 67 deaths for tamariki Māori, 61.2 % (n=41) occurred in those living in in the most relatively deprived areas of Aotearoa. Of the 80 deaths for European/other children, 15% (n=12) occurred in those living in in the most relatively deprived areas of Aotearoa.

  - Tamariki living in the most relatively deprived areas of Aotearoa (NZDep quintile 5) had the highest rate of death from injury (5.5 per 100,000). [20]

  - Male tamariki had a significantly higher rate of death from injury than females (4.9 per 100, 000 compared to 3.0 per 100, 000 for females).

18. A short definition of each of these terms is available in the glossary in Appendix 3.
19. The unintentional injury database includes only the following ICD-10 SUDI related codes: W75 Accidental suffocation and strangulation in bed; W78 Inhalation of gastric contents; and, W79 Inhalation and ingestion of food causing obstruction of respiratory tract. SUDI related deaths (codes W75, W78 and W79) (n=106) are excluded from the analysis. Data specifically focussing on all SUDI deaths is presented in chapter 3 (on choking, suffocation, and strangulation).
20. Quintile data is missing for 6. Data for Pacific, Asian and MELAA not presented due to low numbers. SUDI (n=106) is excluded from the analysis. Data on SUDI deaths is presented in chapter [3].

Trend over time

In the years 2009 to 2018, all-cause tamariki deaths from injury excluding SUDI decreased from a rate of 6.1 per 100,000 in 2009 to 3.1 per 100,000 in 2018.

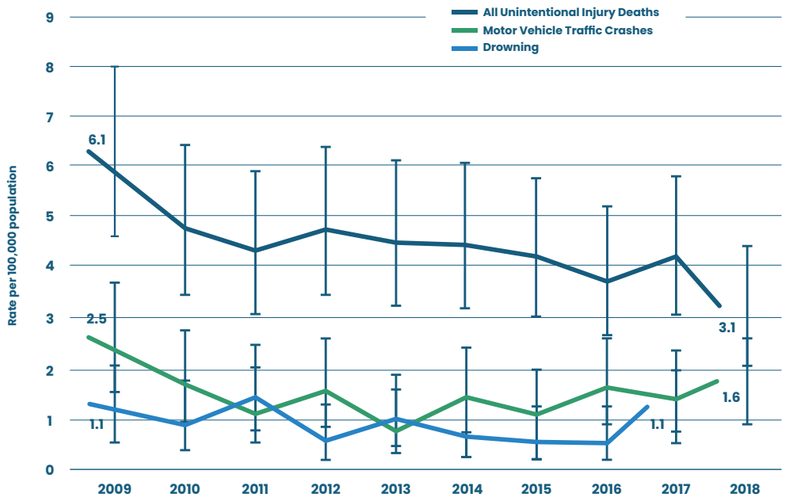
Looking at the main causes of injury for tamariki, there was a slight decrease over time in the rate of deaths from motor vehicle traffic crashes (2.5 per 100,000 in 2009 to 1.6 per 100,000 in 2018) but there was little change over time in the rate of death from drowning.

Figure 1 shows the tamariki death rates from injury, by all-causes (excluding SUDI), 'motor vehicle traffic' incidents, and drowning for tamariki, in the years 2009 to 2018.

Table 1 shows the main causes of tamariki death from injury (excluding SUDI) for the years 2014 to 2018. [21]

Additional data on tamariki deaths from injury, by age group, for each year from 2009 to 2018, are provided in Appendix 2. [22]

Figure 1: Rates of tamariki death from injury, by all-cause (excluding SUDI), 'motor vehicle traffic' incidents, and drowning for tamariki, over time, 2009-2018. [23]



21. SUDI related deaths (ICD-10 codes W75, W78 and W79) (n=106) were excluded from the analysis. Data specifically focussing on all SUDI deaths is presented in chapter 3 of this data book (on choking, suffocation, and strangulation).
22. See Table 27, Appendix 2
23. SUDI related deaths (ICD-10 codes W75, W78 and W79) (n=106) were excluded from the analysis. Data specifically focussing on all SUDI deaths is presented in chapter 3 of this data book (on choking, suffocation, and strangulation). The drowning rate was suppressed in 2018 due to low numbers for that year, therefore not included.

Table 1: Tamariki death from injury for tamariki, by main external cause (excluding SUDI), 2014–2018

Main external cause of fatal injury		n	Rate per 100,000	95% CI	%
Land Transport	Motor Vehicle Traffic Incident	66	1.42	1.10 -1.81	35.9
	Other Pedestrian	15	0.32	0.18 - 0.53	8.2
	Other Pedal Cyclist	<6	s	s	s
	Other Land Transport	12	0.26	0.13 - 0.45	6.5
Drowning		30	0.64	0.44 - 0.92	16.3
Suffocation [24]		17	0.36	0.21 - 0.59	9.2
Fire/flame		<6	s	s	s
Fall		7	0.10	0.06 - 0.31	3.8
Poisoning		9	0.19	0.09 - 0.37	4.9
Other specified and unspecified		21	0.45	0.28 - 0.69	11.4
Total		**184**	**3.97**	**2.42 - 4.59**	**100**

* Note s = Supressed data due to low numbers

24. SUDI related deaths (ICD-10 codes W75, W78 and W79) (n=106) are excluded from the analysis. Data specifically focussing on all SUDI deaths is presented in chapter 3 (on choking, suffocation, and strangulation).

Age group

In the years 2009 to 2018, tamariki aged 0 to 4 years had the highest rate of deaths from injury of all age groups. This rate decreased over time from 8.4 per 100,000 in 2009 to 3.9 per 100,000 in 2018. There was little change over time in the death rate for tamariki aged 5 to 9 years and 10 to 14 years.

For the years 2014 to 2018, tamariki aged 0 to 4 years had the highest proportion of deaths from injury (n=83, 45.1%) compared with those aged 5 to 9 years (n=49, 26.6%) and tamariki aged 10 to 14 years (n=52, 28.3%). [25]

Excluding SUDI, drowning was the most common cause of death from injury for tamariki aged 0 to 4 years (1.4 per 100,000), followed by 'motor vehicle traffic' incident (1.2 per 100,000). [26]

For tamariki aged 5 to 9 years and 10 to 14 years, 'motor vehicle traffic' incidents were the most common cause of death from injury (aggregated rate of 1.5 per 100,000), followed by drowning (aggregated rate of 0.3 per 100,00) and suffocation (aggregated rate of 0.3 per 100,000). [27]

Figure 2 shows the rates of tamariki deaths from injury, by age group, between the years 2009 and 2018.

Figure 2: Rates of tamariki death from injury, by age group, over time, 2009–2018 [28]

25. SUDI related deaths (ICD-10 codes W75, W78 and W79) (n=106) are excluded in this analysis
26. Data specifically focussing on all SUDI deaths is presented in chapter 3 of this data book on choking, suffocation, and strangulation). Drowning rate suppressed in 2018 due to low numbers for that year, therefore, that is not shown here
27. Numbers/rate aggregated due to low numbers in both the age groups 5 to 9 years and 10 to 14 years.
28. SUDI-related deaths (ICD-10 codes W75, W78, and W79) (n=106) were excluded in this analysis. The death rate in the age group 5 to 9 years was suppressed for the years 2010, 2011, and 2018 due to low numbers; therefore, they are not shown here.

Ethnicity

Death rates from all-cause injury decreased over the period 2009 - 2018 for both tamariki Māori and European/other children. For tamariki Māori, the rate of deaths decreased from 9 per 100,000 in 2009 to 5.5 per 100,000 in 2018. For European/other children, the rate of deaths decreased from 1.3 per 100,000 in 2009 to 0.4 per 100,000 in 2018. [29]

In the years 2014 to 2018, tamariki Māori (36.4%, n=67) had the highest rate of death from injury of any ethnic group (5.4 per 100,000). The next-highest rates of death from injury were for European/other children (43.5%, n=80, rate of 3.6 per 100,000), followed by Pacific children (8.7%, n=16, rate of 3.5 per 100,000), and Asian children (8.7%, n=16, rate of 2.6 per 100,000). [30]

Looking at selected causes of injury in the years 2014 to 2018:

- The death rate from injury in 'motor vehicle traffic' incidents was 2.3 per 100,000 for tamariki Māori (n=28) compared to 1.2 per 100,000 for European/other (n=27), and 1.1 per 100,000 for Asian children (n=7). [31]

- The death rate from drowning was 0.7 per 100,000 for tamariki Māori (n=9) compared with 0.5 per 100,000 for European/other children aged 0 to 14 years (n=12). [32]

Additional data on tamariki deaths from injury, by Māori and European/other ethnicity per year from 2009 to 2018, are provided in Appendix 2. [33]

29. Further information is presented in Table [28] in the Appendices. Data for Pacific, Asian and MELAA groups were not presented due to low numbers per year.
30. SUDI related deaths (ICD-10 codes W75, W78 and W79) (n=106) were excluded from the analysis
31. Data for Pacific and MELAA groups were suppressed due to low numbers.
32. Data for Pacific, Asian and MELAA groups were suppressed due to low numbers.
33. See Table 28, Appendix 2.

Socio-economic deprivation

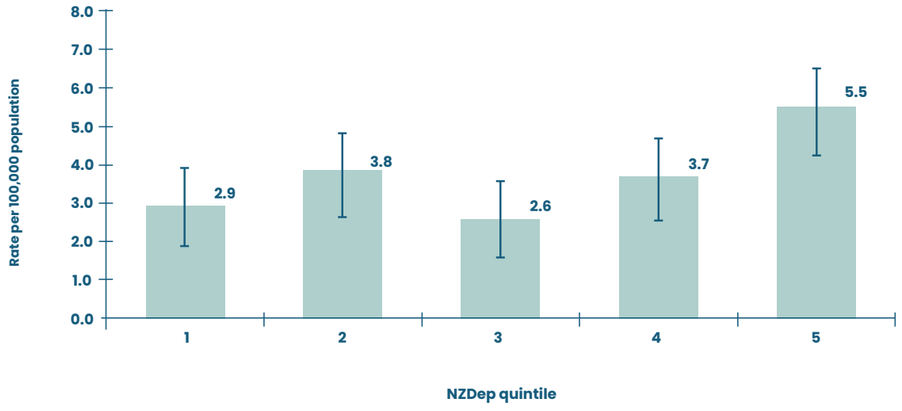
Tamariki living in the most relatively deprived areas of Aotearoa (NZDep quintile 5) had the highest rate of deaths from injury (5.5 per 100,000), when compared with tamariki living in other NZDep quintile areas.

Tamariki Māori living in the most relatively deprived areas of Aotearoa (NZDep quintile 5) had higher rates of death from injury (7.9 per 100,000), when compared with European/other children living in the most relatively deprived areas of Aotearoa (5.3 per 100,000).

Of the 67 deaths for tamariki Māori during the years 2014 to 2018, 61.2 % (n=41) occurred in those living in in the most relatively deprived areas of Aotearoa. Of the 80 deaths for European/other children aged 0 to 14 years, 15% (n=12) occurred in those living in the most relatively deprived areas. [34]

Figure 3 shows the rates of tamariki deaths from injury, presented by quintile (NZDep), for the years 2014 to 2018.

Figure 3: Rates of tamariki death from injury, by quintile (NZDep), 2014–2018



34. Excludes SUDI deaths (n=106). Quintile data is missing (n=6). Data for Pacific, Asian and MELAA suppressed due to low numbers.

Gender

For the years 2014 to 2018 male tamariki had a significantly higher rate of death from injury than female tamariki (4.9 per 100,000 versus 3.0 per 100,000, respectively). [35]

Excluding SUDI, 'motor vehicle traffic' incident was the highest cause of death for both male (1.5 per 100,000) and female tamariki (1.3 per 100,000). Male tamariki also had higher rates of death from drowning than female tamariki (0.8 per 100,000 versus 0.4 per 100,000 respectively).

Table 2 shows tamariki deaths from injury, by gender and selected cause ('motor vehicle traffic' incident and drowning), for the years 2014 to 2018.

Gender	Death (n)	Rate per 100,000	95% CI
Motor Vehicle			
Female	29	1.3	0.86 - 1.84
Male	37	1.5	1.09 - 2.13
Drowning			
Female	10	0.4	0.21 - 0.81
Male	20	0.8	0.51 - 1.29
Total Deaths - All Causes Excluding SUDI			
Female	67	3.0	2.4 - 3.9
Male	117	4.9	4.1 - 5.9

35.. SUDI related deaths (ICD-10 codes W75, W78 and W79) (n=106) are excluded from the analysis.

Hospitalisations

This section sets out tamariki hospitalisations in the years 2017 to 2021, with some trends over time presented for the years 2012 to 2021, and analysis by age, prioritised ethnicity, socioeconomic status, gender, and geographic location.

In brief

The overall rates of tamariki hospitalisation for injury decreased over time, from a rate of 813.9 per 100,000 in 2012 to 634.5 per 100,000 in 2021. Across this publication, changes in hospitalisation trends from 2020 onwards should be interpreted with caution due to the possible impacts of Covid-19 restrictions at the time.

In the years 2017 to 2021, there were 33,117 tamariki hospitalisations for injury (rate of 694.3 per 100,000) – an average of 6,623 hospitalisations per year.

Injury from falls accounted for almost half of tamariki hospitalisations for injury (49%, n=16,218) followed by injury from inanimate mechanical forces [36] (18%, n=5,852), and land transport (14%, n=4,494).

In the years 2017 to 2021, the rate of hospitalisation for injury for tamariki aged 0 to 4 years was significantly higher (731.1 per 100,000) than the rates of hospitalisation for those aged 5 to 9 years (675.1 per 100,000) and 10 to 14 years (679.2 per 100,000).

Tamariki Māori and Pacific children had the highest rates of hospitalisation for injury of all the ethnic groups. For both tamariki Māori and Pacific children, hospitalisation rates were higher in tamariki aged 0 to 4 years than for tamariki in the two older age groups.

All ethnic groups have shown an overall decline in rates of hospitalisation for injury, over time from 2012 to 2021. The decline was most marked for Pacific children, decreasing from 1132.8 per 100,000 in 2012 (the highest rate of all ethnic groups at the time) to 699.0 per 100,000 in 2021 (a similar rate to that of European/other children).

36. This is a broad category of injury and includes being struck by, cut, or otherwise injured by an object, being caught between objects and injuries from sharp objects such as knives, scissors, or glass.

Rates of hospitalisation for injury were seen to increase as the levels of deprivation increased, and in the years 2017 to 2021, tamariki living in the most relatively deprived areas of Aotearoa (NZDep quintile 5) had higher rates of hospitalisation for injury (752.2 per 100,000) than those living in the least relatively deprived areas (NZDep quintile 1: 631.3 per 100,000). Tamariki Māori living in the most relatively deprived areas of Aotearoa had the highest rates of hospitalisation for injury of all the ethnic groups living in the most relatively deprived areas (NZDep quintile 5).

The hospitalisation rate for injury in male tamariki aged 0 to 14 years (799.2 per 100,000) was significantly higher than that for injury in female tamariki (583.4 per 100,000).

The highest rates of injury-related tamariki hospitalisation were in the former-DHB areas of Tairāwhiti [37] (996.0 per 100,000), Wairarapa [38] (956.4 per 100,000), and Taranaki [39] (833.0 per 100,000). South Canterbury [40] had the lowest rate of hospitalisation of all former DHB areas (577.6 per 100,000).

37. Tairāwhiti DHB area (known as Hauora Tairāwhiti) covers the Gisborne district, local and territorial authority areas.
38. Wairarapa DHB area covers Martinborough, Featherston, Greytown, Carterton, Masterton and outlying rural districts.
39. Taranaki DHB area includes New Plymouth, Hawera, Pātea, Stratford and Waitara.
40. South Canterbury DHB area covers Timaru, Mackenzie, Waimate districts.

Trend over time

In the years 2012 to 2021, the rates of tamariki hospitalisation for injury decreased from a rate of 813.9 per 100,000 in 2012 to 634.5 per 100,000 in 2021.

Looking at specific causes of tamariki hospitalisation for injury over this same period:

- The rates of hospitalisation for injury related to falls have decreased over time, from a rate of 398.7 per 100,000 in 2012 to 304.3 per 100,000 in 2021.
- The rates for injury related to inanimate mechanical forces have also decreased over time, from a rate of 163.2 per 100,000 in 2012 to 110.5 per 100,000 in 2021.
- The rates for injury due to 'non-motor vehicle/non-traffic' (other pedestrian, other pedal cyclists and other land transport) have remained relatively unchanged (69.2 per 100,000 in 2012; 67.0 per 100,000 in 2021).

In the years 2017 to 2021, there were 33,117 tamariki hospitalisations for injury – an average of 6,623 hospitalisations per year.

In the years 2017 to 2021 injury from falls related injury accounted for almost half of all tamariki hospitalisations for injury (49%, n=16,218), followed by those related to injury from inanimate mechanical forces (18%, n=5,852), land transport injury (14%, n=4,494), and injury from animate mechanical forces (6%, n=1,917).

Figure 4 shows the rates of tamariki hospitalisation for injury for the years 2012 to 2021.

Figure 5 shows the rates of hospitalisation for injury for tamariki for all injuries and the three major causes of injury, for the years 2012 to 2021.

Table 3 shows tamariki hospitalisations for injury of tamariki, broken down by main external cause, for the years 2017 to 2021.

Additional data on tamariki hospitalisation by year (for the years 2012 to 2021) and tamariki hospitalisation for injury by major causes, are provided in Appendix 2. [41]

41. See Tables 29, 30, and 31, Appendix 2.

Figure 4: Rates of tamariki hospitalisation for injury over time, 2012–2021

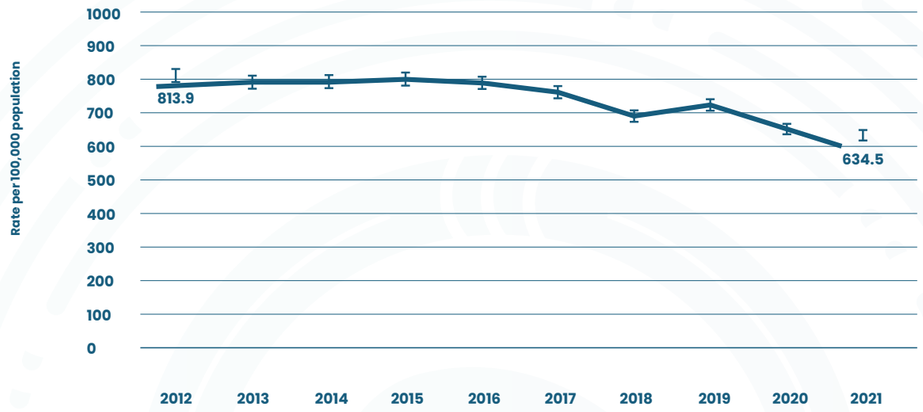


Figure 5: Rates of tamariki hospitalisation for injury over time, by major cause, 2012–2021

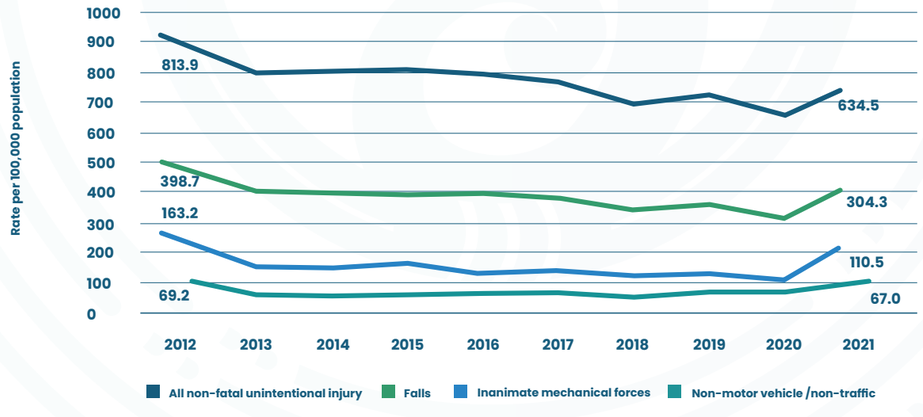


Table 3: Tamariki hospitalisations for injury, by main external cause, 2017–2021

Main External Cause of Injury		n	Rate per 100,000	95% CI	%
Fall		16,218	340	334.78 - 345.27	49%
Land Transport	Total Land Transport	4,494	94.2	91.48 - 97.01	13.6
	Total Motor Vehicle Traffic	1,353	28.4	26.87 - 29.92	4.1
	Occupant	742	15.6	14.46 - 16.72	2.2
	Pedestrian	338	7.1	6.35 - 7.88	1
	Pedal Cyclist	100	2.1	1.71 - 2.55	0.3
	Motorcyclist	165	3.5	2.95 - 4.03	0.5
	Other and Unspecified	8	0.2	0.07 - 0.33	0
	Other Pedestrian	200	4.2	3.63 - 4.82	0.6
	Other Pedal Cyclist	1,569	32.9	31.28 - 34.56	4.7
	Other Land Transport	1,372	28.8	27.26 - 30.33	4.1
Inanimate Mechancial Forces		5,852	122.7	119.56 - 125.86	17.7
Animate Mechancial Forces		1,917	40.2	38.41 - 42.03	5.8
Other Natural/Environmental		192	4	3.48 - 4.64	0.6
Poisoning		1,112	23.3	21.96 - 24.72	3.4
Burns	Total Burns	1,162	24.4	22.98 - 25.80	3.5
	Burns from Hot Object/Substances	1,042	21.9	20.60 - 23.28	3.2
	Burns from Fire and Flame	117	2.5	2.03 - 2.94	0.4
Overexerting		780	16.4	15.22 - 17.54	2.4
Suffocation		328	6.9	6.15 - 7.66	1
Drowning		160	3.4	2.85 - 3.92	0.5
Other Transport		82	1.7	1.37 - 2.13	0.2
Other specified and unspecified		820	17.2	16.03 - 18.41	2.5
Total		**33,117**	**694.3**	**686.80 - 701.78**	**100**

Age Group

Tamariki hospitalisations for injury in the years 2017 to 2021 were evenly split across all three age groups. The highest number of hospitalisations for injury was in the 5 to 9 years age group (11,257 hospitalisations, 34% of all hospitalisations).

The rate of hospitalisation for injury for tamariki aged 0 to 4 years was significantly higher (731.1 per 100,000) than for those aged 5 to 9 years (675.1 per 100,000) and 10 to 14 years (679.2 per 100,000).

Looking specifically at the age group 0 to 4 years, the majority of hospitalisations for injury were for tamariki aged 1 to 4 years (85%, n=9,413).

Considering the causes of hospitalisation:

- The highest rates of hospitalisation for each of the three age groups were related to injury from falls. The rate of hospitalisation from falls for tamariki aged 5 to 9 years (403.3 per 100,000) was significantly higher than that for other two age groups (312 per 100,000 for those aged 0 to 4 years and 300.2 per 100,000 for those aged 10 to 14 years).

- The rate of hospitalisation for injury caused by inanimate mechanical forces for tamariki aged 0 to 4 years (160.6 per 100,000) was significantly higher than that for those tamariki aged 5 to 9 years (109.4 per 100,000), and 10 to 14 years (100.2 per 100,000).

- The hospitalisation rate for tamariki aged 10 to 14 years for injury caused by 'other pedal cyclist' (58.4 per 100,000) was significantly higher than that for the age groups 5 to 9 years (29 per 100,000) and 0 to 4 years (10.6 per 100,000). [42]

- The hospitalisation rate for tamariki aged 10 to 14 years for injury caused by 'other land transport' related injury (57.2 per 100,000) was significantly higher than that for the age groups 5 to 9 years (22.6 per 100,000) and 0 to 4 years (5.9 per 100,000). [43]

Table 4 shows tamariki hospitalisations for injury by age group, for the years 2017 to 2021.

Figure 6 shows the rates of tamariki hospitalisation for injury, by age groups and the four main causes of injury, for the years 2017 to 2021.

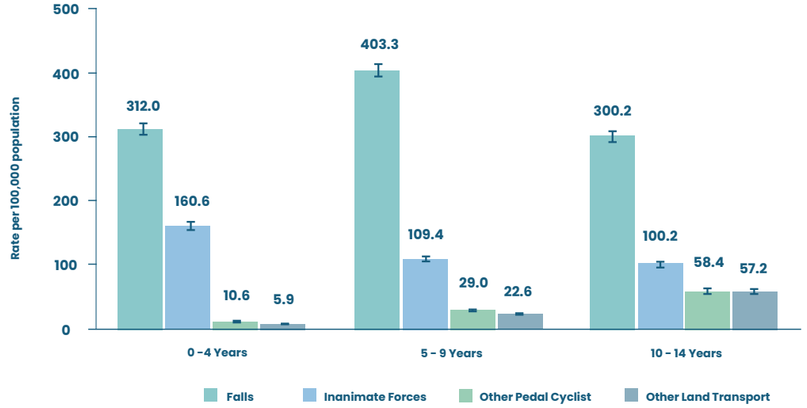
Additional data on tamariki hospitalisation for injury, broken down by age group and main cause, are provided in Appendix 2. [44]

42. The rate for the 5-9 years age group (29 per 100,000) was significantly higher than the 0-4 years age group (10.6 per 100,000).
43. The rate for the 5-9 years age group (22.6 per 100,000) was significantly higher than the 0-4 years age group (5.9 per 100,000).
44. See Table 32, Appendix 2.

Table 4: Tamariki hospitalisations for injury, by age group, 2017–2021

Age Group (years)	n	%	Rate per 100,000	95% CI
0 - 4 Years	11,100	33.5%	731.1	717.5 - 744.8
5 - 9 Years	11,257	34%	675.1	662.7 - 687.7
10 - 14 Years	10,760	32.5%	679.2	666.4 - 692.1
Total	**33,117**	**100**	**674.3**	**686.8 - 701.8**

Figure 6: Rates of tamariki hospitalisation for injury, by age group and top four main causes, 2017–2021



Ethnicity

Tamariki Māori and Pacific children had highest rates of hospitalisation for injury of tamariki of all other ethnic groups.

Looking at the years 2012 to 2021:

- There was an overall decline in injury related hospitalisation rates for tamariki of all the ethnic groups.
- The decline over time was the most marked for Pacific children, decreasing from 1132.8 per 100,000 in 2012 (the highest rate of all the ethnic groups at the time) to 699.0 per 100,000 in 2021 (a similar rate to that of European/other children).
- The rates of hospitalisation for injury for tamariki Māori decreased over time, from 924.2 per 100,000 in 2012 to 728.2 per 100,000 in 2021. However, in 2021, tamariki Māori had the highest rates of hospitalisation of all the ethnic groups.
- While the rate of hospitalisation for injury for Asian children decreased over time, that group's rate of change was the least pronounced of all the ethnic groups (416.7 per 100,000 in 2012; 357.4 per 100,000 in 2021).

Looking specifically at the period 2017 to 2021:

- Pacific children had the highest rates of hospitalisation for injury (792.4 per 100,000), closely followed by tamariki Māori (780.9 per 100,000). The higher rates of hospitalisation for injury for Pacific children and for tamariki Māori were statistically significant when compared with each of the other ethnic groups.
- European/other children had the third-highest rate of hospitalisation for injury (725.2 per 100,000), which was significantly higher than the rates for MELAA (Middle Eastern, Latin American, and African) children (635.5 per 100,000) and Asian children (394.8 per 100,000).

Looking at ethnicity by age group in the period 2017 to 2021:

- In the age group 0 to 4 years, tamariki Māori (913.7 per 100,000) and Pacific children (904.8 per 100,000) had significantly higher rates of hospitalisation for injury than European/other (720.8 per 100,000), MELAA (715.5 per 100,000), and Asian (397.8 per 100,000) children. The rates for European/other and MELAA children in this age group were also significantly higher than the rate for Asian children.
- In the age group 5 to 9 years, Pacific children (728.9 per 100,000) and tamariki Māori (726.4 per 100,000) had similar rates to each other for hospitalisation for injury. European/other children in this age group had the third-highest rate (714.9 per 100,000). The rates for all three of these ethnic groups were significantly higher than the rates for MELAA (586.8 per 100,000) and Asian (436 per 100,000) children aged 5 to 9 years.
- In the age group 10 to 14 years, Pacific children had the highest rate of hospitalisation for injury (753.4 per 100,000), followed by European/other children (738.9 per 100,000), and tamariki Māori (707.9 per 100,000). Consistent with the pattern seen in the two other age groups, MELAA children had the fourth-highest rate in this age group (590.8 per 100,000). The rate for Asian children in this age range was significantly lower than that of the other ethnic groups (339.2 per 100,000). The rates for Pacific and European/other children in this age group were significantly higher than the rate for the MELAA children.

Figure 7 shows the rates of tamariki hospitalisation for injury, presented by prioritised ethnicity, for the years 2012 to 2021.

Figure 8 shows the rates of tamariki hospitalisation for injury, presented by prioritised ethnicity, for the years 2017 to 2021.

Figure 9 shows the rates of tamariki hospitalisation for injury, by prioritised ethnicity and age group, for the years 2017 to 2021.

Additional data on tamariki hospitalisations for injury, by prioritised ethnicity, are provided in Appendix 2. [45]

45. See Table 33, Appendix 2.

Figure 7: Rates of tamariki hospitalisation for injury, by prioritised ethnicity, 2012–2021

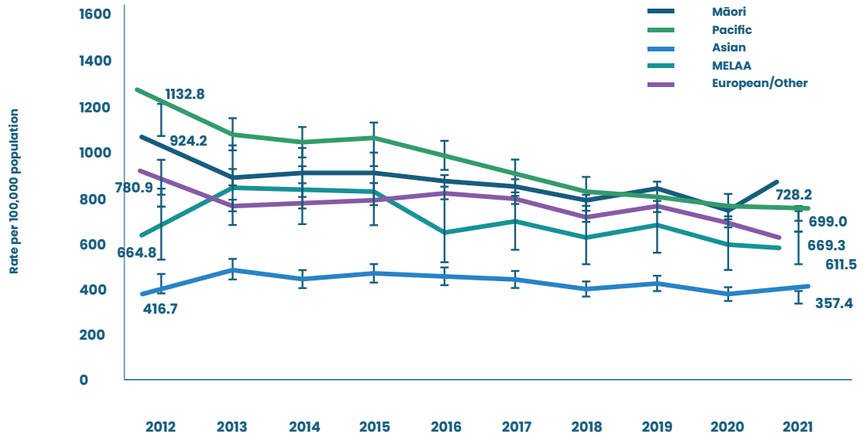
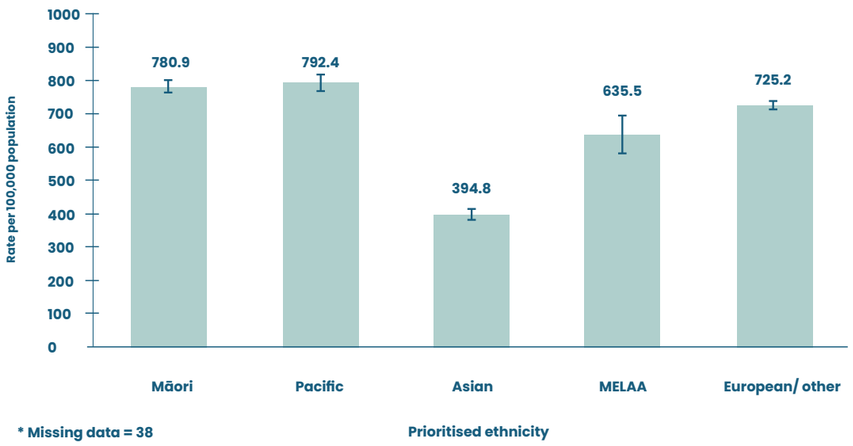
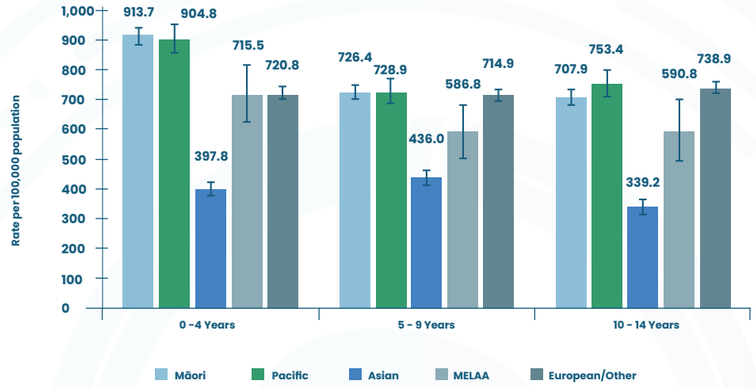


*Figure 8: Rates of tamariki hospitalisation for injury, by prioritised ethnicity, 2017–2021**



* Missing data = 38

Figure 9: Rates of tamariki hospitalisation for injury, by prioritised ethnicity and age group, 2017–2021



Additional information from Figure 9:

- For both tamariki Māori and Pacific children, the rates of hospitalisation for injury were significantly higher in the age group 0 to 4 years (913.7 and 904.8 per 100,000, respectively) than for the age groups 5 to 9 years (726.4 and 728.9 per 100,000, respectively) and 10 to 14 years (707.9 and 753.4 per 100,000, respectively). However, for European/other and MELAA children, there were no significant differences in rates for each of the age groups.

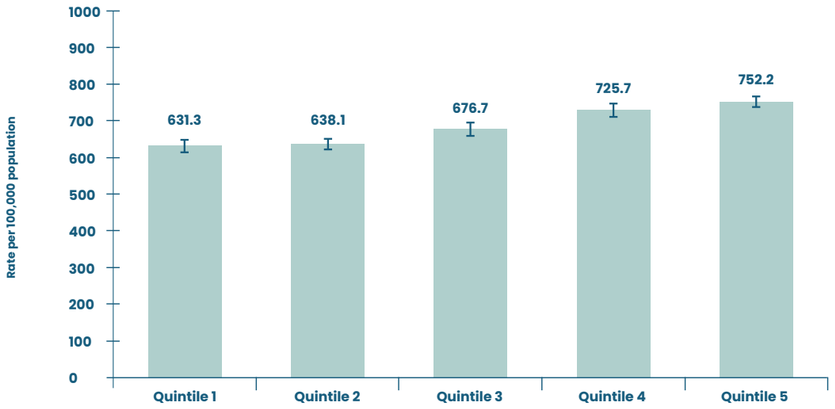
- The rate of hospitalisation for injury for Asian children was the lowest across all the age groups. Within the Asian ethnic group, the rate was highest for children aged 5 to 9 years (436 per 100,000), followed by those aged 0 to 4 years (397.8 per 100,000). The rate was lowest in the age group 10 to 14 years (339.2 per 100,000), with the difference in the rates for those aged 5 to 9 years and those aged 10 to 14 years being statistically significant.

Socio-economic deprivation

The rates of hospitalisation for injury for tamariki increased as levels of deprivation increased. In the years 2017 to 2021, tamariki living in the most relatively deprived areas (NZDep quintile 5) had higher rates of hospitalisation for injury (752.2 per 100,000) compared with those living in the least relatively deprived areas (NZDep quintile 1; 631.3 per 100,000). The difference between these two quintile groupings was statistically significant.

Figure 10 shows the rates of tamariki hospitalisation for injury, for the years 2017 to 2021, presented by NZDep quintile.

Figure 10: Rates of tamariki hospitalisation for injury, by NZDep quintile, 2017–2021



*** Missing data = 204**

Socio-economic deprivation and ethnicity

This subsection provides a more nuanced look at the relationship between ethnicity and socioeconomic deprivation by providing information on tamariki rates of hospitalisation for injury for the three prioritised ethnic groups with the highest rates of hospitalisation (Māori, Pacific, and European/other children), by NZDep quintile.

Tamariki Māori living in the most relatively deprived areas (higher quintile), had higher rates of hospitalisations for non-fatal injury compared with that for tamariki living in the least relatively deprived areas (lower quintile).

There was no clear pattern evident for Pacific children across the NZDep quintiles, and the differences were not statistically significant. However, Pacific children living in NZDep quintile 4 had the highest rate of hospitalisation for injury (866.1 per 100,000) across all the ethnic groups and across all NZDep quintiles.

European/other children living in the NZDep quintile 1 areas (lowest deprivation) had a lower rate of hospitalisation for injury than that for tamariki living in the NZDep quintile 5 areas (highest deprivation). The difference between the rate for European/other children living in NZDep quintile 1 areas compared with tamariki living in NZDep quintile 5 areas was statistically significant.

Figure 11 shows the rates of hospitalisation for injury for tamariki Māori, presented by NZDep quintile, for the years 2017 to 2021.

Figure 12 shows the rates of hospitalisation from injury for Pacific children, presented by NZDep quintile, for the years 2017 to 2021.

Figure 13 shows the rates of hospitalisation from injury for European/other children, presented by NZDep quintile, for the years 2017 to 2021.

Additional data on tamariki hospitalisations for injury, broken down by NZDep quintile and prioritised ethnicity, are provided in Appendix 2. [46]

46. See Table 34, Appendix 2.

Figure 11: Rates of hospitalisation for injury for tamariki Māori by NZDep quintile, 2017–2021

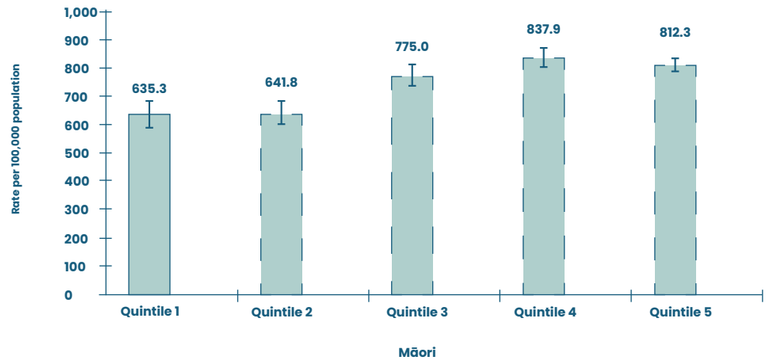


Figure 12: Rates of hospitalisation for injury for Pacific children, by NZDep quintile, 2017–2021

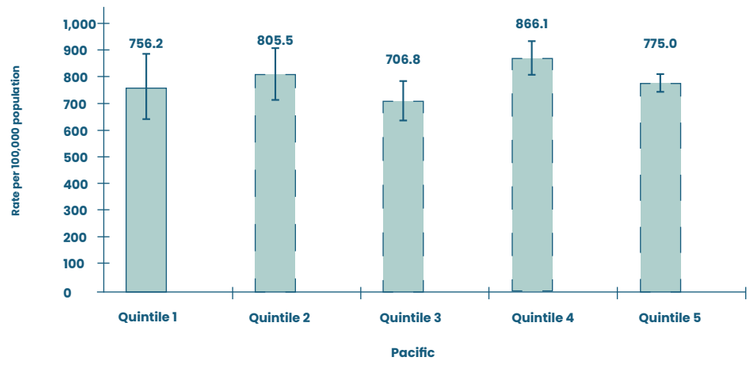
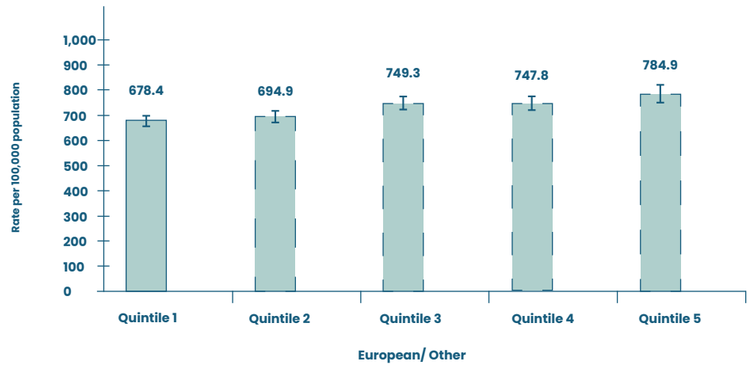


Figure 13: Rates of hospitalisation for injury for European/other children, by NZDep quintile, 2017–2021



Gender

In the years 2017 to 2021, more than half of tamariki hospitalisations for injury were for male tamariki (59.1%, n=19,580), compared with 41%, n=13,536 for female tamariki.

The hospitalisation rate for male tamariki (799.2 per 100,000) was significantly higher than that of female tamariki (583.4 per 100,000).

Male tamariki had significantly higher rates of hospitalisation for injury than females in all three age groups, as follows:

- In the age group 0 to 4 years, the rate for males was 808.9 per 100,000; for females, 648.6 per 100,000.
- In the age group 5 to 9 years, the rate for males was 739.6 per 100,000; for females, 606.9 per 100,000.
- In the age group 10 to 14 years, the rate for males was 852.9 per 100,000; for females, 496.5 per 100,000.

Male tamariki had the highest rates of hospitalisation for injury across all four main causes of injury, as follows:

- The highest rates were related to falls, for both male and female tamariki: males 375.6 per 100,000, significantly higher than that for females (302.4 per 100,000). [47]
- For male tamariki, the rates for injury related to both inanimate mechanical forces and 'other pedal cyclist' (49.2 per 100,000 and 49.8 per 100,000, respectively) were significantly higher than for injury related to 'other land transport' (35.1 per 100,000).

The pattern of rates of hospitalisation for injury for female tamariki was slightly different from that for males. For females, the second-highest rate was related to inanimate mechanical forces (30.6 per 100,000), followed by 'other land transport' (22.1 per 100,000). 'Other pedal cyclist' was the lowest cause of hospitalisation for injury for females (15 per 100,000).

Table 5 provides information on tamariki hospitalisations for injury, presented by gender, for the years 2017 to 2021.

Figure 14 shows the rates of tamariki hospitalisation for injury, presented by gender and broken down into age groups, for the years 2017 to 2021.

Figure 15 shows the rates of tamariki hospitalisation for injury, by gender, for each of the four main causes of injury (falls, inanimate mechanical forces, 'other pedal cyclist', and 'other land transport'), for the years 2017 to 2021.

47. The differences in rates of hospitalisation for injury were higher for male tamariki than for female tamariki for all top four causes of hospitalisation for non-fatal injury.

*Table 5: Tamariki hospitalisations for injury, by gender, 2017–2021**

	n	%	Rate per 100,000	95% CI
Males	19,580	59.1	799.2	789.4 - 809.1
Female	13,536	40.9	583.4	572.2 - 594.6
Total	**33,116**	**100**	**694.3**	**686.8 - 701.8**

* Missing data = 1

Figure 14: Rates of tamariki hospitalisation for injury, by gender and age group, 2017–2021

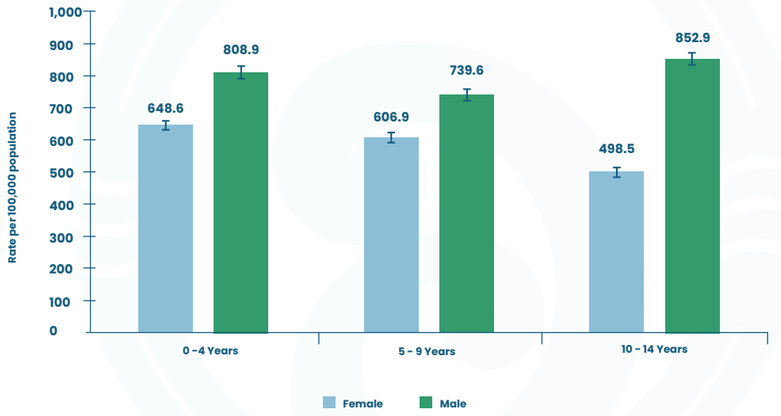
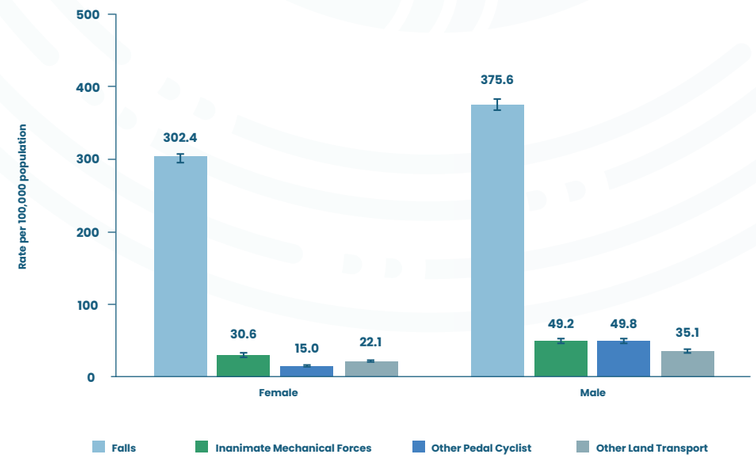


Figure 15: Rates of tamariki hospitalisation for injury, by gender and four main causes, 2017–2021



Geographic region

This subsection looks at injury-related tamariki hospitalisation data broken down by former district health board (DHB) regions. Although DHBs were disestablished by legislation in 2022 and replaced by Health New Zealand | Te Whatu Ora, which is now responsible for health services across Aotearoa, [48] they were the entity responsible for hospital-level health services for the period that this data relates to (2017–2021).

The three districts with the highest rates of tamariki hospitalisation for injury were Tairāwhiti [49] (996.0 per 100,000), Wairarapa [50] (956.4 per 100,000), and Taranaki [51] (833.0 per 100,000). South Canterbury [52] had the lowest rate of hospitalisation of all the former DHB areas (577.6 per 100,000).

Looking at the rates of tamariki hospitalisation for injury by geographic region:

- For tamariki Māori, the districts with the highest rates were Wairarapa (958.4 per 100,000), Tairāwhiti (923.3 per 100,000) and Auckland [53] (908.6 per 100,000).
- For Pacific children, the districts with the highest rates were Taranaki (1,111.1 per 100,000), Auckland (947.1 per 100,000) and Counties Manukau [54] (817.2 per 100,000).
- For Asian children, the districts with the highest rates were Wairarapa (604.4 per 100,000) and Tairāwhiti (546.9 per 100,000).
- For European/other children, the districts with the highest rates were Tairāwhiti (1,238.8 per 100,000), Wairarapa (1,001.9 per 100,000) and Taranaki (857.8 per 100,000).

Figure 16 shows the rates of tamariki hospitalisation for injury, presented by health district, for the years 2017 to 2021.

Additional data on tamariki hospitalisation rates and numbers broken down by ethnicity are provided in Appendix 2. [55]

Additional data on tamariki hospitalisation by geographic region and prioritised ethnicity is provided at Appendix 2. [56]

48. Pae Ora (Healthy Futures) Act 2022.
49. Tairāwhiti DHB area (known as Hauora Tairāwhiti) covers the Gisborne district, local and territorial authority areas.
50. Wairarapa DHB area covers Martinborough, Featherston, Greytown, Carterton, Masterton and outlying rural districts.
51. Taranaki DHB area includes New Plymouth, Hawera, Pātea, Stratford and Waitara.
52. South Canterbury DHB area covers Timaru, Mackenzie, Waimate districts.
53. Auckland DHB area covers central Auckland, including Waiheke Island.
54. Counties Manukau DHB area covers the southern parts of Auckland including Otara-Mangere, Manukau, and Franklin districts and eastern localities including Howick, Pakuranga, and Flat Bush.
55. Tables 37, 38, 39, and 40, Appendix 2.
56. See Tables 35 and 36, Appendix 2.

Figure 16: Rates of tamariki hospitalisation for injury, by health district, 2017–2021