Unintentional Deaths and Injuries of Tamariki in Aotearoa

Databook and Policy Recommendations 2024

RIRIKI HAUMARU
SAFEKIDS AOTEAROA

Citation:

Ririki Haumaru | Safekids Aotearoa. (2024). *Unintentional deaths and injuries of tamariki in Aotearoa.* Auckland, New Zealand: Ririki Haumaru | Safekids Aotearoa.

Ririki Haumaru | Safekids Aotearoa
40 Claude Road, Epsom,
Greenlane Clinical Centre, Building 15, Level 5,
Auckland 1023

ISBN: 978-0-473-72148-0 (Print)
ISBN: 978-0-473-72149-7 (Online)

Disclaimer:

Ririki Haumaru | Safekids Aotearoa has endeavoured to ensure material in this document is technically accurate and reflects legal requirements. However, the document does not override legislation. Ririki Haumaru | Safekids Aotearoa does not accept liability for any consequences arising from the use of this document. If the user of this document is unsure whether the material is correct, they should make direct reference to the relevant legislation and contact Ririki Haumaru | Safekids Aotearoa. This publication updates information contained in our 2015 publication Child Unintentional Deaths and Injuries in New Zealand, and Prevention Strategies.

Acknowledgements:

Ririki Haumaru | Safekids Aotearoa wishes to acknowledge the writers of this report, Gabrielle Baker and her team Paula Toko King and Natalie Talamaivao for their endless patience and commitment to this work. We also wish to acknowledge the New Zealand Child and Youth Epidemiology Service (University of Otago) - Mavis Duncanson, Helena McAnally, and Andrew Wicken for preparing all the data tables and figures.

We would like to thank our reviewers - Moses ‘Alatini, Dr Mike Shepherd, Dr Shanthi Ameratunga, Dr Bridget Kool, Dr Rebecca Hayman, Dr Natasha Duncan-Sutherland, Hāpai te Hauora – Fay Selby Law, Moana Connect – Ane Fa’aui, ACC – D’Arcy Dalzell, National Poison Centre – Bill Borough, Road to Zero Director - Bryan Sherritt, Siobhan Isles, Te Ara Haepapa – Rachel Elisaia Hopa, Rhanae Ngawaka, and Rachael Hannah, Australia and New Zealand Burn Association (ANZBA) Prevention Committee, Drowning Prevention Auckland – Dr Teresa Stanley and also Dr Helen Wihongi. Data provided by: Injury Prevention Research Unit (University of Otago). Whakataukī provided by: Tiahomai Henare-Heke

Te mana whenua o Tamaki Makaurau, Ngāti Whātua - Dame Rangimarie Naida Glavish

Document proudly supported and designed by **Māui Studios.**

He Kawa Ahuru

Protection within the embrace of Ranginui and Papatūānuku:

He kawa ahuru (clearing process) seeks to provide holistic safety when undertaking a kaupapa (matter) that is taimaha hārukiruki (distressing) mentally, physically, spiritually, and emotionally. It acknowledges whakapapa connections to Ranginui (Sky Father) and Papatūānuku (Earth Mother) and Atua Māori (environmental guardians).

This pure (clearing and setting of intentions) strengthens the connection to atua and provides an āhuru mōwai (safe haven), guarding the holistic gateways on this journey as we explore fatalities and hospitalisation that impact whānau, tamariki, mokopuna, and our society. It also has a special connection to tamariki and mokopuna by summonsing the right to thriving, flourishing, nurturing, and holistic protection.

He kawa ahuru, he kawa whakaora

Tuia te rangi e tū nei	Weave the wisdom and strength from above
Tuia te papa e takoto nei	Bring forth the fortitude and grounding that come from below
Tuia te herenga tangata	Binding the fabric of spiritual and physical connection of each individual
Ki ngā mana nui o te rangi	To those who have passed beyond the veil
Ngā mana tapu o te rangi	To those who have paved the lessons and learnings for today
Kia tau te mauri o te ora	To bring alignment and ease through the journey that we are about to embark upon
Kia ahuru ai te wairua	That I may remain in a tranquil state of mind
E mauri tau ai te tū	With a firm and unshaken spirit
Haumi e!	United we stand in purpose ready to proceed
Hui e!	Together
Taiki e!	Affirmative! It will be done

Contents

List of figures

List of tables

Foreword

Kai taku tiki pounamu, kai taku kuru pounamu poipoiā
My cherished child, the treasure I hold most dear, cradled in love, nurtured, and always safe.

Our vision is to ensure an Aotearoa in which all tamariki, including tamariki Māori and Pacific children, enjoy the benefits of a safe and happy childhood where whānau are connected, thriving, and flourishing in their homes and taiao (natural environment) and leading healthy and safe lives.

In 2015, Safekids published its first data book report 'Child Unintentional Deaths and Injuries in New Zealand, and Prevention Strategies.' Since then, significant shifts towards 'making New Zealand the best place in the world to be a child' were championed through the Child and Youth Wellbeing strategy (2019).

During the development of this strategy, nationwide consultations were conducted. Safekids Aotearoa actively participated in three in-person consultations and submitted feedback on the initial draft of the strategy and its respective priority areas to ensure the visibility of unintentional child injuries and deaths.

The indicators of the Child and Youth Wellbeing strategy that aligns with unintentional deaths and injuries is the 'Happy and Healthy Outcome', measuring progress against the rate of preventable hospitalisations for tamariki and young people.

In 2019, Safekids proposed a new approach to the Ngā Pou Tamariki Haumaru (unintentional child injury prevention) Strategic Advisory Group. Kawa Haumaru, a mātauranga Māori approach to unintentional child injury prevention and safety promotion (haumarutanga).

This approach aims to reduce equity gaps and enable Pae Ora for Māori. Subsequently endorsed by Ngā Pou Tamariki Haumaru, it has been academically published and internally endorsed by Starship Child Health and Te Toka Tumai | Auckland.

Since the approach's endorsement, Safekids academically published 'The societal cost of unintentional childhood injuries in Aotearoa' and 'The shape of New Zealand's child injury prevention workforce'. This evidence has been a key driver of substantial societal impact. Moreover, the workforce study revealed an under-representation of males, Pacific and Asian individuals in the sector's workforce. The most alarming finding was the low engagement of the sector with Māori authorities, particularly considering the rate of inequities in deaths and injuries among Māori.

Unintentional deaths and injuries of tamariki are multifaceted and require a multi-system, multi-sector collaborative approach that can unite policy, agency, and local settings. This type of approach necessitates strong leadership and a clear sense of kaitiakitanga (protection) and commitment from all child injury prevention sector workforces, communities, and iwi leaders.

A national strategy to address unintentional child injury prevention is vital for driving change, prioritisation, and funding if we are to truly embody treasuring our tamariki and becoming the best country in the world to be a child and to live, play and grow.

In conclusion, I urge all policy and decision-makers, local leaders, and organisations to connect with us, fostering unity and collaboration. In isolation, our achievements may be modest, but together, we have the strength that can accomplish extraordinary outcomes for tamariki and whānau.

Ki te kotahi te kakaho ka whati,
Ki te kapuia e kore e whati
Alone we can be broken.
Standing together, we are invincible.

Mareta Hunt
Poutokomanawa – Director,
Ririki Haumaru | Safekids Aotearoa

Executive summary

This data book looks at the main causes of tamariki unintentional injuries leading to death [1] or hospitalisation [2] within Aotearoa. It is an update of our 2015 publication *Child Unintentional Deaths and Injuries in New Zealand, and Prevention Strategies*, with two main differences. Firstly, we are better able to describe what is happening by ethnicity and socioeconomic status than we were in 2015, meaning we can analyse data with a stronger equity lens. Secondly, rather than outlining all possible prevention strategies, we have focused only on policy implications that arise from the data.

All tamariki in Aotearoa deserve to grow up free from unintentional injury. Yet, unintentional injuries, which are largely preventable, are the second most common cause of death for tamariki, and on average cause more than 6,600 injuries for tamariki per year.[3] As this data book shows, there are unfair and unjust differences in who is most impacted.

In general, tamariki Māori have higher rates of both fatality and hospitalisation from serious unintentional injury [4] than tamariki of any other ethnic group – often followed by Pacific children. While there is also a social gradient (with tamariki living in the most relatively deprived areas of Aotearoa having higher rates of death and hospitalisation from injury), this is further compounded for tamariki Māori. An important finding of this data book is that over 60% of tamariki Māori deaths in the time period we looked at occurred for those tamariki Māori who lived in the most relatively deprived areas of Aotearoa.

Fatalities and hospitalisations also tend to disproportionately impact younger tamariki (those aged 0 to 4 years) compared with older tamariki (aged from 5 years to 14 years) and male tamariki compared with female tamariki. There also tends to be higher rates of fatality and hospitalisation in more rural areas.

The first chapter of this data book provides an overarching view of tamariki fatalities and hospitalisations related to injury. The remaining eight topic chapters in this data book contain in-depth analysis of each of the leading causes of tamariki injury in Aotearoa (land transport injury; choking, suffocation, and strangulation; falls; drowning; inanimate mechanical forces; animate mechanical forces; poisoning; and burns). These chapters set out overarching findings, trends over time, and present analysis by age, prioritised ethnicity, socioeconomic status, and gender. In some chapters an analysis by geographic region (using the boundaries of the former district health boards) is provided. The topic chapters finish with a set of policy implications driven by data in the book, additional research, and consultation with leading experts.

Addressing and reducing the harms from injury are crucially important in improving the health and wellbeing of tamariki. However, it is rarely the case that narrowly defined 'injury prevention' activities will achieve sustained, equitable improvement. The data in this publication suggests that while improvements can be made in injury-related outcomes for tamariki – as, for example, the overall rates of hospitalisation for injury have decreased for tamariki over time from a rate of 813.9 per 100,000 in 2012 to 634.5 per 100,000 in 2021 – there is critical work needed to ensure all tamariki benefit in line with their needs.

---

1. Generally, data on fatalities is provided for the years 2014 to 2018, with trend data from 2009 to 2018.
2. Generally, data on hospitalisations is provided for the years 2017 to 2021, with trend data provided for 2012 to 2021.
3. Te Rōpū Arotake Auau Mate o te Hunga Tamariki, Taiohi | Child and Youth Mortality Review Committee. (2021)
4. Throughout this databook we use the term injury to refer to 'unintentional injury'.

Our overarching observations are as follows:

- Injury prevention activity needs to be holistic and empowering for tamariki and their whānau.
- Policies and programmes that address wider determinants of health, such as improving access to safe, accessible, and affordable housing for whānau, improving transport options, reducing exposure to stressful life events, and focusing on eliminating inequities (especially for tamariki Māori, Pacific children, and those in the most relatively deprived areas of Aotearoa) must be a part of a whole-of-government and whole-of-society approach to securing the best possible, equitable, outcomes for all tamariki in Aotearoa.

Both of these observations are based on Te Tiriti o Waitangi commitments and are in line with international human rights instruments [5] and evidence.[6]

Specific policy-level recommendations for each of the eight leading causes of injury for tamariki are set out in the relevant chapters. While the recommendations are focused on structural and policy level changes to prevent injury harm, education and hands-on support for whānau and those who provide care and safe environments for tamariki (e.g., early childhood education centres, schools, and recreational facilities) remains an important part of protecting tamariki. Therefore, our recommendations are complemented by our support for injury prevention activity and programmes that reach and meet the needs of tamariki and whānau, especially for tamariki Māori, Pacific children, and those living in relatively more deprived areas of Aotearoa, while also supporting tamariki to safely explore and play.

Although this data book was able to build on the analysis from our previous publication, there are still critical data gaps. The lack of robust disability data is a limitation of this publication. Without good quality disability data, policy makers are unable to make informed decisions about how to address the needs of tāngata whaikaha/ disabled people and government policies and investments cannot be properly monitored. The issues of disability data, especially in relation to tāngata whaikaha Māori (Māori with lived experience of disability), have been raised consistently in submissions to the Waitangi Tribunal as part of its kaupapa (thematic) inquiry into health services and outcomes (known as Wai 2575), [7] and addressing this data gap must be a priority for all areas of injury prevention activity.

5. See for example the United Nations Convention on the Rights of the Child, Convention on the Rights of Persons with Disabilities, and the United Nations Declaration on the Rights of Indigenous Peoples.
6. See for example Whitehead, J., et. al., 2023; Paine, SJ., et al., 2023
7. See for example King, P.T., (2019).

Introduction

All tamariki in Aotearoa deserve to grow up free from serious unintentional injury. Yet, unintentional injuries are the second most common cause of death for tamariki, and on average cause over 6,600 injuries for tamariki per year.[8] The impact of these injuries are devastating for whānau and communities and cause serious emotional harms in addition to the physical injuries themselves. Research from Aotearoa has shown wider societal and economic impacts from tamariki injuries – finding that the proportional loss in discretionary income arising from injury is higher for Māori and Pacific households compared with non-Māori, non-Pacific households.[9]

As we did in our 2015 publication *Child Unintentional Deaths and Injuries in New Zealand, and Prevention Strategies*, we have sought to analyse and present data on injury for tamariki aged 0 to 14 years across Aotearoa by looking at fatalities from unintentional injury [10] and hospitalisation numbers and rates. This time, however, we were able to take a deeper look at ethnicity and socioeconomic data, which has strengthened our equity analysis. We have also focused our recommendations on what policy makers and government agencies can do to have the biggest impact on injury prevention, based on what the data shows, our additional research, and consultation with leading experts.

Our intention is to provide relevant and easy to understand data and analysis for injury prevention practitioners, policy makers in central and local government, and to people in decision-making roles that have an impact on injury prevention for tamariki. While we are often providing technical statistical information in this data book, we aim to present the information in a way that honours the fact we are talking about real lives, real tamariki, and real whānau.

The injuries we talk about in this data book are serious unintentional injuries, that result in death or at least overnight hospitalisation. They are often the cause of substantial stress, worry, and trauma. We begin and end this data book with pure [11] because of this, and we have attempted to avoid overly technical terms or phrases that have the impact of hiding or sanitising the issues we are talking about.

Structure of this data book

Each chapter is anchored by a whakataukī, carefully chosen to create a moment of pause and reflection. These whakataukī are more than just words; they are acts of whakamana, uplifting the tamariki and whānau whose lives are reflected in the data shared.

In these moments of stillness, we honour their stories, resilience, and boundless potential. The whakataukī and accompanying imagery remind us that behind every number is a life, a whānau, and a journey. They ground us in the wisdom of our tūpuna while guiding us toward a future where every tamaiti and whānau can thrive.

Each whakataukī is translated and contextualised within the areas of our mahi of child injury prevention, embedding the statistics within a deeper narrative of hope and transformation. Through this approach, we acknowledge the dual pathways of traditional and contemporary parenting, weaving together past and present to whakamana our tamariki and whānau.

This fusion of whakataukī and imagery is more than just a design choice—it is an act of restoring mana, fostering understanding, and inspiring action. Through these whakataukī, we weave a narrative of hope, strength, and transformation.

---

8. Te Rōpū Arotake Auau Mate o te Hunga Tamariki, Taiohi | Child and Youth Mortality Review Committee, 2021
9. Young, et al., 2021
10. Throughout this databook we use the term injury to refer to 'unintentional injury'.
11. Clearing and setting of intentions

This data book is organised into nine different chapters. The first chapter provides an overview of fatalities and hospitalisations and the next eight chapters focus on different injury types. Each of these eight injury-specific chapters begins with a brief description of the area and a summary of the data within the chapter before looking specifically at trends over time and data by age, prioritised ethnicity, socioeconomic status, gender and – where possible – geographic region. Where figures need additional explanation or interpretation notes, these are provided immediately below the relevant graph or table. The chapters on specific injury topics end with a section on policy implications, which include our recommendations.

The material included in this data book is based on data from the national Mortality Collection (MORT) and the National Minimum Data Set (NMDS), using the World Health Organisation classification system (ICD-10). Using this kind of classification system has benefits both because it aligns with the way data is already collected and recorded and because it allows us to compare injury data across different time periods, with different countries or between different regions.

The trends data in each chapter generally relates to the years 2009 to 2018 for fatalities and 2012 to 2021 for hospitalisations. The rest of each chapter focuses on the period 2014 to 2018 for fatalities and 2017 to 2021 for hospitalisations. Age groups analysis is usually broken into three main age groupings: tamariki aged 0 to 4 years, tamariki aged 5 to 9 years, and tamariki aged 10 to 14 years . For some topic areas a more detailed analysis is provided for the age group 0 to 4 years, in which case data is further split into tamariki aged less than 1 year and tamariki aged 1 to 4 years.

The ethnicity data used in this data book has been prioritised, meaning each tamaiti has been allotted a single ethnic grouping, even if they have more than one ethnicity recorded, using a standard prioritisation table. It is well established that tamariki can belong to more than one ethnic group and there are standards for the health and disability system that ensure the ethnicity question caters for multiple responses.[12]

The New Zealand Index of Deprivation (NZDep) is used as a proxy for socioeconomic status in this data book. NZDep measures the level of deprivation of people in small areas using a set of variables such as income, employment, and living space. The NZDep quintiles range from the least relatively deprived areas in Aotearoa (NZDep 1) to the most relatively deprived areas (NZDep 5).

Geographic data is based on former district health board (DHB) areas. Although DHBs were disestablished by legislation in 2022 and replaced by Health New Zealand | Te Whatu Ora, which is responsible for health services across Aotearoa,[13] they were the entity responsible for hospital-level health services for the period that this data relates to.

More detail on the methods used in this data book is provided in Appendix 1.

12. Ministry of Health, 2017,

13. Pae Ora (Healthy Futures) Act 2022

Key terms

Many of the terms used in this data book have specific meanings that are important to understand when reading and interpreting the data. A full glossary is provided in Appendix 3, but some terms are used frequently and need to be explained from the beginning.

Hospitalisation	When a tamaiti (child) stays overnight at a hospital. It excludes day stay cases (those who do not stay in the hospital past midnight).
Hospitalisation rates	Rate of hospitalisation per 100,000 of the age-specific population.
Injury	Serious unintentional injury, caused by an unintended event.
Tamariki	Children and young people aged 0 to 14 years. The term 'children' is used when referring to tamariki of different ethnic groups (e.g., Pacific children).
Whānau	Family/families (both immediate and wider families) of tamariki. The term 'family' is used when referring to whānau of different ethnic groups (e.g., Pacific families).

Policy implications

At the end of each of the eight injury-specific chapters we have provided a set of policy implications. These are meant to be actions or areas of priority for attention by policy makers at the local and central government levels and for those who are in decision-making positions around resource allocation related to injury prevention.

In developing these policy implications, we went through a process of identifying key focus areas based on the data, reviewing current policy and practice in the area, identifying evidence-based or best practice recommendations, and engaging with experts in the area. Our focus has been to go as 'up stream' as possible, looking at the ways policy could be used to create structural changes or supports to reduce injury harms for tamariki, and create nurturing societal environments.[14]

We are especially grateful to our expert advisors and peer reviewers who helped to strengthen our recommendations based on their own experience, practice, mātauranga, and knowledge of the evidence base.

Although we have concentrated on policy-level changes, our recommendations are complemented by our continued support for injury prevention activity and programmes that reach and meet the needs of tamariki and their whānau, especially for tamariki Māori, Pacific children, and those living in relatively more deprived areas of Aotearoa.

14. Underwood. et al., 2023

Overarching recommendations

While we have been able to make recommendations for each of the eight injury topics in this data book, we were reminded by the evidence base, our expert advisors, and our reviewers of the necessity of addressing the wider determinants of health and wellbeing (including the elimination of racism), and honouring Te Tiriti o Waitangi if we as a country and as communities are serious about sustained and equitable improvement for all tamariki.

Our overarching observations are as follows:

- Injury prevention activity needs to be holistic and empowering for tamariki and their whānau.

- Policies and programmes that address wider determinants of health, must be a part of a whole-of-government and whole-of-society approach to securing the best possible, equitable, outcomes for all tamariki in Aotearoa. This includes improving access to safe, accessible, and affordable housing for whānau, improving transport options, reducing exposure to stressful life events, and eliminating inequities for tamariki Māori.

A theme throughout our recommendations is that culturally safe approaches to injury prevention are essential. We especially note the success to date of wānanga and other programmes that build on the strength of mātauranga Māori for the benefit of tamariki Māori, their whānau, and our wider communities. We emphasise the opportunities we have to build on lessons from these approaches and develop effective ways reach other communities that are disproportionately impacted by the harms from injuries (such as Pacific children and their families).

The need for more data, analysis and research is also a theme throughout this data book. We often found ourselves wanting to know more about what was driving the patterns we were seeing, such as around sporting related injury, injuries around the home, or changes over time for different ethnic groups (especially for Pacific children). Finding answers to many of these questions will require intentional investment in research.[15]

While this data book was able to build on the analysis from our previous publication, there are still recognised data gaps and, in particular, the lack of robust disability data is a limitation of this publication. The issues of disability data, especially in relation to tāngata whaikaha Māori (Māori with lived experience of disability), have been raised consistently in submissions to the Waitangi Tribunal as part of its kaupapa (thematic) inquiry into health services and outcomes (known as Wai 2575),[16] and addressing this critical data gap must be a priority for all areas of injury prevention activity.

---

15. The need for further research has been noted in child injury research, especially in terms of understanding the interactions between the wider societal context for tamariki and whānau, and the risk of experiencing injury. See for example: Ghebreab, L., et al., 2021.

16. See for example: King, P.T., 2019.

He aha te mea nui o te ao?
He tangata! He tangata!
He tangata!

What is the most important thing in the world?
It is people! It is people!
It is people!

This whakataukī speaks to the importance of human connection and relationships to people and place. These connections are what create a sense of community and enable individuals to thrive and flourish.

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, socioeconomic status, and gender.

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)

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.

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

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.

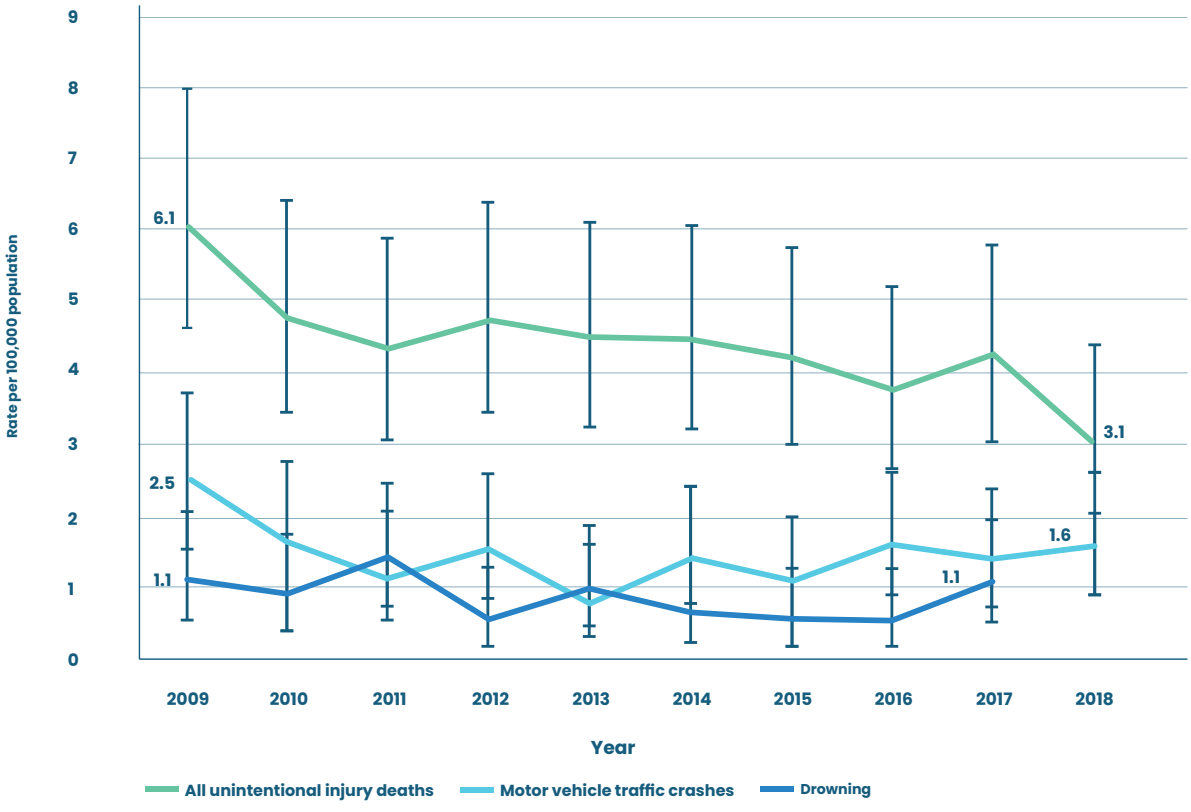
Table 1 shows the main causes of tamariki death from injury (excluding SUDI) for the years 2014 to 2018.[21]

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

---

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 focusing 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.
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

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



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**	**3.42 - 4.59**	**100**

* Note s = Suppressed data due to low numbers

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]

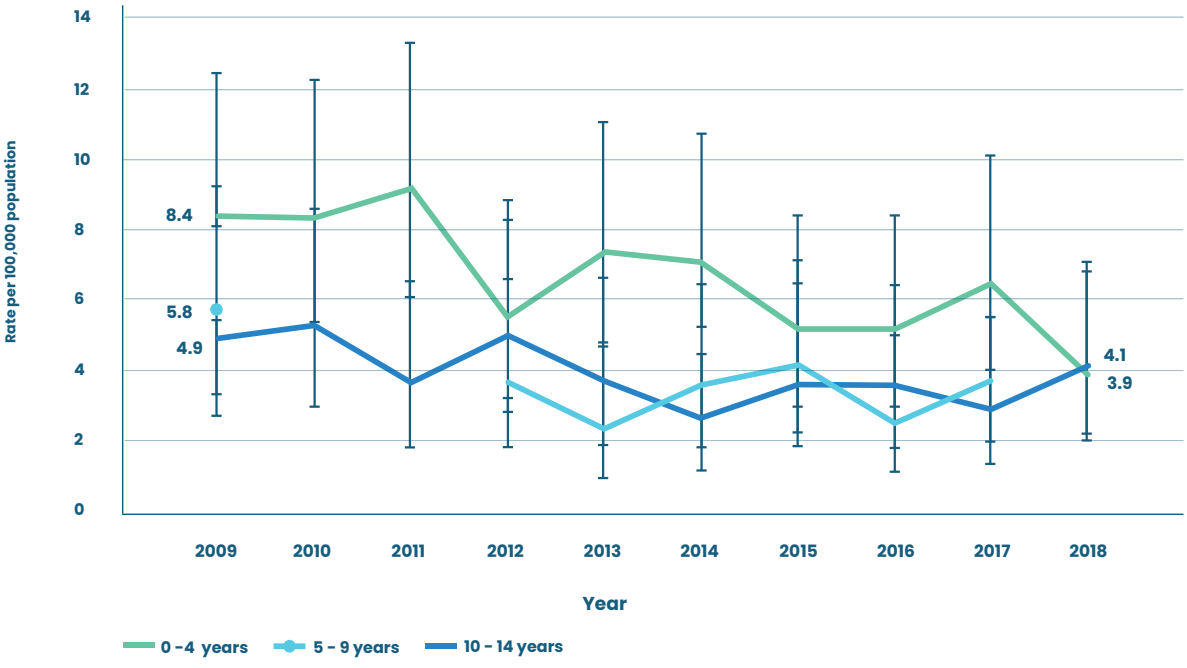
Excluding SUDI, drowning was the most common cause of death from injury for tamariki aged 0 to 4 years (1.4 per 100,000), followed by 'motor vehicle traffic' incident (1.2 per 100,000). [26]

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.

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).
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.

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



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]

---

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 .
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.

Socioeconomic deprivation

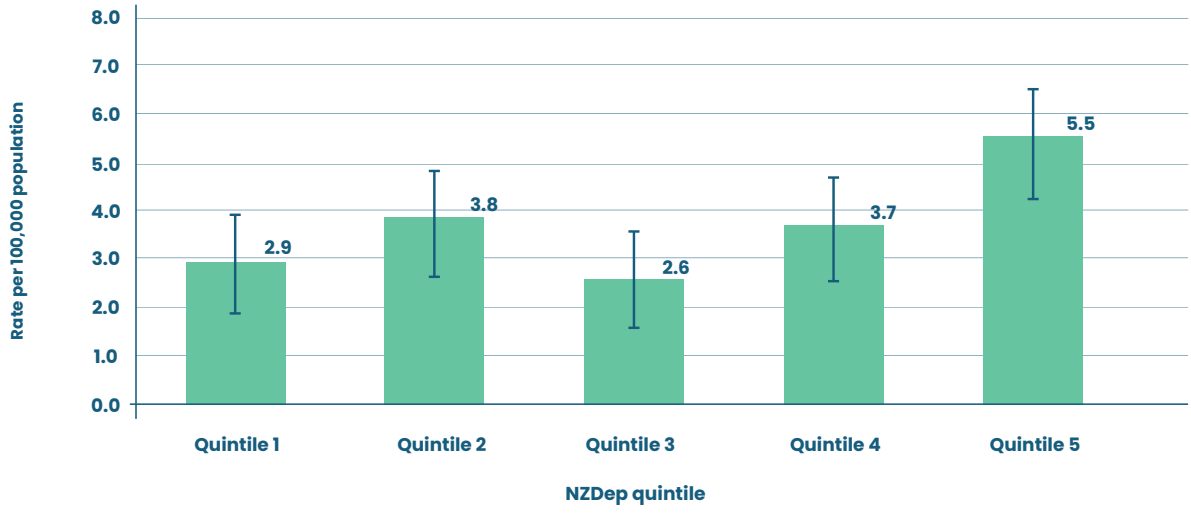
Tamariki living in the most relatively deprived areas of Aotearoa (NZDep quintile 5) had the highest rate of deaths from injury (5.5 per 100,000), when compared with tamariki living in other NZDep quintile areas.

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 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.

Table 2: Tamariki deaths from injury, by gender and selected cause, 2014–2018

Gender	Deaths (n)	Rate per 100,000	95% CIs
Motor vehicle traffic			
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).

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).

---

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.
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, 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

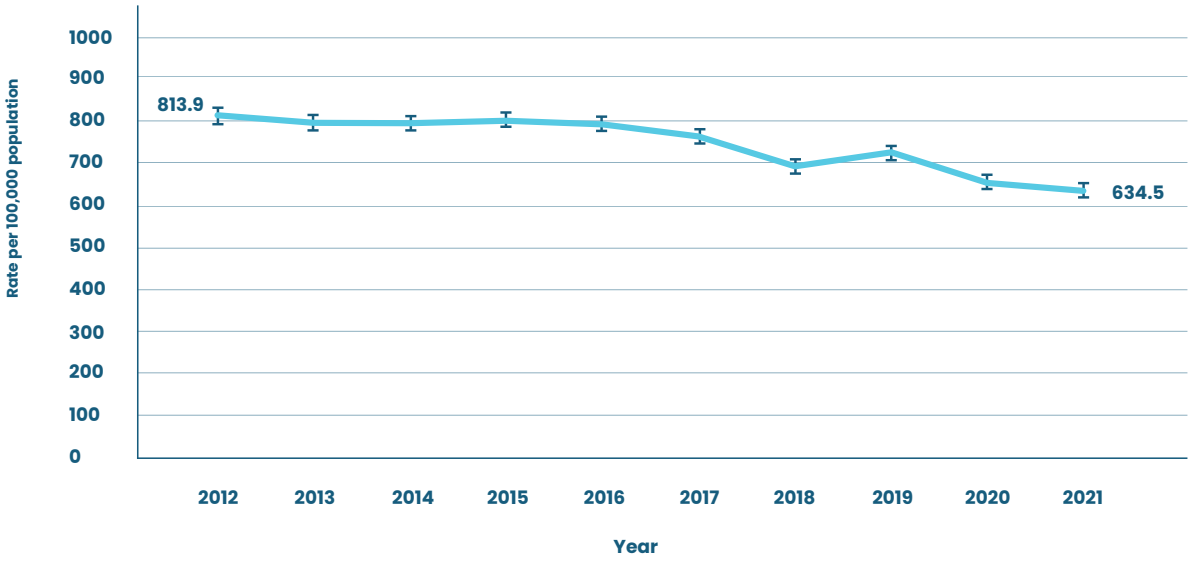


Figure 5: Rates of tamariki hospitalisation for injury over time, by major cause, 2012–2021

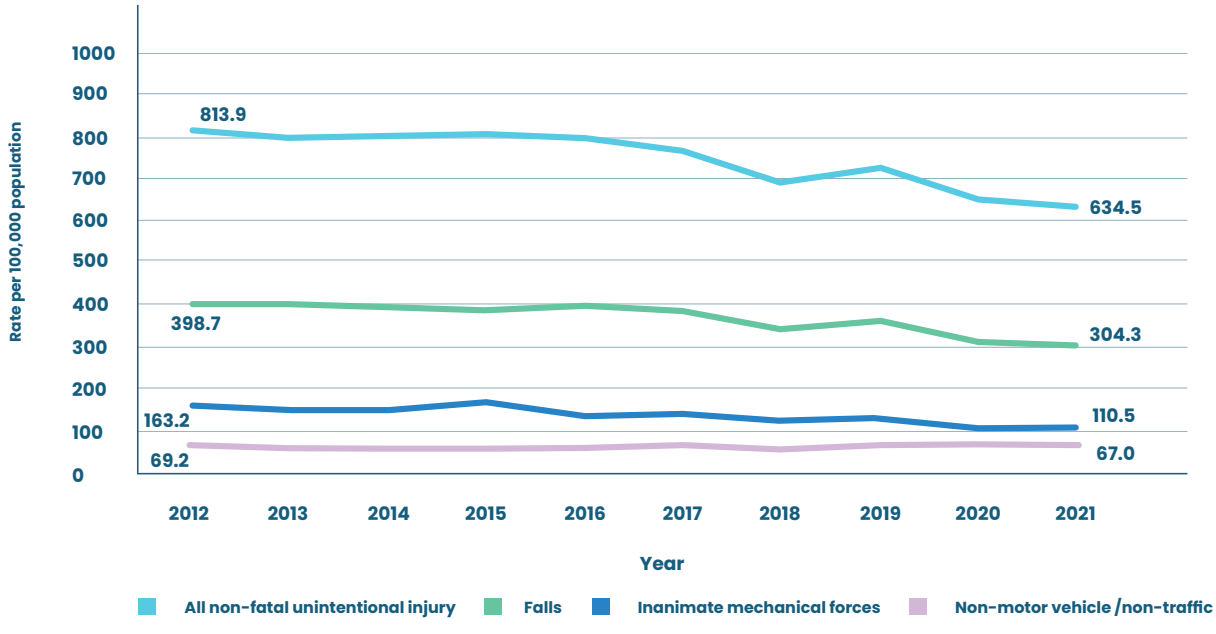


Table 3: Tamariki hospitalisations for injury, by main external cause, 2017–2021

Main external cause of injury		n	Rate per 100,000	95% CIs	%
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 mechanical forces		5,852	122.7	119.56 - 125.86	17.7
Animate mechanical 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	1,045	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 group and the four main causes of injury, for the years 2017 to 2021.

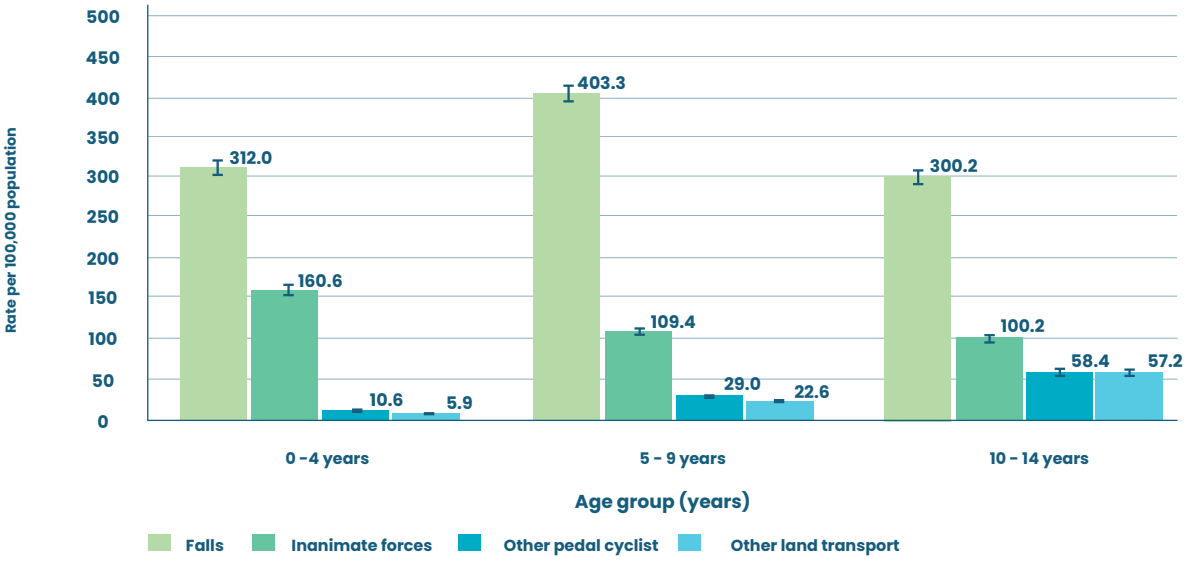
Additional data on tamariki hospitalisation for injury, broken down by age group and main cause, are provided in Appendix 2. [44]

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

Age group (years)	Number	%	Rate per 100,000	95% CIs
0 - 4 years	11,100	33.5	731.1	717.5 - 744.8
5 - 9 years	11,257	34.0	675.1	662.7 - 687.7
10 - 14 years	10,760	32.5	679.2	666.4 - 692.1
Total	**33,117**	**100**	**694.3**	**686.8 - 701.8**

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.

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

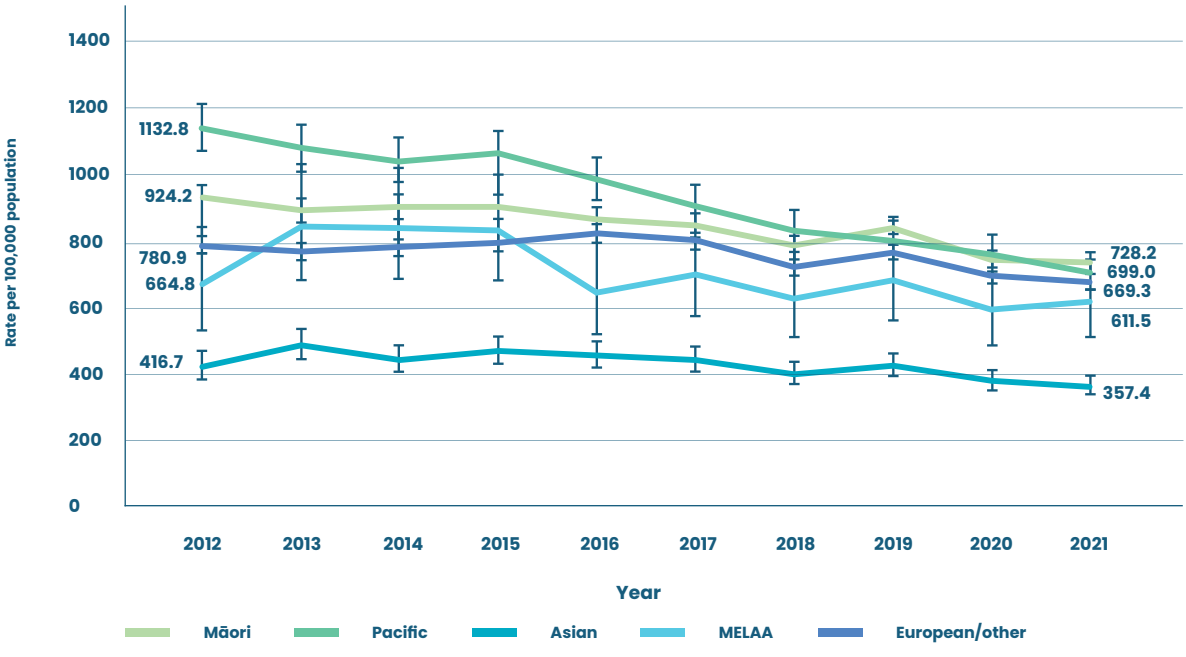
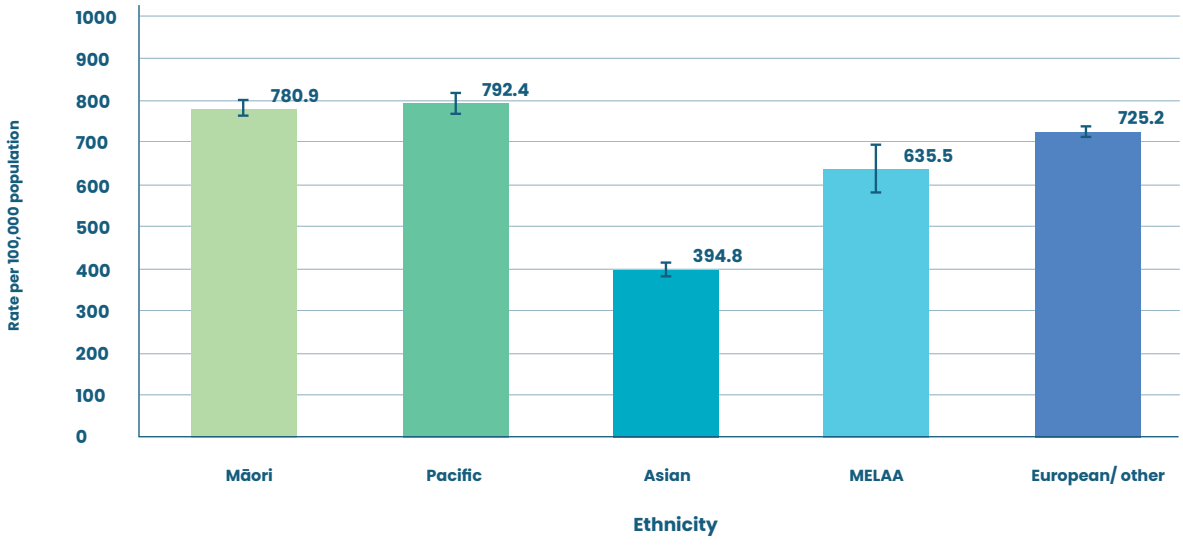
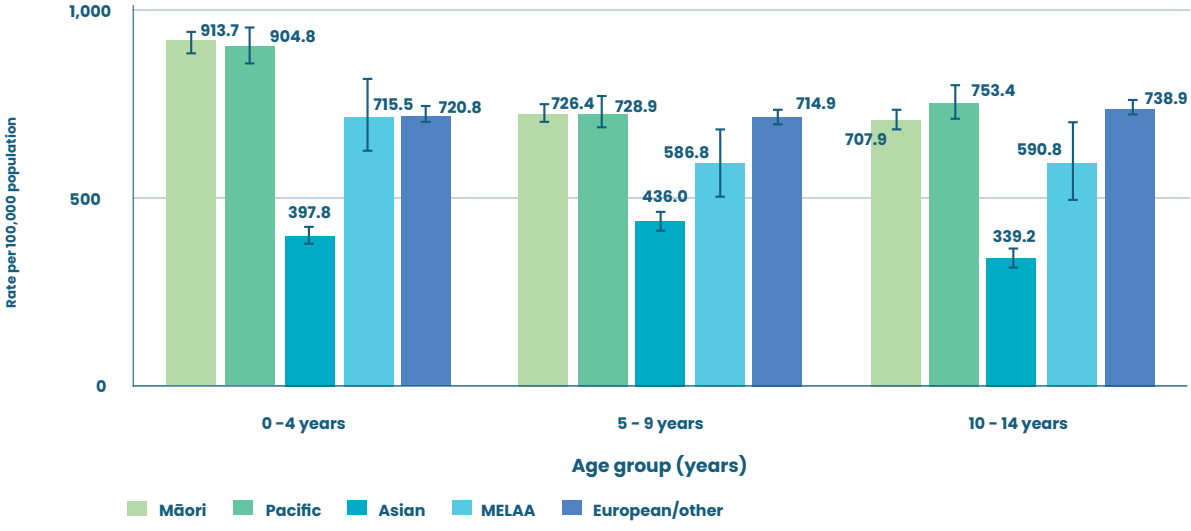


Figure 8: Rates of tamariki hospitalisation for injury, by prioritised ethnicity, 2017–2021*



* Missing data = 38 tamariki

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.

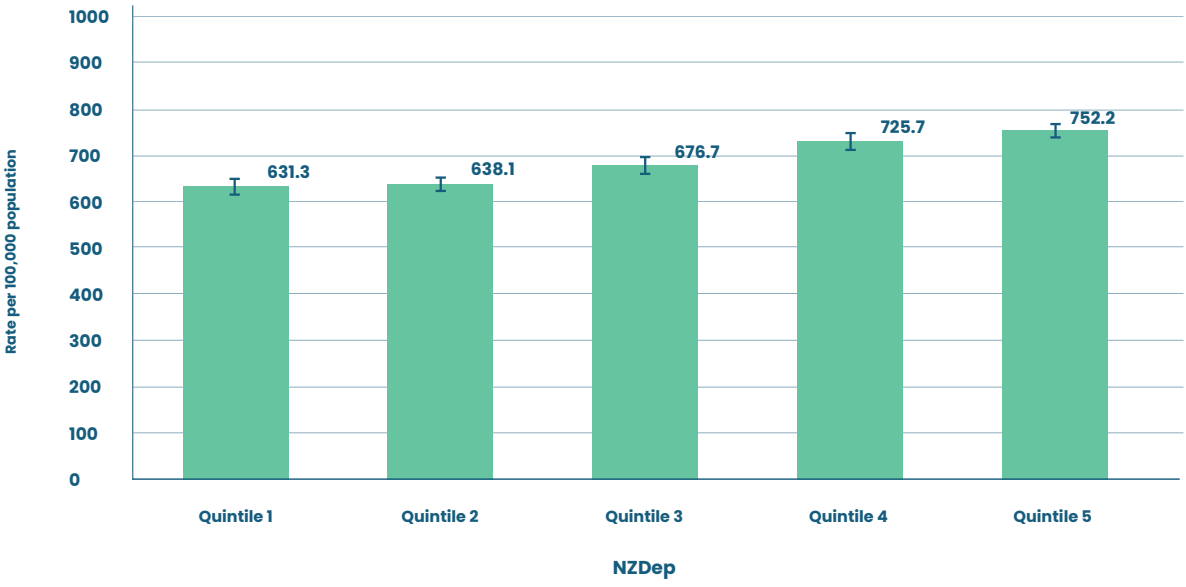
- The rate of hospitalisation for injury for Asian children was the lowest across all the age groups. Within the Asian ethnic group, the rate was highest for children aged 5 to 9 years (436 per 100,000), followed by those aged 0 to 4 years (397.8 per 100,000). The rate was lowest in the age group 10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

Socioeconomic 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 tamariki**

Socioeconomic 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.


AWESOME
NOW AND
FOREVER

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

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

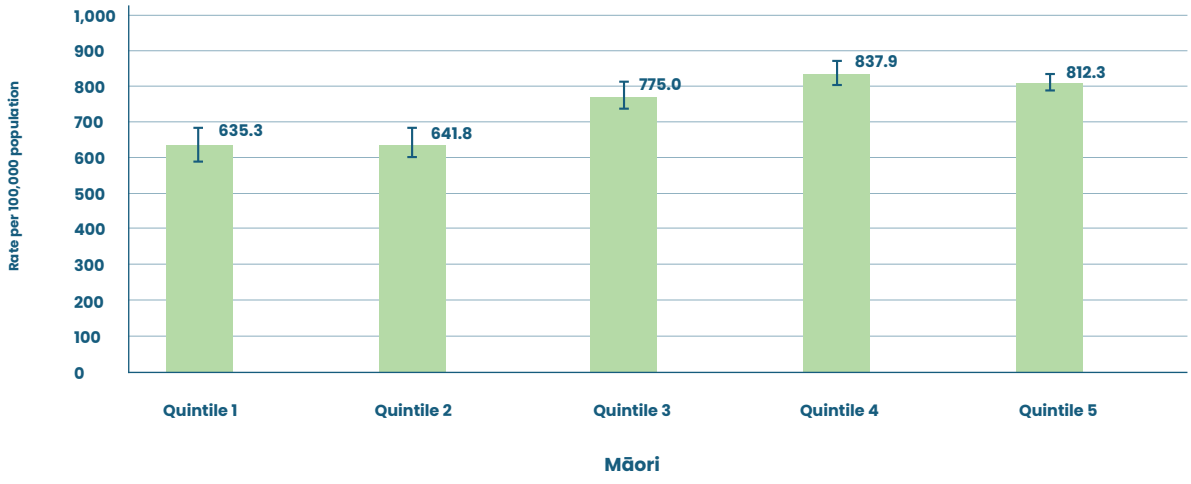
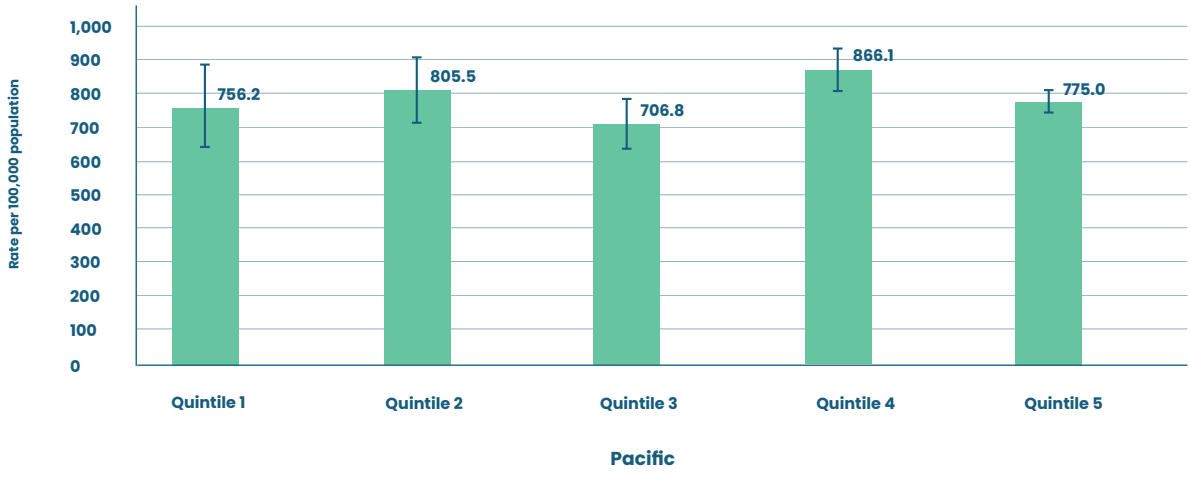
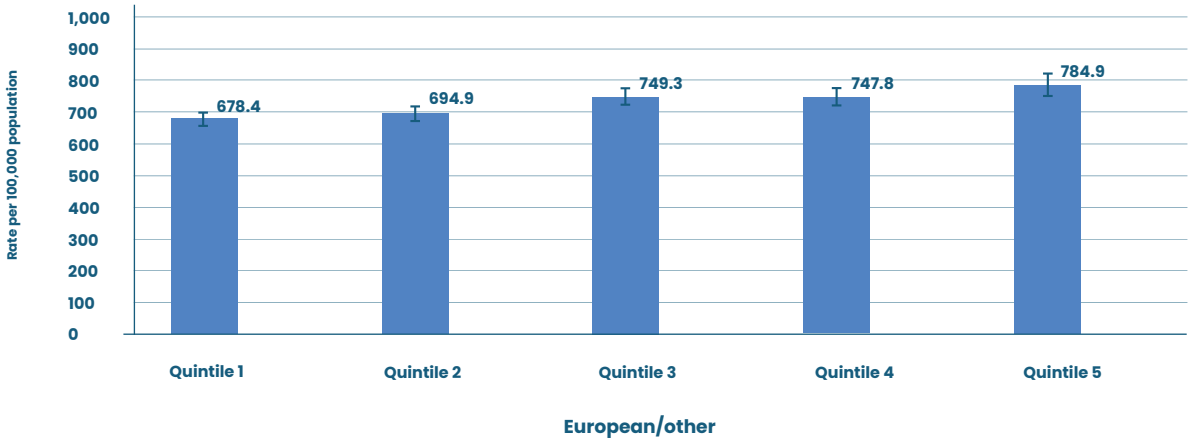


Figure 12: Rates of hospitalisation for injury for Pacific children, by NZDep quintile, 2017–2021



46. See Table 34, Appendix 2.

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).

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.

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.

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

Gender	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 tamaiti**

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

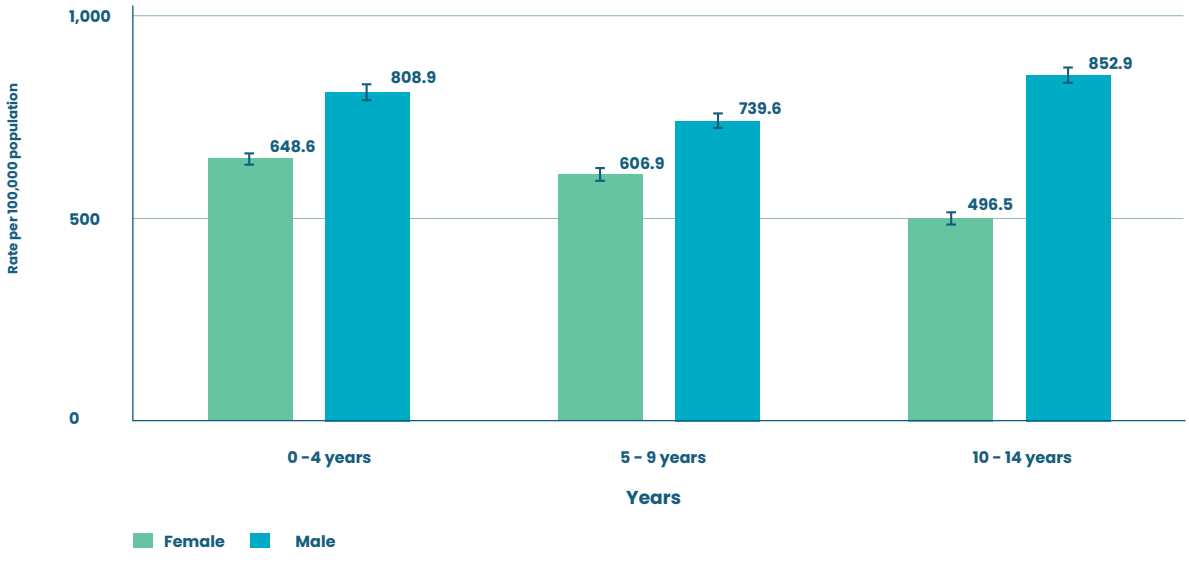
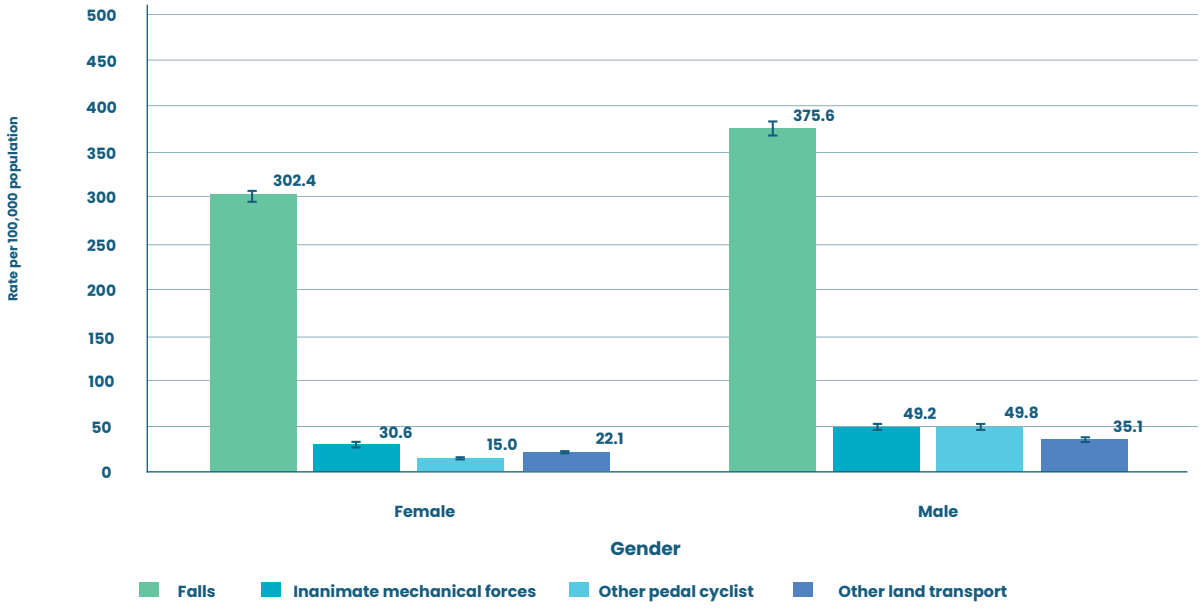


Figure 15: Rates of tamariki hospitalisation for injury, by gender and four main causes, 2017–2021



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).

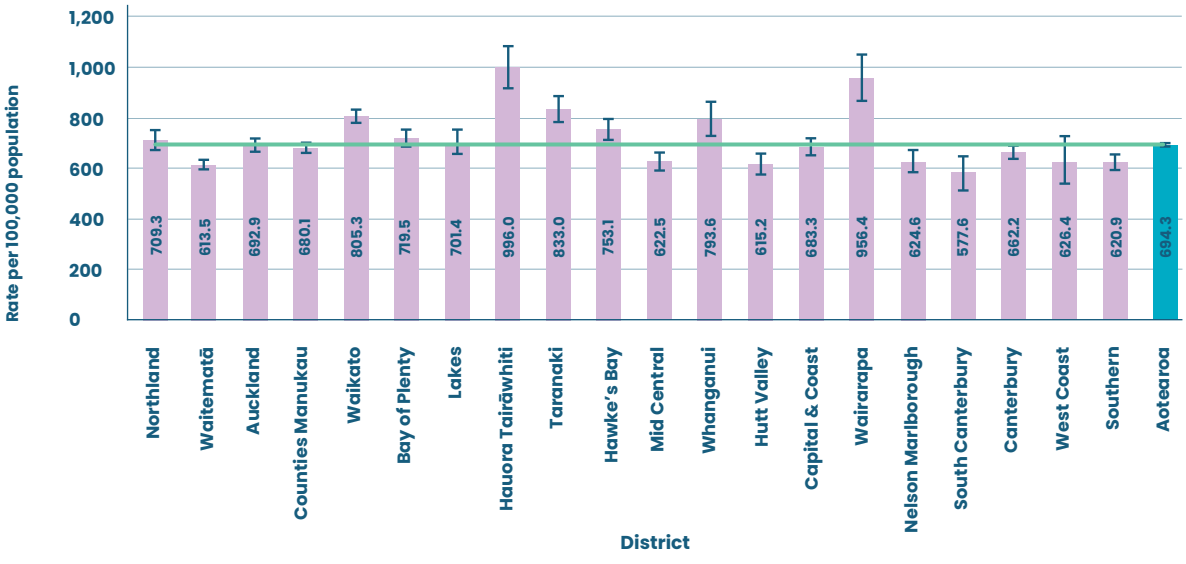
48. Pae Ora (Healthy Futures) Act 2022.
49. Tairāwhiti DHB area (known as Hauora Tairāwhiti) covers the Gisborne district, local and territorial authority areas.
50. Wairarapa DHB area covers Martinborough, Featherston, Greytown, Carterton, Masterton and outlying rural districts.
51. Taranaki DHB area 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.

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]

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



55. Tables 37, 38, 39, and 40, Appendix 2.

56. See Tables 35 and 36, Appendix 2.

Toitū te marae o Tāne,
Toitū te marae o Tangaroa,
Toitū te iwi

The land endures,
The sea endures,
We, the people, endure

A healthy whenua (land) and moana (sea) is a fundamental aspect of health and physical, mental, spiritual and social wellbeing. It provides resources to feed, shelter and heal whānau, an opportunity to learn, an opportunity to connect people to Papatūānuku.

2. Land transport

This chapter sets out the numbers and rates of tamariki fatalities and hospitalisations for injury caused by land transport in Aotearoa. Fatalities are presented for the years 2014 to 2018 and hospitalisations for the years 2017 to 2021, with some trends presented for the years 2012 to 2021.

The current levels of fatalities and serious injuries sustained on and around the roads across Aotearoa are unacceptable and altogether avoidable, and this section highlights the need for a continued focus on addressing the risks that land transport injury pose to tamariki. The category 'land transport' covers a range of injury types, and the terms we use all have specific meanings. We have provided a text box below, to help readers navigate what might be confusing terms.

This chapter is split into three parts.

- Part A provides an overview of the numbers of land transport related fatalities and hospitalisations for tamariki.
- Part B focuses on 'motor vehicle traffic' injuries for tamariki.
- Part C looks at 'non-motor vehicle/non-traffic injuries (made up of 'other pedal cyclist', 'other pedestrian', and 'other land transport' injuries) for tamariki.

Land transport injuries are the cause of a substantial number of tragic fatalities in tamariki, and after suffocation (including SUDI), they are the second-highest cause of death from injury. For this reason, more detailed information on land transport-related deaths has been included in this chapter than in the chapters on other injury types.

Key terms for land transport injury

Motor vehicle traffic: injury sustained in a land transport incident involving a motor vehicle on a street or highway including footpaths and cycleways (on-road). The injured tamariki may be a vehicle occupant, pedestrian, pedal cyclist or motorcyclist.

Non-motor vehicle/non-trafficinjuries: are combined injuries from the 'other pedal cyclist', 'other pedestrian' and 'other land transport' categories.

Other pedal cyclist: Injury sustained by a pedal cyclist in an incident that did not involve a motor vehicle (e.g., non-collision pedal cycle incident, collision with a stationary object) or in an off-road incident.

Other pedestrian: Injury sustained by pedestrian in an off-road incident (e.g. motor vehicle in driveway) or an incident that did not involve a motor vehicle (e.g. collision with pedal cyclist).

Other land transport: Injury sustained in other land transport incident that did not involve motor vehicle traffic (e.g., off-road motor vehicle incidents, animal riders, all-terrain vehicles (ATVs) or other land transport accidents).

In brief

In the years 2014 to 2018, 66 tamariki died from 'motor vehicle traffic' injuries. Over this same period, an additional 29 fatalities in tamariki were related to non-motor vehicle/non-traffic.

In the years 2017 to 2021, there were 4,494 tamariki hospitalisations from land transport injuries. Around 35% of these were related to injuries sustained by a pedal cyclist ('other pedal cyclist'). Across all types of land transport-related injury, hospitalisation was more common for male tamariki than for female tamariki.

When it came to motor vehicle traffic injury:

- While there was a decrease in the rate of tamariki fatality from 2009 to 2012, these rates were almost unchanged between 2012 and 2018 (1.5 per 100,000 in 2012; 1.6 per 100,000 in 2018).
- In the years 2009 to 2018, the Waikato DHB [57] and Waitematā DHB areas [58] had the highest numbers of tamariki deaths from this type of injury across all the DHB regions (n=16 each). Whanganui DHB had the highest rate of tamariki deaths from this type of injury (6.06 per 100,000).
- The rates of tamariki hospitalisation increased slightly over the period 2012 to 2021 (24.7 per 100,000 in 2012; 27.2 per 100,000 in 2021).
- In the years 2012 to 2021, the Counties Manukau [59] (n=345) and Waikato DHB areas (n=302) had the highest number of tamariki hospitalisations for this type of injury. The Whanganui DHB region [60] had the highest rate of tamariki hospitalisation for this type of injury (47.6 per 100,000).
- Injury as an *occupant* of a motor vehicle was the leading cause of tamariki hospitalisation for this type of injury, and the rates increased with age (11.5 per 100,000 for those aged 0 to 4 years, to 14.6 per 100,000 for those aged 5 to 9 years, and 20.5 per 100,000 for those aged 10 to 14 years).
- Tamariki Māori (45.0 per 100,000) and Pacific children (28.0 per 100,000) had the highest rates of hospitalisation for this type of injury.
- Tamariki living in the most relatively deprived areas of Aotearoa had the highest rate of hospitalisation for this type of injury overall (40.0 per 100,000 for NZDep quintile 5, compared with 15.3 per 100,000 for NZDep quintile 1).
- Male tamariki accounted for a greater proportion of hospitalisation from this type of injury (59%) than female tamariki (41%).

For non-motor vehicle/non-traffic injury: [61]

- The rates of tamariki hospitalisation for this type of injury varied slightly each year, but overall there was little change, from the rate in 2012 (69.2 per 100,000) to the rate in 2021 (67.0 per 100,000).

57. Waikato DHB area stretches from northern Coromandel to close to Mt Ruapehu in the south, and from Raglan on the west coast to Waihi on the east.
58. Waitematā DHB area covers the northern and western parts of Auckland, from Te Hana to Birkenhead.
59. 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.
60. Whanganui DHB area covers Whanganui, Rangitikei Territorial Authority areas and the Ruapehu Territorial Authority area wards of Waimarino and Waiouru- known as South Ruapehu.
61. Non-motor vehicle/non-traffic injury covers "other pedal cyclist", "other pedestrian", and "other land transport".

- The rates of tamariki hospitalisation for this type of injury increased with age for the crash types ‘other pedal cyclist’ and ‘other land transport’. However, the rate of hospitalisation for injury in the ‘other pedestrian’ category was highest for those aged 0 to 4 years (6.2 per 100,000).
- The highest rates of hospitalisation for this type of injury were amongst European/other children (94.2 per 100,000). Tamariki Māori had the second-highest rate of all the ethnic groupings (64.3 per 100,000).
- In direct contrast to the findings for ‘motor vehicle traffic’ injury, tamariki living in the least relatively deprived areas of Aotearoa were more likely to be hospitalised for ‘non-motor vehicle/non-traffic’ injury (80.1 per 100,000) than those living in the more relatively deprived areas (52.6 per 100,000).
- When broken down by geographic location, the former Waikato DHB region had the highest number of tamariki hospitalisations for this type of injury (n=414), and the Tairāwhiti DHB region [62] had the highest rate (142.0 per 100,000).

62. Tairāwhiti DHB area (known as Hauora Tairāwhiti) covers the Gisborne district, local and territorial authority areas.

Part A – Overview of land transport injury

Fatalities, trend over time

In the years 2014 to 2018, 66 tamariki died from 'motor vehicle traffic' injury across Aotearoa. Most of these tamariki were occupants in a motor vehicle (n=51).

Table 6 provides an overview of tamariki fatalities from 'motor vehicle traffic' incidents for the years 2014 to 2018, broken down by crash type.

Twenty-nine tamariki died from 'non-motor vehicle/non-traffic' incidents ('other pedal cyclist', 'other pedestrian', and 'other land transport') in the years 2014 to 2018. Fifteen of these deaths related to 'other pedestrian' injury and 12 related to 'other land transport' injury. Of the 'other pedestrian' deaths, 73% (11 out of 15) were tamariki aged 0 to 4 years who died in an off-road collision with a motor vehicle (e.g. driveway runover).

Due to these low numbers, it was not possible to provide any further meaningful statistical analysis for fatalities from 'non-motor vehicle/non-traffic' incidents.

Table 6: Overview of tamariki fatalities from 'motor vehicle traffic' incidents, 2014–2018

Main external cause of fatal injury		Number	Rate per 100,000	%
Motor vehicle traffic crash	Total	66	1.4	22.8
	Occupant	51	1.1	17.6
	Pedestrian	9	0.2	3.1
	Pedal cyclist	<6	s	s
	Motorcyclist	<6	s	s

Hospitalisations, trend over time

In the years 2017 to 2021, 4,494 tamariki were hospitalised from land transport injury.

Table 7 provides an overview of tamariki hospitalisations for land transport injury, broken down into the main categories of land transport incident.

Table 7: Overview of tamariki hospitalisations for land transport injury, 2017–2021

External cause of non-fatal injury		Number	Rate per 100,000	95% CIs	%
Land transport	Total motor vehicle traffic crash	1,353	28.36	26.87 - 29.92	30.1
	Occupant	742	15.56	14.46 - 16.72	16.5
	Pedestrian	338	7.08	6.35 - 7.88	7.5
	Motorcyclist	165	3.46	2.95 - 4.03	3.7
	Unspecified	8	0.17	0.07 - 0.33	0.2
	Pedal cyclist	100	2.10	1.71 - 2.55	2.2
	Other pedal cyclist	1,569	32.89	31.28 - 34.56	34.9
	Other pedestrian	200	4.19	3.63 - 4.82	4.5
	Other land transport	1,372	28.76	27.26 - 30.33	30.5
Total		4,494	94.21	91.48 - 97.01	100

Additional points to note from **Table 7:**

- The most common type of non-fatal land transport injury was 'other pedal cyclist' (a rate of 32.9 per 100,000, n=1569). This category represented around 35% of all non-fatal land transport injuries.
- The rates of hospitalisation for tamariki aged 0 to 14 over this period were similar to each other in terms of 'other land transport' (28.8 per 100,000) and 'motor vehicle traffic' (28.4 per 100,000).

Part B – 'Motor vehicle traffic' injury

Fatalities, trend over time

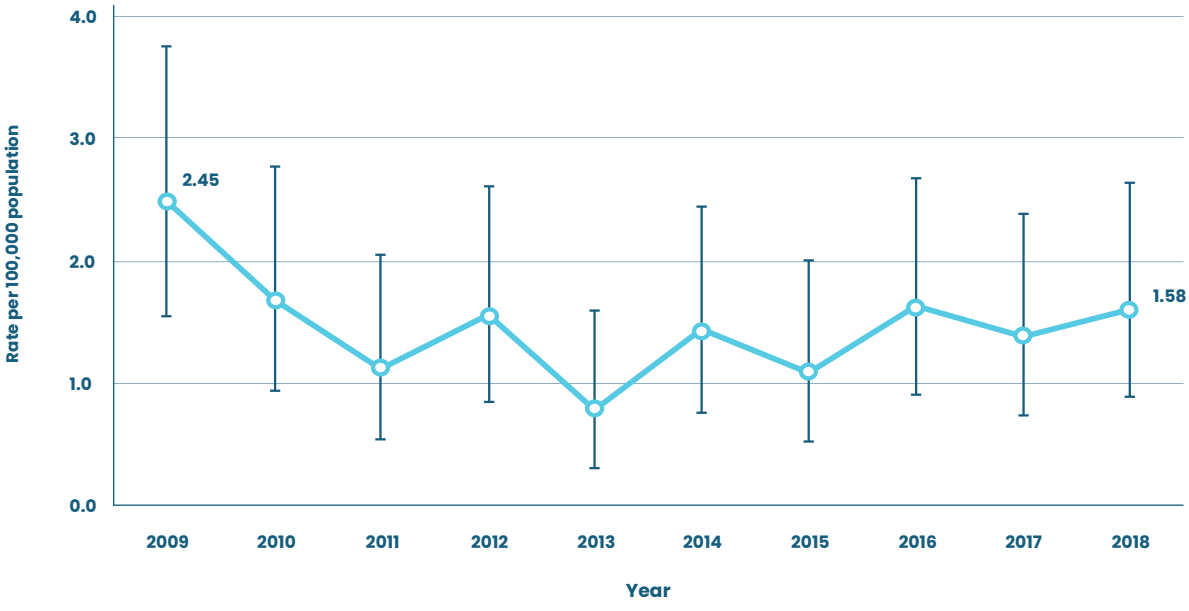
Although the rate of fatal injury for tamariki from 'motor vehicle traffic' incidents varied slightly each year between 2009 and 2018, it was generally steady in the years 2012 to 2018 (1.5 per 100,000 in 2012; 1.6 per 100,000 in 2018).

Figure 17 shows the rates of fatal injury for tamariki from 'motor vehicle traffic' incidents over time, for the years 2009 to 2018.

Additional data on tamariki fatalities from 'motor vehicle traffic' incidents are provided in Appendix 2. [63]

63. See Table 41, Appendix 2.

Figure 17: Rates of fatal injury for tamariki from 'motor vehicle traffic' incidents over time, 2009–2018



Hospitalisations, trend over time

Rates of tamariki hospitalisation for injury related to 'motor vehicle traffic' incidents increased slightly over time (24.7 per 100,000 in 2012; 27.2 per 100,000 in 2021).

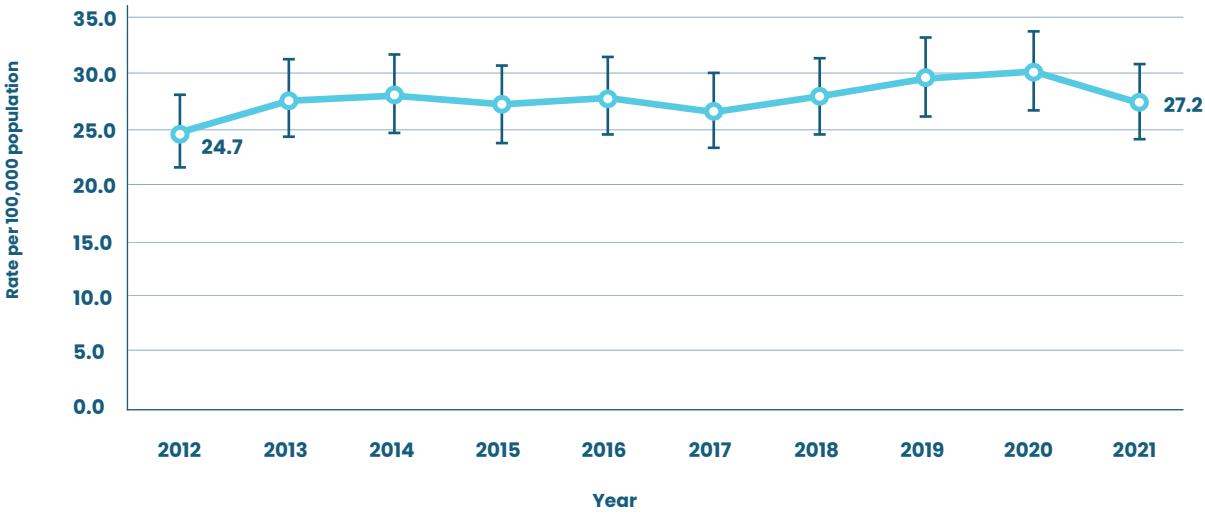
In the years 2017 to 2021, 1,353 tamariki were hospitalised for injuries from 'motor vehicle traffic' incidents (a rate of 28.6 per 100,000). These tamariki were most likely to be occupants in motor vehicles (n=742) or pedestrians (n=338).

Figure 18 shows the rates of tamariki hospitalisation for injury from 'motor vehicle traffic' incidents, for the years 2012 to 2021.

Additional data on tamariki hospitalisations for this category for each year from 2012 to 2021 are provided in Appendix 2. [64]

64. Table 41, Appendix 2.

Figure 18: Rates of tamariki hospitalisation for injury from 'motor vehicle traffic' incidents over time, 2012–2021



Age group

In the years 2017 to 2021, almost half (48.6%, n=657) of all tamariki hospitalisations for injury from 'motor vehicle traffic' incidents were for tamariki aged 10 to 14 years. This was the highest rate of all the age groups (41.5 per 100,000).

Across all age groups, the leading cause of tamariki hospitalisation for injury from 'motor vehicle traffic' incidents was being an occupant in a motor vehicle, with the rates increasing with age (from 11.5 per 100,000 for tamariki aged 0 to 4 years; 14.6 per 100,000 for tamariki aged 5 to 9 years; 20.5 per 100,000 for tamariki aged 10 to 14 years).

Within the age group 0 to 4 years, most hospitalisations for injury from 'motor vehicle traffic' incidents were for tamariki aged 1 to 4 years (91%, n=239).

Table 8 shows tamariki hospitalisations for injury from 'motor vehicle traffic' incidents, presented by age group, for the years 2017 to 2021.

Figure 19 shows the rates of tamariki hospitalisation for injury from 'motor vehicle traffic' incidents, presented by age group and type of crash, for the years 2017 to 2021.

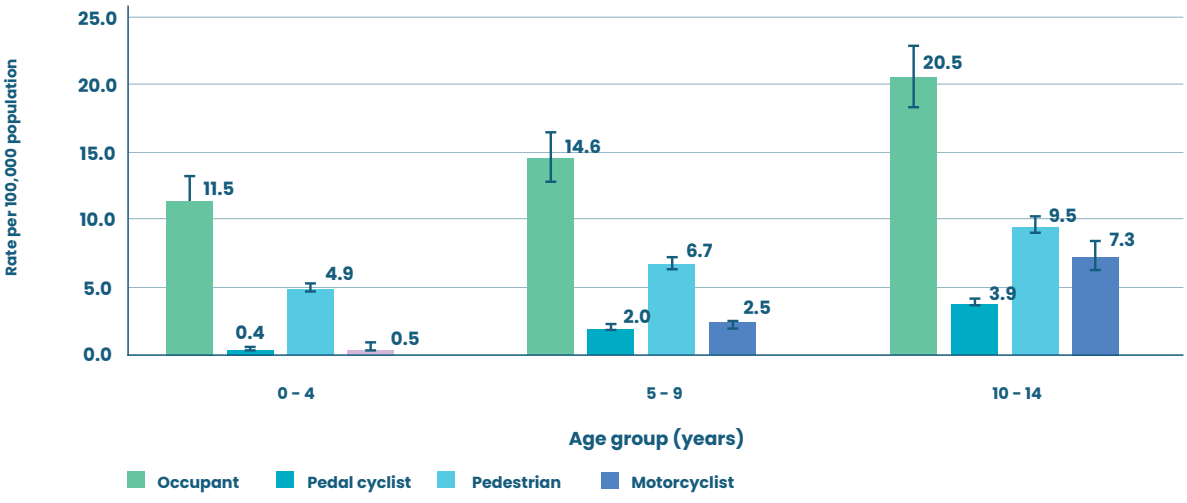
Table 8: Tamariki hospitalisations for injury from 'motor vehicle traffic' incidents, by age group, 2017–2021

Age group (years)	No. of Hospitalisations	%	Rate per 100,000	95% CIs	
0 - 4	264	19.5	17.39	15.35	19.62
5 - 9	432	31.9	25.91	23.52	28.47
10 - 14	657	48.6	41.47	38.36	44.77
Total	**1,353**	**100**	**28.4**	**26.87**	**29.92**

Additional points to note from **Table 8:**

- For the years 2017 to 2021, the rate of hospitalisation for injury for tamariki aged 10 to 14 years (41.5 per 100,000) was significantly higher than the rates for those aged 5 to 9 years (25.9 per 100,000) and 0 to 4 years (17.4 per 100,000).

Figure 19: Rates of tamariki hospitalisation for injury from 'motor vehicle traffic' incidents, by age group and crash type, 2017–2021



Additional points to note from **Figure 19:**

- Across all age groups tamariki aged 10 to 14 years had the highest rate of hospitalisation for the subcategory 'occupant' (20.5 per 100,000). This was a statistically significant finding.
- The hospitalisation rate for tamariki aged 10 to 14 years for the 'pedal cyclist' subcategory (3.9 per 100,000) was significantly higher than in the age group 5 to 9 years (2.0 per 100,000) and 0 to 4 years age group (0.40 per 100,000).
- Tamariki aged 10 to 14 years also had the highest rate of hospitalisation for injury in the subcategory 'motorcyclist' (7.3 per 100,000) – significantly higher than for tamariki aged 5 to 9 years (2.5 per 100,000) and 0 to 4 years (0.5 per 100,000).

Ethnicity

In the years 2017 to 2021, tamariki Māori had significantly higher rates of hospitalisation for injury from 'motor vehicle traffic' incidents (45.0 per 100,000) than European/other children (22.8 per 100,000) or Asian children (16.7 per 100,000). Pacific children had the second-highest rate of all the ethnic groups (28.0 per 100,000). The rate for MELAA children was 24.8 per 100,000.

Looking at crash type, tamariki Māori had the highest rate of hospitalisation of any ethnic group for injury in the subcategory 'occupant' (27.1 per 100,000). Pacific children had the highest rate of hospitalisation for injury in the subcategory 'pedestrian' (11.4 per 100,000).

At every age group, tamariki Māori had the highest rates of hospitalisation for injury from 'motor vehicle traffic' incidents of any ethnic group. Although, in the 0 to 4 year old group, the rate for Pacific children (29.3 per 100,000) was very close behind that of tamariki Māori (29.5 per 100,000).

Figure 20 shows the rates of tamariki hospitalisation for injury from 'motor vehicle traffic' incidents, by prioritised ethnicity, for the years 2017 to 2021.

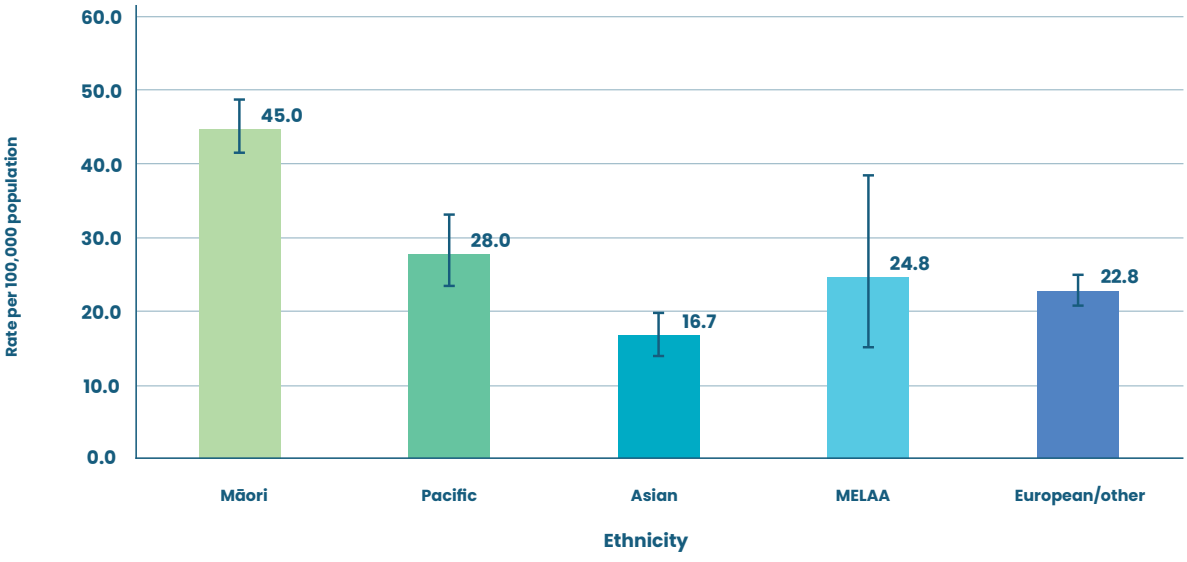
Figure 21 shows the rates of tamariki hospitalisation for injury from 'motor vehicle traffic' incidents, by prioritised ethnicity and crash type, for the years 2017 to 2021.

Figure 22 shows the rates of tamariki hospitalisation for injury from 'motor vehicle traffic' incidents, by prioritised ethnicity and age group, for the years 2017 to 2021.

Additional data on tamariki hospitalisations for 'motor vehicle traffic' injury, by prioritised ethnicity, are provided in Appendix 2. [65]

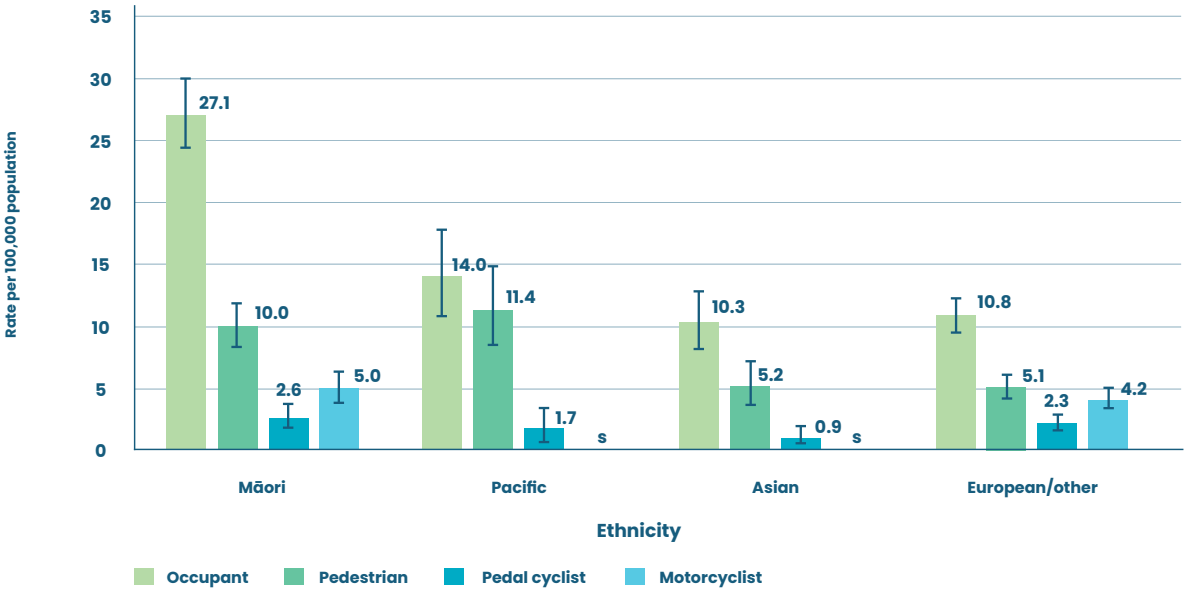
65. Table 42, Appendix 2.

Figure 20: Rates of tamariki hospitalisation for injury from ' motor vehicle traffic ' incidents, by prioritised ethnicity, 2017 - 2021 *



*Missing data = 6 tamariki (ethnicity not stated)

Figure 21: Rates of tamariki hospitalisation for injury from 'motor vehicle traffic' incidents, by prioritised ethnicity and crash type, 2017–2021*



*Data for the MELAA ethnic group is not presented, due to low numbers.

Additional points to note from **Figure 21:**

- Tamariki Māori had the highest rates of hospitalisation of any of the ethnic groups for injury in the subcategory 'occupant' (27.1 per 100,000). This was a statistically significant finding when compared with Pacific (14.0 per 100,000), Asian (10.3 per 100,000) and European/other children (10.8 per 100,000).
- Tamariki Māori also had the highest rates of hospitalisation in the subcategory 'pedal cyclist' (2.6 per 100,000) and motorcyclist (5.0 per 100,000).
- The rate of hospitalisation for injury in the subcategory 'pedestrian' was significantly higher for tamariki Māori (10.0 per 100,000) and Pacific children (11.4 per 100,000), when compared with Asian (5.2 per 100,000) and European/other children (5.1 per 100,000).

Figure 22: Rates of tamariki hospitalisation for injury from 'motor vehicle traffic' incidents, by prioritised ethnicity and age group, 2017–2021*

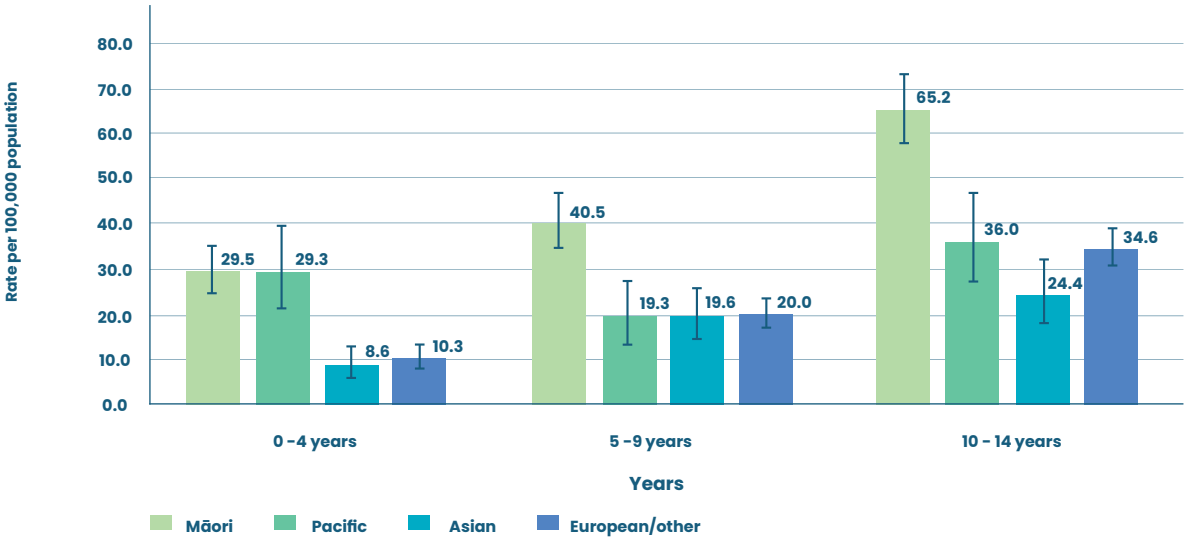


*Figure note: Data for the MELAA ethnic group is not presented, due to low numbers.

Additional points to note from **Figure 22:**

- In the age group 0 to 4 years, tamariki Māori (29.5 per 100,000) and Pacific children (29.3 per 100,000) had significantly higher rates of hospitalisation for injury from 'motor vehicle traffic' incidents than Asian (8.6 per 100,000) and European/other children (10.3 per 100,000).
- In the age groups 5 to 9 years and 10 to 14 years, tamariki Māori had significantly higher rates of hospitalisation for injury from 'motor vehicle traffic' incidents than all the other ethnic groups (40.5 per 100,000 in the age group 5 to 9 years; 65.2 per 100,000 in the age group 10 to 14 years).
- In the age group 10 to 14 years, Pacific children had the second-highest rate of hospitalisation for injury from 'motor vehicle traffic' incidents (36.0 per 100,000), followed by European/other children (34.1 per 100,000) and Asian children (24.4 per 100,000).

Socioeconomic deprivation

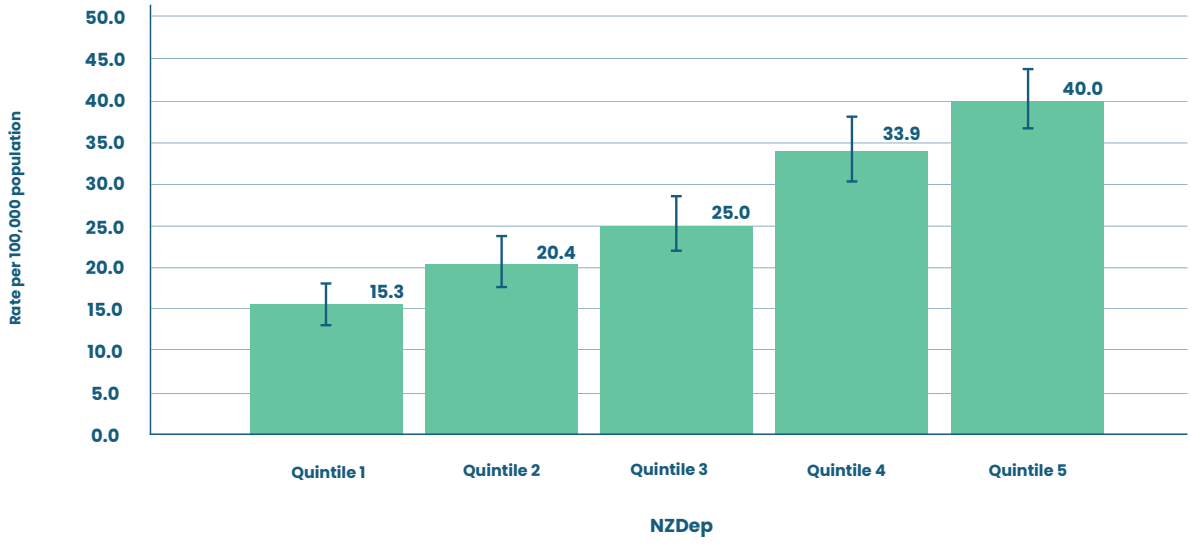
In the years 2017 to 2021, tamariki living in the most relatively deprived areas of Aotearoa had significantly higher rates of hospitalisation for injury related to 'motor vehicle traffic' incidents (40.0 per 100,000 for NZDep quintile 5) than those living in the least relatively deprived areas (15.3 per 100,000 for NZDep quintile 1). This social gradient is also evident when looking specifically at hospitalisations for tamariki who were injured as occupants in motor vehicle crashes.

Figure 23 shows the rates of tamariki hospitalisation for injury from 'motor vehicle traffic' incidents, presented by NZDep quintile for the years 2017 to 2021.

Figure 24 shows the rates of tamariki hospitalisation for injury in the subcategory 'occupant' (a subcategory of motor vehicle crashes), presented by NZDep quintile, for the years 2017 to 2021.

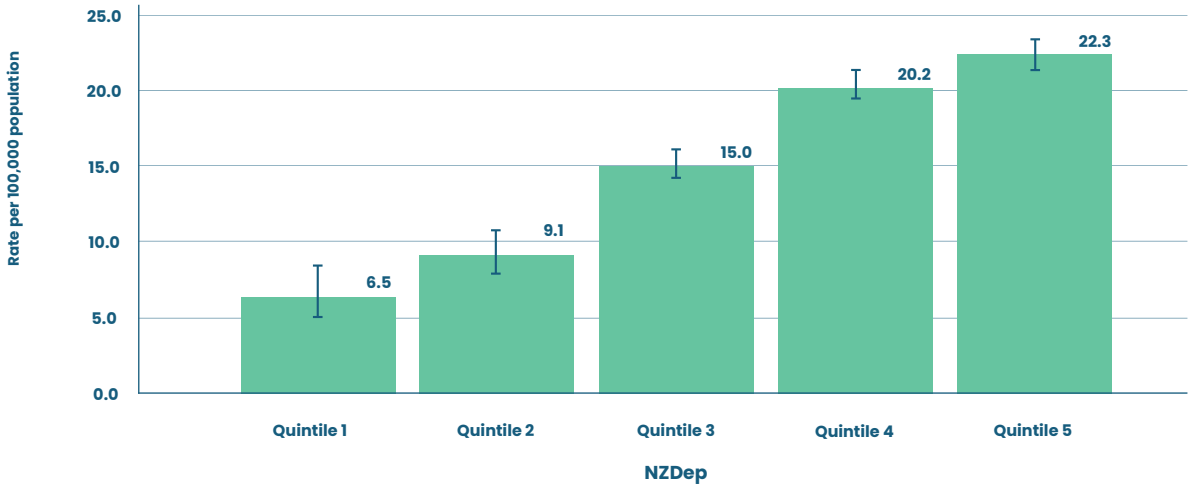
Additional data on tamariki hospitalisation for 'motor vehicle traffic' injury, by NZDep quintile and crash type, are provided in Appendix 2. [66]

Figure 23: Rates of tamariki hospitalisation for injury from 'motor vehicle traffic' incident, by NZDep quintile, 2017–2021



66. See Table 43, Appendix 2.

Figure 24: Rates of tamariki hospitalisation for injury in the subcategory 'occupant', by NZDep quintile, 2017–2021



Additional points to note from **Figure 24:**

Tamariki living in the most relatively deprived areas of Aotearoa had a significantly higher rate of hospitalisations for injury in the subcategory 'occupant' (22.3 per 100,000 in NZDep quintile 5) than those in the least relatively deprived areas (6.5 per 100,000 in NZDep quintile 1, 9.1 per 100,000 for NZDep quintile 2, and 15.0 per 100,000 NZDep quintile 3).

Gender

In the years 2017 to 2021, male tamariki (59%, n=801) accounted for a greater proportion of tamariki hospitalisations for injury from 'motor vehicle traffic' incidents than female tamariki (41%, n=552). The rate of hospitalisation for males (32.7 per 100,000) was significantly higher than that for females (23.8 per 100,000).

Table 9 shows tamariki hospitalisation rates and numbers for injury from 'motor vehicle traffic' incidents, by gender, for the years 2017 to 2021.

Table 9: Tamariki hospitalisations for injury from 'motor vehicle traffic' incidents, by gender, 2017-2021

Gender	Number	%	Rate per 100,000	95% CIs
Female	552	40.8	23.8	21.85 - 25.86
Male	801	59.2	32.7	30.47 - 35.04
Total	**1,353**	**100**	**28.4**	**26.87 - 29.92**

Geographic region

This subsection looks at 'motor vehicle traffic' data broken down by 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, [67] DHBs were in operation during the time period that this data relates to. For many of the regions, the numbers were too low to complete meaningful statistical analysis so these results should be interpreted with some caution.

Of the 134 tamariki deaths for injury from 'motor vehicle traffic' incidents in the years 2009 to 2018, the Waikato [68] and the Waitematā [69] districts had the highest number of tamariki deaths (n= 16 each). The Bay of Plenty district [70] had the next highest number of deaths in tamariki between 2009 and 2018 (n=13).

Whanganui district [71] had the highest rate of tamariki deaths for injury from 'motor vehicle traffic' incidents (6.0 per 100,000, n=8) in the years 2009 to 2018.

In the years 2012 to 2021, Whanganui also had the highest rate of tamariki hospitalisation from injury 'motor vehicle traffic' injury (47.6 per 100,000), followed by Northland [72] (45.6 per 100,000), and Tairāwhiti [73] (43.1 per 100,000) DHB districts.

Table 10 shows tamariki deaths (for the years 2009 to 2018) and hospitalisations (2012 to 2021) from injury from 'motor vehicle traffic' incidents, broken down by DHB district.

67. Pae Ora (Healthy Futures) Act 2022.
68. Waikato DHB area stretches from northern Coromandel to close to Mt Ruapehu in the south, and from Raglan on the west coast to Waihi on the east.
69. Waitematā DHB area covers the northern and western parts of Auckland – from Te Hana to Birkenhead.
70. Bay of Plenty DHB area covers the area from Waihi Beach to East Cape and south to Ruatahuna and includes five district council areas (Kawerau, Ōpōtiki, Tauranga, Western Bay of Plenty and Whakatane).
71. Whanganui DHB area covers the Whanganui and Rangitikei Territorial Authority areas, as well as the Ruapehu Territorial Authority area wards of Waimarino and Waiouru.
72. Northland DHB area covers from Te Hana in the south to Cape Reinga in the north.
73. Tairāwhiti DHB area covers the area from beyond Hicks Bay in the north to the Wharerata ranges in the south.

Table 10: Tamariki deaths (2009–2018) and hospitalisations (2012-2021) from injury from 'motor vehicle traffic' incidents, by geographic region

	Deaths from 'motor vehicle traffic incidents'		Hospitalisations for 'motor vehicle traffic incidents'	
DHB district	**Number**	**Rate per 100,000**	**Number**	**Rate per 100,000**
Auckland	<6	s	194	23.83
Bay of Plenty	13	2.78	167	34.21
Canterbury	7	0.73	203	20.49
Capital & Coast	<6	s	97	17.71
Counties Manukau	11	0.91	345	27.50
Hauora Tairāwhiti	<6	s	50	43.08
Hawke's Bay	9	2.57	120	33.87
Hutt Valley	<6	s	52	17.20
Lakes	<6	s	77	32.11
Mid Central	9	2.59	104	29.57
Nelson Marlborough	<6	s	62	22.84
Northland	10	2.71	173	45.58
South Canterbury	<6	s	20	18.78
Southern	7	1.24	131	22.77
Taranaki	<6	s	79	31.84
Waikato	16	1.92	302	35.16
Wairarapa	<6	s	23	26.59
Waitematā	16	1.40	271	23.00
West Coast	<6	s	23	39.45
Whanganui	8	6.06	63	47.60
Total	**134**	**1.46**	**2,599**	**27.78**

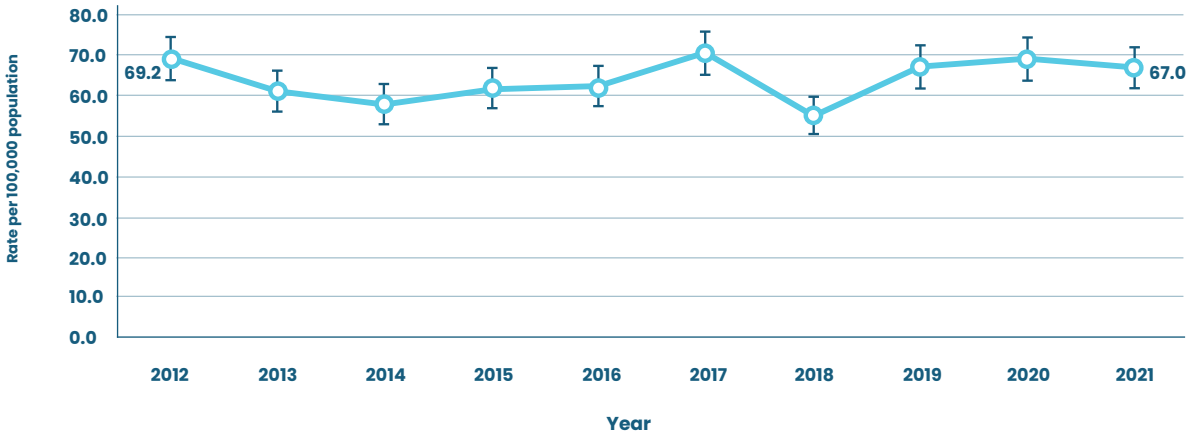
Part C: 'Non-motor vehicle/non-traffic' injuries ('other pedal cyclist', 'other pedestrian', and 'other land transport')

Hospitalisations trend over time

In the years 2012 to 2021, the rates of hospitalisation of tamariki for injury from 'other pedal cyclist', 'other pedestrian', and 'other land transport' incidents have varied slightly each year, but overall there was little change from 2012 (rate of 69.2 per 100,000) to 2021 (rate of 67.0 per 100,000).

Figure 25 shows the rates of tamariki hospitalisations for injury from 'non-motor vehicle/non-traffic' incidents over time, for the years 2012 to 2021.

Figure 25: Rates of tamariki hospitalisation for injury from 'non-motor vehicle/non-traffic' incidents over time, 2012–2021



Age group

In the years 2017 to 2021, the most common cause of hospitalisations for injury from 'non-motor vehicle/non-traffic' incidents was 'other pedal cyclist'.

The rates of hospitalisation of tamariki for 'non-motor vehicle/non-traffic' injury increased with age for 'other pedal cyclist' and 'other land transport' crash types. However, the rates of hospitalisation for 'other pedestrian' were highest for tamariki aged 0 to 4 years (at a rate of 6.2 per 100,000).

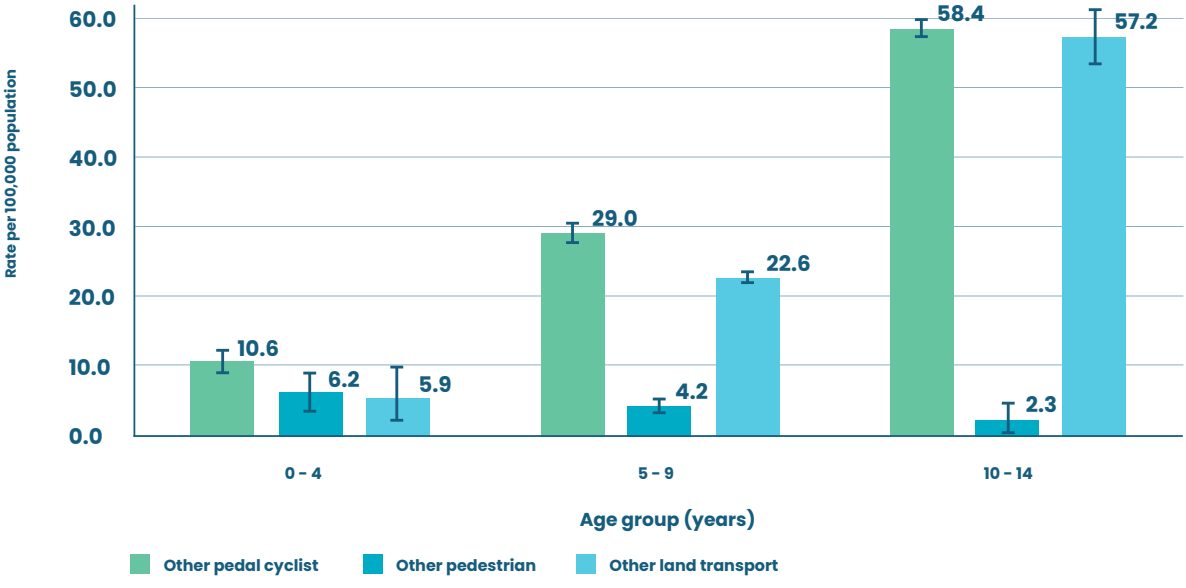
Compared with the two younger age groups, tamariki aged 10 to 14 years had the highest rates of hospitalisation for injury from 'non-motor vehicle/non-traffic' incidents for the subcategories 'other pedal cyclist' (58.4 per 100,000) and for 'other land transport' injury (57.2 per 100,000).

The vast majority of hospitalisations for the age group 0 to 4 years related to tamariki aged 1 to 4 years (98%, n=338).

Figure 26 shows the rates of tamariki hospitalisation for 'non-motor vehicle/non-traffic' injury, by selected crash type, presented by age-group for the years 2017 to 2021.

Additional data on tamariki hospitalisations for 'non-motor vehicle/non-traffic' related injury, by age group, are provided in Appendix 2. [74]

Figure 26: Rates of tamariki hospitalisation for 'non-motor vehicle/non-traffic' injury, by age group and crash type, 2017–2021



Ethnicity

In the years 2017 to 2021, European/other children had the highest overall rates of hospitalisation for 'non-motor vehicle/non-traffic' injury (94.2 per 100,000), followed by tamariki Māori (64.3 per 100,000). The rate for European/other children was significantly higher than that for tamariki Māori. The rates for both European/other children and tamariki Māori were significantly higher than the rates for Pacific children (27.3 per 100,000) and Asian children (18.0 per 100,000).

European/other children had the highest rates of hospitalisation for injury related to 'other pedal cyclist' (a rate of 45.3 per 100,000) and 'other land transport' (a rate of 46.5 per 100,000) out of all ethnic groups.

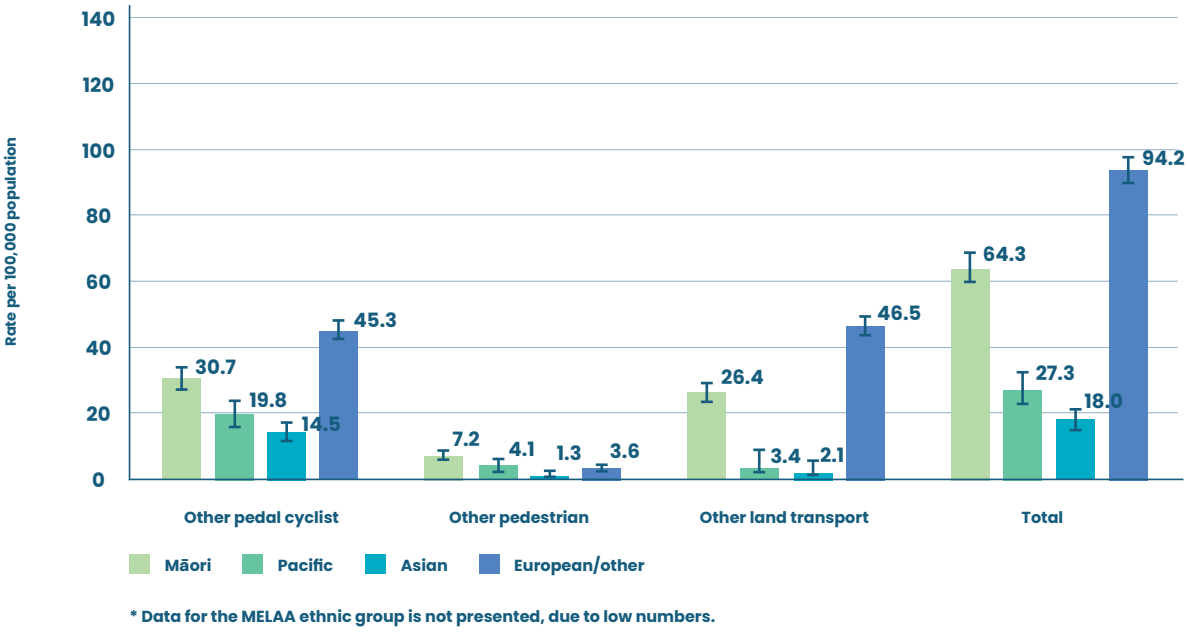
Tamariki Māori had the highest rates of hospitalisation for injury related to 'other pedestrian' (rate of 7.2 per 100,000), followed by Pacific children (4.1 per 100,000).

Figure 27 shows the rates of tamariki hospitalisation for 'non-motor vehicle/non-traffic' injury from the 'other pedal cyclist', 'other pedestrian', and 'other land transport' subcategories, by prioritised ethnicity, for the years 2017 to 2021.

74. Table 44, Appendix 2.

Additional data on tamariki hospitalisation for 'non-motor vehicle/non-traffic' injury for tamariki by prioritised ethnicity are provided in Appendix 2.[75]

Figure 27: Rates of tamariki hospitalisation for 'non-motor vehicle/non-traffic' injury, for tamariki by crash type and prioritised ethnicity, 2017-2021*



* Data for the MELAA ethnic group is not presented, due to low numbers.

Additional points to note from **Figure 27:**

- The rate of hospitalisation for injury from 'other pedal cyclist' was significantly higher for European/other children (45.3 per 100,000) than that for tamariki Māori (30.7 per 100,000), Pacific children (19.8 per 100,000), and Asian children (14.5 per 100,000). The rate for tamariki Māori was also significantly higher than the rates for Pacific and Asian children.

- The rate of hospitalisation for injury from 'other land transport' incident was significantly higher for European/other children (46.5 per 100,000) than that for tamariki Māori (26.4 per 100,000), Pacific children (3.4 per 100,000), and Asian children (2.1 per 100,000). The rate for tamariki Māori was also significantly higher than the rates for Pacific and Asian children.

75. Table 45, Appendix 2.

Socioeconomic deprivation

In direct contrast to 'motor vehicle traffic' injury (see Figure 23, above), tamariki living in the least relatively deprived areas of Aotearoa were more likely to be hospitalised for 'non-motor vehicle/ non-traffic' injury (rate of 80.1 per 100,000) than tamariki living in the more relatively deprived areas of Aotearoa (rate of 52.6 per 100,000).

Looking in more depth at each of the three sub-categories of crash type:

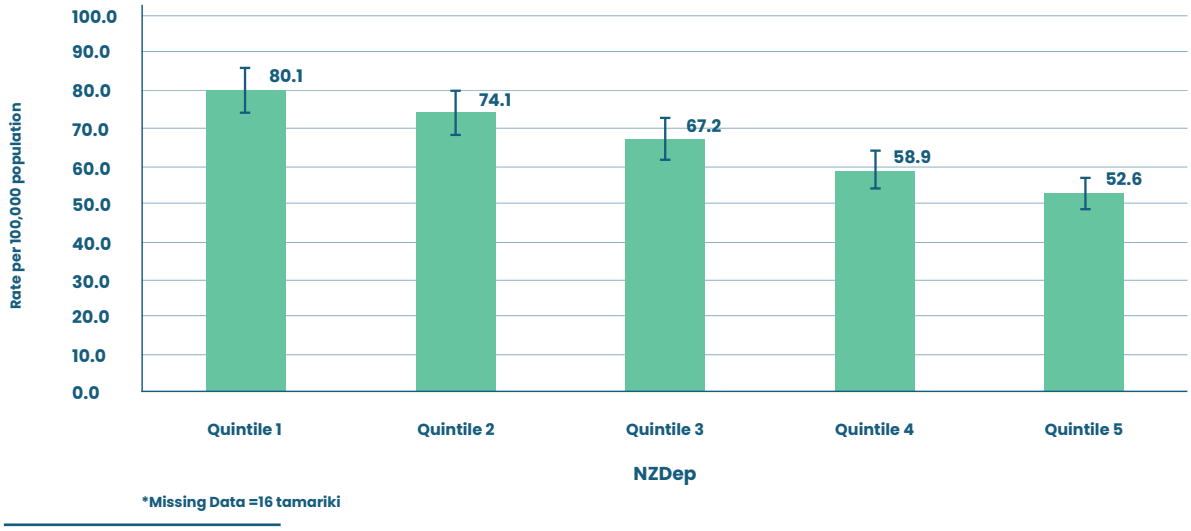
- The rates of tamariki hospitalisation for injury caused by 'other pedal cyclist' and 'other land transport' subcategories tended to decrease as the level of relative deprivation increased. Out of all the quintile groups, tamariki living in the least relatively deprived areas of Aotearoa (NZDep quintile 1) had the highest rates of hospitalisation for 'other pedal cyclist' injury (41 per 100,000) and the highest rates of 'other land transport' injury (34.9 per 100,000).[76]

- An exception to this inverse social gradient was in hospitalisation rates for tamariki for 'other pedestrian' injuries. In this category, tamariki living in the most relatively deprived areas of Aotearoa (NZDep quintile 5) had higher rates than all the other quintile groups (5.5 per 100,000). However, there was not a linear pattern in this category, as tamariki living in the least relatively deprived areas (NZDep quintile 1) had the second-highest rate (4.1 per 100,000).

Figure 28 shows the rates of tamariki hospitalisation for non-fatal injury from 'non-motor vehicle/ non-traffic' injury from 'other pedal cyclist', 'other pedestrian', and 'other land transport' incidents, presented by NZDep quintile, for the years 2017-2021.

Additional data on tamariki hospitalisations for 'non-motor vehicle/non-traffic' injury for tamariki by NZDep quintile are provided in Appendix 2.[77]

Figure 28: Rates of tamariki hospitalisation for 'non-motor vehicle/non-traffic' injury, by NZDep quintile, 2017–2021*



76. See Table 46, Appendix 2.

77. See Table 46, Appendix 2

Gender

In the years 2017 to 2021, male tamariki accounted for a greater proportion of hospitalisations for 'non-motor vehicle/non-traffic' injury than female tamariki (70% males, n=2,205; 30% females, n=936). The rate of hospitalisation for 'non-motor vehicle/non-traffic' injury for male tamariki (90.0 per 100,000) was also significantly higher than the rate of hospitalisation for female tamariki (40.3 per 100,000).

Table 11 shows tamariki hospitalisations for 'non-motor vehicle/non-traffic' injury from 'other pedal cyclist', 'other pedestrian', and 'other land transport' incidents, for tamariki, by gender, for the years 2017 to 2021.

Table 11: Tamariki hospitalisations for 'non-motor vehicle/non-traffic injury', by gender and injury cause, 2017–2021

	Number	Rate per 100,000	95% CIs	
All crash types				
Female	936	40.3	37.8	43.01
Male	2,205	90	86.29	93.84
Total	**3,141**	**65.8**	**63.56**	**68.19**
Other pedal cyclist				
Female	348	15	13.46	16.66
Male	1,221	49.8	47.08	52.72
Total	**1,569**	**32.9**	**31.28**	**34.56**
Other pedestrian				
Female	75	3.2	2.54	4.05
Male	125	5.1	4.25	6.08
Total	**200**	**4.2**	**3.63**	**4.82**
Other land transport				
Female	513	22.1	20.24	24.11
Male	859	35.1	32.76	37.49
Total	**1,372**	**28.8**	**27.26**	**30.33**

Additional points to note from **Table 11:**

- For male tamariki, the most common cause of 'non-motor-vehicle/non-traffic' injury was 'other pedal cyclist', with a hospitalisation rate of 49.8 per 100,000, compared with 15.0 per 100,000 for female tamariki. This was a statistically significant result.
- For female tamariki, the most common cause of 'non-motor vehicle/non-traffic' injury was from 'other land transport' (n=513), although both the number (n=859) and rate of hospitalisation for male children for injury from this subcategory (35.1 per 100,000) was still significantly higher than that for female tamariki (22.1 per 100,00).

Geographic region

In the years 2017 to 2021, the Waikato district [78] had the highest number of hospitalisations of tamariki from non-motor vehicle/non-traffic injury (n=414), followed by the Canterbury district [79] (n=331).

The Tairāwhiti district [80] had the highest rate of hospitalisation for tamariki for 'non-motor vehicle/ non-traffic' injury (142.0 per 100,000), followed by the Wairarapa [81] (a rate of 111.3 per 100,000), and Taranaki [82] (a rate of 95.5 per 100,000) districts.

The Hutt Valley DHB district [83] had the lowest rate of tamariki hospitalisation for 'non-motor vehicle/ non-traffic' injury of all regions in Aotearoa (a rate of 33.6 per 100,000).

Table 12 provides information on tamariki hospitalisations for 'non-motor vehicle/non-traffic' injury, broken down by DHB district.

78. Waikato DHB area stretches from northern Coromandel to close to Mt Ruapehu in the south, and from Raglan on the west coast to Waihi on the east.
79. Canterbury DHB area covers the east coast of the South Island from Kaikoura to Ashburton.
80. Tairāwhiti DHB area (known as Hauora Tairāwhiti) covers the Gisborne district, local and territorial authority areas.
81. Wairarapa DHB area covers Martinborough, Featherston, Greytown, Carterton, Masterton and outlying rural districts.
82. Taranaki DHB area includes New Plymouth, Hawera, Pātea, Stratford and Waitara.
83. Hutt Valley DHB area covers the cities of Lower Hutt and Upper Hutt.

Table 12: Hospitalisations for non-motor vehicle/non-traffic injury for tamariki, by DHB district 2017-2021

DHB	Number	Rate per 100,000	95% CIs
Northland	165	84.6	72.2 - 98.57
Waitematā	279	46.1	40.83 - 51.81
Auckland	179	44.5	38.24 - 51.55
Counties Manukau	263	40.6	35.82 - 45.78
Waikato	414	93.5	84.72 - 102.97
Bay of Plenty	228	89.4	78.17 - 101.79
Lakes	109	89.5	73.5 - 107.99
Hauora Tairāwhiti	82	142.0	112.96 - 176.31
Taranaki	121	95.5	79.27 - 114.16
Hawke's Bay	145	80.6	68.05 - 94.89
MidCentral	113	63.2	52.08 - 75.98
Whanganui	57	85	64.39 - 110.16
Hutt Valley	51	33.6	25.01 - 44.17
Capital and Coast	107	39.1	32.08 - 47.3
Wairarapa	49	111.3	82.34 - 147.17
Nelson Marlborough	129	94.6	78.95 - 112.37
South Canterbury	41	76.6	54.99 - 103.97
Canterbury	331	64.9	58.13 - 72.33
West Coast	19	68.8	41.4 - 107.43
Southern	243	83.2	73.04 - 94.32
Total	**3,141**	**65.8**	**63.56 - 68.19**
Area Outside DHB	16	-	-

Policy implications

Preventing fatal and severe motor vehicle traffic injury

Fatalities and serious injuries on roads across Aotearoa are unacceptable and avoidable. The data in this chapter highlights the distance we still have to go to achieve the vision of no death or serious injury for tamariki when it comes to our roads and cars. [84]

Consistent with the findings of the *Study of Road Trauma Evidence and Data* (SORTED) for 2017/18 to 2018/19, [85] tamariki Māori are disproportionately impacted by 'motor vehicle traffic' injury, having the highest rates of hospitalisation of all ethnic groups, followed by Pacific children. The inequitable impacts are further amplified for tamariki Māori and Pacific children when deprivation and geographic location are considered, whereby tamariki living in the most relatively deprived areas of Aotearoa have the highest rates of motor vehicle traffic injury. There are also increased rates of hospitalisation for tamariki living in rural areas compared with urban areas.

Our overall recommendation is that Aotearoa ensures its road safety policy is underpinned by a population health approach that aims for equitable outcomes for Māori and Pacific populations and those living in areas of highest relative deprivation, and that ensures equitable investment and robust monitoring so that progress can be seen in real time.

This includes the need to strengthen the data collected by transport and related agencies, as well as the way it is analysed and used. As with all policy in Aotearoa, road safety policies must align with Te Tiriti o Waitangi obligations. More specific recommendations to prevent fatal and injury from motor vehicle traffic crashes include:

- **Promote sustainable and safe alternatives to motor vehicle use.** This recommendation includes ensuring continued investment in public transport networks, both within cities and between regions; increasing public transport options for tāngata whaikaha Māori and disabled people aged 0 to 14 years; creating safe and accessible alternatives to driving (e.g., for pedestrians and cyclists); and offering low- or no-cost public transport to tamariki (and their whānau). Improving tamariki safety on school buses (especially when getting on or off buses) is included in this recommendation, as is increasing support from local councils to create safe environments for tamariki to walk to and from school. Reducing the overall reliance on private motor vehicles would also have other positive health and environmental impacts and was recommended in 2020 by an academic expert group as part of work on a plan for global road safety. [86]

84. This is consistent with the "Vision Zero", an approach to road safety that began in Sweden in 1997 and advocates for a holistic safety approach that shifts responsibility from the people using the roads to the people designing them.
85. Ministry of Transport (accessed January 2024): https://www.transport.govt.nz//assets/Uploads/SORTED2022Web.
86. Academic Expert Group for the 3rd Global Ministerial Conference on Road Safety 2020 (AEG), available online at: https://www.roadsafetysweden.com

- **Ensure safe and appropriate speed limits for all roads in Aotearoa. In some cases, this will mean enforcing 30km-per-hour speed zones, especially around schools.** According to New Zealand Transport Agency's analysis, [87] only around 15% of our roads have safe speed limits. This means, nearly 85% of roads across Aotearoa do not have safe and appropriate speed limits. This proportion is even higher for roads in rural areas, where 93% of roads do not have safe and appropriate speed limits. [88] In 2019, the Ministry of Transport's Road Safety Strategy Speed Reference Group noted that half of all crashes causing injury occurred on roads where the posted speed limit did not reflect the level of risk posed by the road. [89] World Bank-published research has rated reducing traffic speeds to 30km per hour or below in zones shared by pedestrians as potentially 'highly effective' (meaning a crash reduction of greater than 30%). [90] Local research (looking at Wellington City) has also shown permanent speed limit reduction (with a mix of 40km and 30km per hour zones) to have the highest crash reduction benefits. [91] Guidance from Healthy Auckland Together shows that chances of survival from a motor vehicle traffic collision are substantially higher at lower speeds (see infographic 1).

Infographic 1: Healthy Auckland Together analysis of the impacts of unsafe road speeds [92]

87. Waka Kotahi | NZ Transport Agency, 2022.
88. Ministry of Transport, 2019.
89. Ministry of Transport, 2019.
90. Turner & Mitra, S., 2021.
91. Mandic, S., et al., 2023.
92. Healthy Auckland Together (August 2023) *Safe Speeds Scorecard Report: Analysis of Auckland Transport's' Katoa, Ka Ora' proposals by Local Board*, available online at: https://www.healthyaucklandtogether.org.nz/reports/

- **Make safe rural roads a strategic priority.** Data in this chapter shows that areas with larger rural roading networks (e.g., Waikato, Whanganui, Northland and the Tairāwhiti DHB areas) have higher numbers and rates of tamariki death and injury from 'motor vehicle traffic' incidents. These areas should be prioritised for regional roading infrastructure, such as installing additional median barriers, side barriers, and rumble strips.

- **Invest in programmes that focus on tamariki Māori and Pacific children, developed in partnership with Māori and Pacific communities.** Programmes like Te Ara Haepapa (a holistic Māori designed and led programme supported by Auckland Transport) has proven highly successful in engaging and connecting with hapori Māori (whānau, marae, hapū, kōhanga reo and kura kaupapa Māori) on a range of topics, such as child passenger safety, educating drivers, cycle safety, and pedestrian safety.[93] We recommend that this type of approach be extended across Aotearoa, as should similarly, tailored, programmes that focus on road safety for Pacific families.

- **Support drivers to make the safer choices when buying motor vehicles.** This recommendation necessarily involves exploring ways to increase the number of Māori and Pacific drivers, and drivers in areas of high deprivation, who can access cars with higher star safety ratings. These star safety ratings for cars tell consumers how well a vehicle is likely to perform in a crash. Star ratings range from 1 to 5 (with the safer cars having a higher number of stars), and they are an important consideration when purchasing a car.[94] While awareness-raising initiatives regarding the star safety ratings are useful for keeping consumers informed, not everyone benefits from them, especially those on lower incomes. In 2022, Waka Kotahi (NZ Transport Agency) contracted research that showed from a series of surveys of car owners that purchase price was the highest-ranking factor in making a decision on which car to buy.[95]

- **Extend the safe and appropriate use of child restraints (car seats) to cover older tamariki.** The data in this chapter has shown that the rates of hospitalisation for tamariki occupants in 'motor vehicle traffic' increase with tamariki age. This indicates the effectiveness of mandatory requirements for children aged under 7 years to use an approved child restraint – and that the risks of motor vehicle traffic injury continue for children even after that age. We recommend that Aotearoa's car seat regulation moves in line with international best practice and that children should use an approved child restraint until they are at least 148cm tall or they turn 12 years old.[96]

  We also noted that improvements could be made in this area by reducing the number of child restraint standards that are accepted. Having a more streamlined approach to child restraint standards could help to reduce confusion around what is suitable for a child at any particular age, and possibly help to limit the misuse of seats and the installation errors that are caused by contradictory advice across different standards.

93. For a summary see: Auckland Transport (2021) Vision Zero for Tāmaki Makaurau: A transport safety strategy and action plan to 2030.
94. Up-to-date safety ratings of cars in Aotearoa can be checked on the Rightcar website: https://www.rightcar.govt.nz/. Star ratings are derived from three sources: the Australasian New Car Assessment Program (ANCAP), which assesses new vehicles based on crash tests; the Used Car Safety Ratings (UCSR), which assess used vehicles that are already in the market, based on real-world data; and the Vehicle Safety Risk Ratings (VSRR), which assesses most vehicles that don't have an ANCAP or UCSR rating.
95. Malcolm et al., 2022.
96. For example, in Germany, children who are aged under 12 years and are less than 150cm tall have to be restrained in a suitable child car seat. For more information on international comparisons, see Safekids Aotearoa, 2013.

Improve post-crash care and paediatric trauma clinical networks in Aotearoa.

Early findings from a research collaboration between trauma networks in Aotearoa and Australia suggest that once the data are standardised for severity and other factors, tamariki in Aotearoa are twice as likely to die from paediatric injuries than children in the Australian state of Victoria. Spokespeople from the research team have suggested that one of the key factors driving the different outcomes is where the children, once they are stabilised, are treated for most of their recovery. In Victoria, those aged under 16 years with serious trauma injuries are sent to the Royal Children's Hospital in Melbourne, while in Aotearoa, tamariki could be treated in a range of hospitals, each with varying levels of trauma care. [97]

Reducing tamariki cycling injuries

As data in this chapter has shown, the subcategory 'other pedal cyclists' had the highest rates of hospitalisation of all land transport injury types. This particularly affects male tamariki aged 10 to 14 years, and unlike most other injury types, it has a disproportionate impact on European/other children and those tamariki who are living in the areas of least relative deprivation in Aotearoa.

In the case of cycle-related injury however, lower rates of injury for some population groups may also reflect lower rates of cycling overall. Cycling can be an excellent mode of transport and recreation, and lower cycling rates for some groups might actually reflect a lack of access to bicycles, bicycle helmets, and safe cycle routes. To better understand data around cycling injuries it should be triangulated with travel survey data in the future.

In addition to ongoing education to ensure bicycle helmets are fitted appropriately and worn correctly, bicycle skills training, and increasing the use of visibility aids (e.g., high visibility or reflective clothing on tamariki while they are cycling), there should be continued enhancement of safe cycle routes, including cycle lanes and paths. In combination with other road safety policies, such as lowering speed limits near schools and on arterial routes, this could also encourage more tamariki and whānau to cycle and receive the benefits of this important source of exercise, recreation and transportation. [98]

Making driveways safer for tamariki

In the years 2014 to 2018, 11 out of 15 'other pedestrian' deaths were for tamariki aged 0 to 4 years who died in an off-road collision with a motor vehicle. Tamariki Māori had the highest rates of hospitalisation from non-fatal crash for 'other pedestrian' injury (rate of 7.2 per 100,000), followed by Pacific children (4.1 per 100,000). This suggests that driveway safety, especially for tamariki Māori and Pacific children aged 0 to 4 years should be a priority for government policy, in addition to continuing to educate drivers, parents, and caregivers about driveway safety. In particular **we recommend that a lead government agency, supported by cross-agency collaboration be identified and given the mandate to oversee work on driveway safety, including overseeing the collection of data and exploring the adoption of property design and driveway safety design principles for all rental properties and new properties in Aotearoa.** As set out in Housing New Zealand's *A guide to driveway safety for property owners there are three main design principles for property owners* [99] to follow.

- Provide a secure play area for young children, separate from driveways
- Provide pedestrians with a safe route to the building, separated from the driveway and vehicles
- Provide clear lines of sight for vehicles when entering and exiting the property.

---

97. For more information, see 'Shocking rate of trauma deaths amongst NZ kids revealed' by Nicole Bremner, 1News reporter, November 15, 2023. https://www.1news.co.nz/2023/11/15/shocking-rate-of-trauma-deaths-among-nzkids-revealed/
98. For more information see Safekids (2012). *Child cycling injury prevention – Factsheet.*
99. The Housing New Zealand brochure, developed in partnership with Safekids Aotearoa, Waka Kotahi, NZ Police and Roadsafe Nelson Bays, is available online at: https://kaingaora.govt.nz/assets/Tenants-and-communities/Documents/

Kia hōmiromiro ai te tirotiro ki tua

Stay alert around tamariki and trust your gut and senses.

The pōhiri process plays a significant part in te ao Māori. This typically begins with the wero (challenge) performed by a toa (warrior exponent).

It was the duty of the toa to identify any hazards or dangers that may pose any harm to his tribe. Once hazards or dangers were identified the toa would put necessary measures in place to keep his whānau safe.

Identifying hazards in and around the home and keeping our tamariki safe by putting in necessary safety precautions (safety gates, safety locks) will help to keep our tamariki safe.

3. Choking, suffocation, and strangulation

This chapter covers tamariki hospitalisations for injury from choking, suffocation, and strangulation, during the years 2017 to 2021. [100] As there is a clear crossover between this subject and deaths from unintentional injury, a separate summary of the most current analyses of deaths occurring from SUDI (Sudden unexpected death in infancy) for infants aged 28 days to <12 months, from the 15th data report from the Child and Youth Mortality Review Committee (CYMRC), [101] is also included.

There were 17 non-SUDI fatalities in the period 2014 to 2018 due to choking, suffocation, and strangulation. Approximately 41%(n=7) of these deaths occurred in the age group 0 to 4 years. [102] Because of the small numbers, no further data on non-SUDI fatalities is provided in this chapter.

In brief

In the years 2017 to 2021, 328 tamariki were hospitalised for injury related to choking, suffocation, and strangulation.

Hospitalisation rates for non-fatal injury relating to choking, suffocation, and strangulation decreased from 2012 to 2015, however, since 2017 there has been an increase in hospitalisation rates over time, from 5.4 per 100,000 in 2017 to 7.9 per 100,000 in 2021.

Ninety per cent of all hospitalisations from choking, suffocation, and strangulation were for tamariki aged 0 to 4 years (n=295). This group also had the highest rate of hospitalisation of all the age groups (19.4 per 100,000).

The leading overall causes of tamariki hospitalisation for injury related to choking, suffocation, and strangulation were:

- 'Choking on food' (45%, n=149)
- 'Choking on other object' (31%, n=102)
- 'Inhalation of gastric contents' (14%, n=45).

When considered by ethnic grouping, European/other children (23.7 per 100,000) and tamariki Māori (22.1 per 100,000) had the highest rate of hospitalisation, followed by Pacific children (15.7 per 100,000) and Asian children (7.6 per 100,000).

The hospitalisation rates for injury from choking, suffocation, and strangulation were higher for tamariki living in the more relatively deprived areas of Aotearoa (Quintiles 3-5).

100. SUDI-related deaths (ICD-10 codes W75, W78, and W79) (n=106) were excluded from the analysis.
101. Te Rōpū Arotake Auau Mate o te Hunga Tamariki, Taiohi | Child and Youth Mortality Review Committee, 2021.
102. In addition to this data, CYMRC Report 198 focuses on SUDI deaths in Aotearoa in the years 2015 to 2019.

Trend over time

In the years 2017 to 2021, 328 tamariki were hospitalised for injury related to choking, suffocation, and strangulation.

Hospitalisation rates for these injuries decreased in the years 2012 to 2015 (6.8 per 100,000 to 5.3 per 100,000) where they plateaued until 2017. Since then, the rates have increased, from 5.4 per 100,000 in 2017 to 7.9 per 100,000 in 2021.

In the years 2017 to 2021, the leading causes of tamariki hospitalisations for injury related to choking, suffocation, and strangulation were:

- 'Choking on food' (45%, n=149)
- 'Choking on other object' (31%, n=102)
- 'Inhalation of gastric contents' (14%, n=45)
- 'Other hanging and strangulation' (5%, n=16)
- 'Suffocation and strangulation in bed' (4%, n=13)
- 'Other specified and unspecified' (1%, n=3).

Figure 29 shows the rates of tamariki hospitalisation for injury from unintentional choking, suffocation and strangulation of tamariki for the years 2012 to 2021.

Figure 30 shows hospitalisations for injury from unintentional choking, suffocation and strangulation of tamariki, presented by cause of injury, for the years 2017 to 2021.

Figure 29: Rates of tamariki hospitalisation for injury from choking, suffocation, and strangulation, over time, 2012–2021

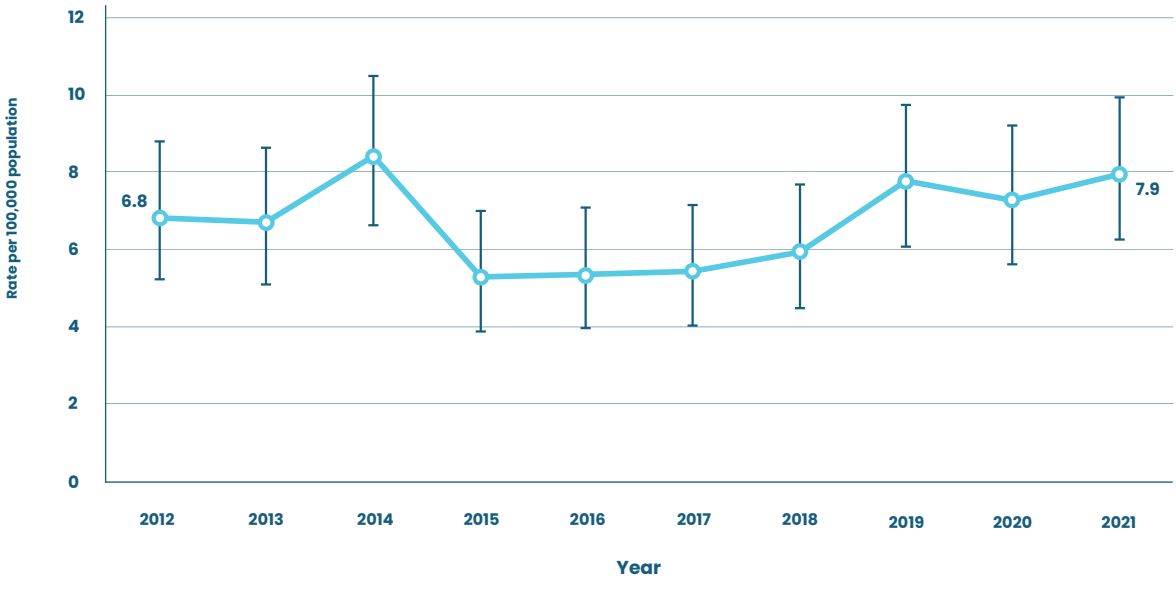
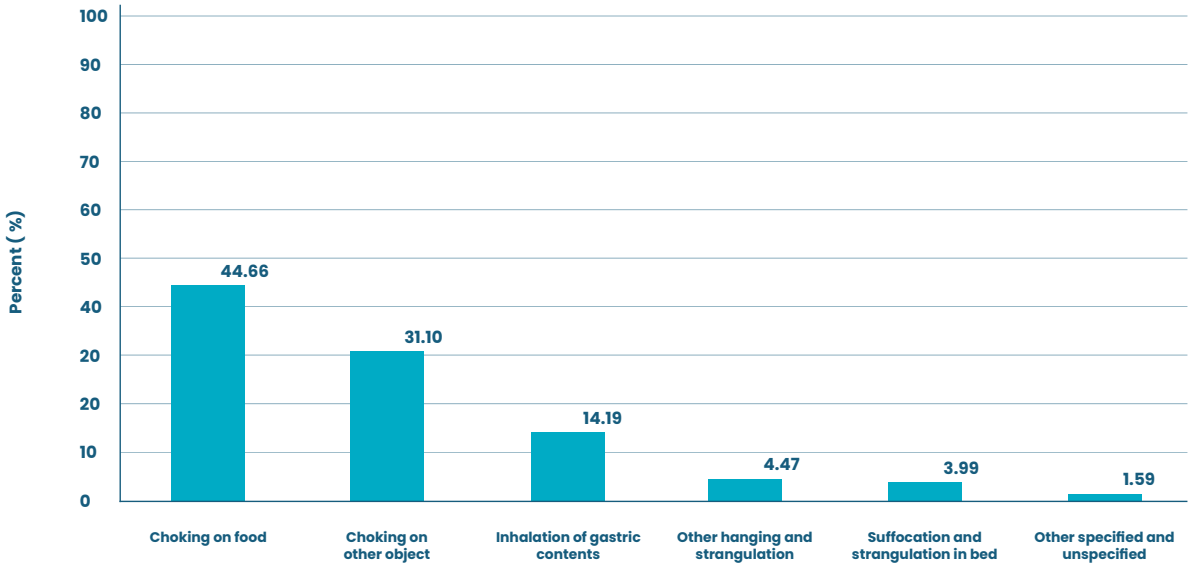


Figure 30: Tamariki Hospitalisations for injury from choking, suffocation, and strangulation, by leading cause, 2017–2021



Age group

In the years 2017 to 2021, 90% (n=295) of all hospitalisations for injury from choking, suffocation, and strangulation injury were for tamariki aged 0 to 4 years.

Tamariki aged 0 to 4 years also had the highest rate of hospitalisation for injury from choking, suffocation, and strangulation of all the age groups (19.4 per 100,000). The difference between the rates of hospitalisation for the youngest age group and those aged 5 to 9 years and 10 to 14 years (1.1 per 100,000 and 1.0 per 100,000 respectively) were statistically significant.

Over half of the hospitalisations in the age group 0 to 4 years were tamariki aged less than 1 year of age (58%, n=171) compared with 42% (n=124) for tamariki aged 1 to 4 years.

For tamariki aged 0 to 4 years (n=295), the leading causes of hospitalisations were:

- 'Choking on food' (n=140)
- 'Choking on other object' (n=87)
- 'Inhalation of gastric contents' (n=44)
- 'Suffocation and strangulation in bed' (n=13)
- 'Other hanging and strangulation' (n=9).[103, 104]

Table 13 shows tamariki hospitalisations for injury from choking, suffocation, and strangulation of tamariki, presented by age-group, for the years 2017-2021.

103. Not all of the causes are presented due to low numbers.

104. Percentages have not been presented here due to suppressed data (secondary to low numbers) impacting the denominator.

Table 13: Tamariki hospitalisations for injury from choking, suffocation, and strangulation, by age group, 2017–2021

Age group (years)	No. of Hospitalisations	%	Rate per 100,000	95% CIs	
0 - 4	295	90	19.43	17.27	21.78
5 - 9	18	5	1.08	0.64	1.71
10 - 14	15	5	0.95	0.53	1.56
Total	**328**	**100**	**6.88**	**6.15**	**7.66**

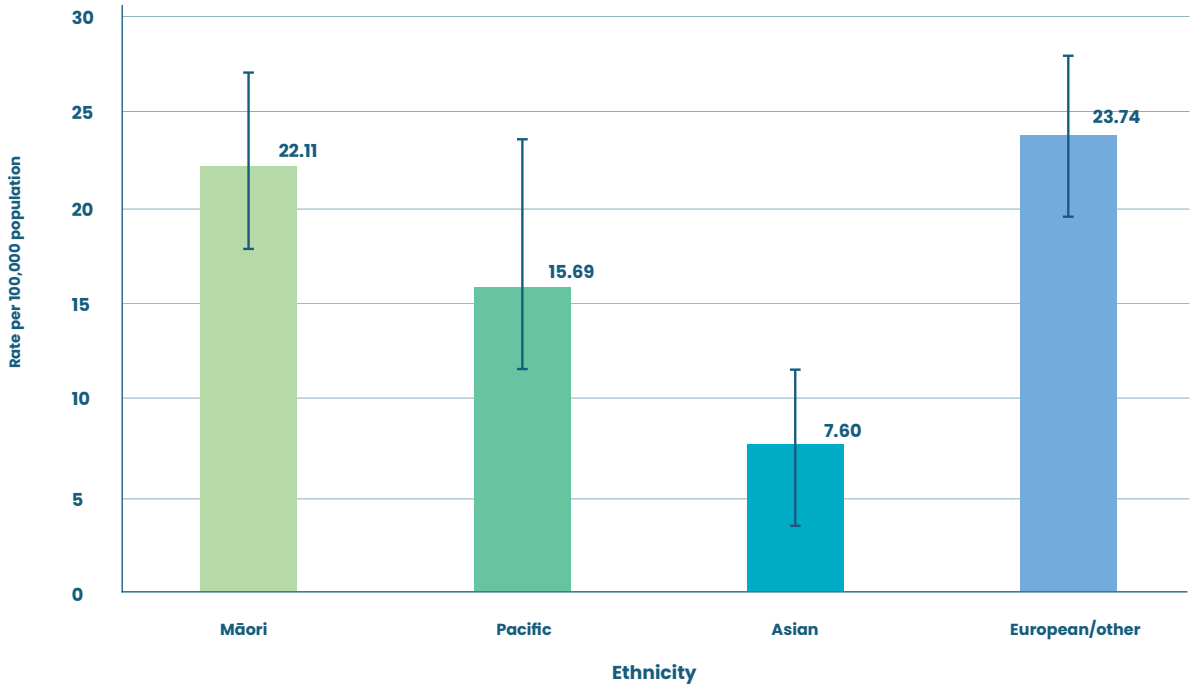
Ethnicity

Because of low numbers, we could only provide an ethnicity analysis for hospitalisations for injury from choking, suffocation, and strangulation for tamariki in the age group 0 to 4 years. As already noted, this represents the vast majority of choking, suffocation, and strangulation-related hospitalisations (90% of all relevant hospitalisations).

European/other children (23.7 per 100,000) and tamariki Māori (22.1 per 100,000) aged 0 to 4 years had the highest hospitalisation rates for injury from choking, suffocation, and strangulation, followed by Pacific children (15.7 per 100,000) and Asian children (7.6 per 100,000).

Figure 31 shows the rates of hospitalisation for injury from choking, suffocation, and strangulation in tamariki aged 0 to 4 years, presented by prioritised ethnicity for the years 2017 to 2021.

Figure 31: Rates of hospitalisation for injury from choking, suffocation, and strangulation for tamariki aged 0–4 years, by prioritised ethnicity, 2017–2021*



*MELAA data is not included in analyses due to small numbers.

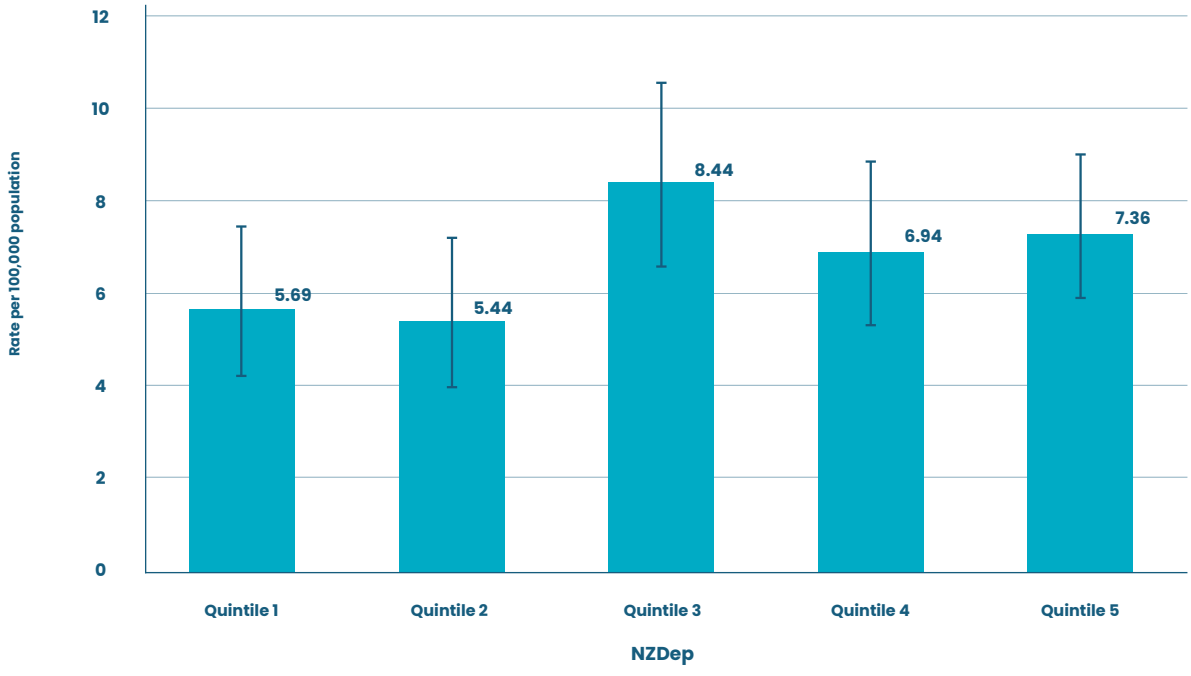
Socioeconomic deprivation

Tamariki living in the most relatively deprived areas of Aotearoa (NZDep quintile 5) had the highest number of hospitalisations (n=91), and the second highest rate of hospitalisation (7.4 per 100,000).

Overall, tamariki living in the more relatively deprived areas of Aotearoa (NZDep quintiles 3, 4 and 5) accounted for 70% (n=227) of tamariki hospitalisations for injury from choking, suffocation, and strangulation.

Figure 32 shows the rates of tamariki hospitalisation for injury from choking, suffocation, and strangulation, presented by NZDep quintile, for the years 2017 to 2021.

Figure 32: Rates of tamariki hospitalisation for injury from choking, suffocation, and strangulation, by NZDep quintile, 2017–2021*



* Missing data in the NZDep quintile data = 3 tamariki. Total = 325 tamariki

Gender

Male tamariki accounted for a greater proportion (59.5%) of hospitalisations for injury from choking, suffocation, and strangulation than female tamariki (40.5%). The hospitalisation rate for males of this type of injury was 8.0 per 100,000 compared with 5.7 per 100,000 for females.

Table 14 shows tamariki hospitalisations for injury from unintentional choking, suffocation, and strangulation, presented by gender, for the years 2017 to 2021.

Table 14: Tamariki hospitalisations for injury from unintentional choking, suffocation, and strangulation of tamariki, by gender, 2017–2021

Gender	Number	%	Rate per 100,000	95% CIs	
Female	133	40.5	5.73	4.80	6.79
Male	195	59.5	7.96	6.88	9.16
Total	**328**	**100.0**	**6.88**	**6.15**	**7.66**

Sudden unexpected death in infancy (SUDI) for infants aged 28 days to <12 months

Sudden unexpected death in infancy (SUDI) is considered "an umbrella term that describes the death of an infant that was not anticipated, within the first year of life". [105] Hāpai te Hauora SUDI Prevention Coordination Service (the national SUDI prevention service for Aotearoa) highlights the differences in terminology that have occurred across the years, say that such deaths in Aotearoa were:

…once called 'cot death' despite many of the deaths not occurring in the cot. It was then changed to SIDS (Sudden Infant Death Syndrome) which is unexplained infant death. SUDI (Sudden Unexpected Infant Death) is a broader term than SIDS. It includes unexplained deaths (that is SIDS) and sleep related deaths from asphyxia or suffocation, such as may occur while bed sharing. In part this change has been driven by changes in diagnostic fashion. One pathologist might call the death SIDS, another suffocation in bed while bed sharing and another unascertained. SUDI captures all the deaths that were once labelled SIDS or cot death. [106]

As there is clear cross-over between SUDI and unintentional injury deaths, [107] and because SUDI is a leading cause of preventable death for tamariki in Aotearoa, SUDI has been included in this data book as a specific focus.

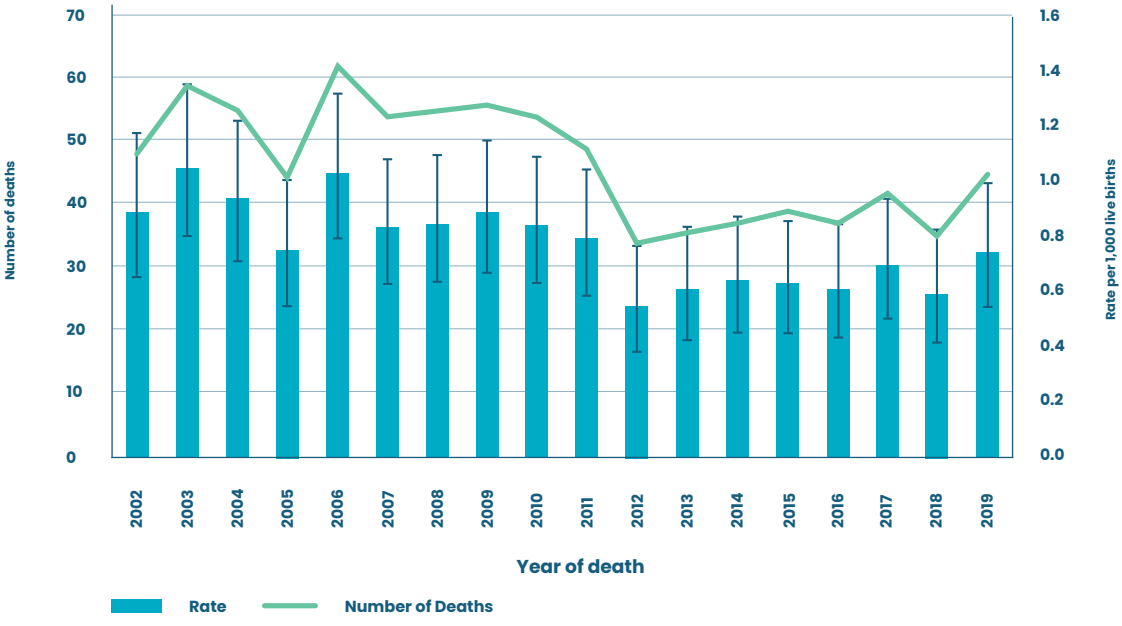
As the 15th data report from the Child and Youth Mortality Review Committee (CYMRC) includes the most authoritative current analyses on deaths occurring from SUDI, the following sections draw upon the data from that CYMRC report in relation to SUDI deaths in Aotearoa/New Zealand. The CYMRC reported:

- 841 SUDI deaths occurred over the 18 years from 2002 to 2019. Of these deaths, 45 occurred in 2019.
- The overall SUDI rate has decreased over time, from a rate of 0.89 per 1,000 live births in 2002 to 0.75 per 1,000 live births in 2019.
- Of the 198 SUDI deaths occurring during the years 2015 to 2019, 61 deaths occurred from 'accidental suffocation and strangulation in bed', fewer than 3 were from 'inhalation of gastric contents', fewer than 3 were from' inhalation and ingestion of food causing obstruction of respiratory tract', 79 were from 'sudden infant death syndrome' (SIDS), 8 were from 'other sudden death, cause unknown', and 48 were from 'other ill-defined and unspecified causes of mortality. [108]

Figure 33 shows the information for SUDI deaths for babies aged 28 days to 11 months, by year of death, from 2002 to 2019.

105. The definition provided by Hāpai SUDI Prevention Co-ordination Service can be found here: https://sudinationalcoordination.co.nz/node/244
106. Further information can be found at the Hāpai SUDI Prevention Co-ordination Service here: https://sudinationalcoordination.co.nz/node/244
107. Page 21 of the 15th data report from the CYRMC notes that for those "deaths in infants less than one year of age, SUDI is assigned as the cause of death where any one of the following ICD-10-AM codes was 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; and, W79 Inhalation and ingestion of food causing obstruction of respiratory tract". The unintentional injury database includes W75, W78 and W79 codes only.
108. The unintentional injury database only includes the first three causes listed e.g. 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.

Figure 33: SUDI mortality (number of deaths and rates per 1,000 live births) by year of death, 2002-2019*



*** The numerator is Mortality Review Database; denominator is Ministry of Health Live Birth Registrations 2002 - 2019**

Source: Child and Youth Mortality Review Committee (2021)

There were marked inequities in SUDI, whereby both pēpi Māori and Pacific infants had significantly higher rates of SUDI than infants from the other ethnic groups.

Of the 198 SUDI deaths occurring during the years 2015 to 2019, pēpi Māori accounted for more than half of the deaths (n=114, 58%) and Pacific infants accounted for almost a quarter of the deaths (n=45, 23%). [109] The SUDI rate for pēpi Māori was 1.31 per 1,000 live births (95% confidence interval [CI], 1.07-1.55). For Pacific infants, the SUDI rate was 1.48 per 1,000 live births (95% CI, 1.08–1.98).

Pēpi Māori were more than over six times more likely to die from SUDI than non-Māori, non-Pacific infants (rate ratio 6.18, 95% CI, 4.29-8.88) and Pacific infants were more than eight-and-a-half times more likely to die from SUDI than non-Pacific non-Māori infants (rate ratio 8.57, 95 percent CI 5.74–12.79).

109. The CYMRC reports the number of SUDI deaths for the comparator group of non-Māori, non-Pacific (n=39) but does not disaggregate further by ethnic group.

Policy implications

Coordinated approach to SUDI prevention

SUDI is a leading preventable cause of death in babies in Aotearoa. While there have been substantial improvements in reducing SUDI rates since the 1980s, the improvements have not been felt equitably by the whole population, and the risks for pēpi Māori and Pacific infants have remained consistently higher than for non-Māori, non-Pacific infants.

In line with the observations and recommendations of the CYMRC in its 2017 special report on SUDI, and based on advice from Māori and Pacific experts on SUDI prevention, we recommend the following:

- **Ensure a Smokefree Aotearoa.** As already identified, tobacco smoke is one of the two main modifiable risk factors for SUDI. Continuing work to eliminate tobacco use in Aotearoa (and dramatically reduce its harms) is part of the work needed to provide safe environments for infants and protect them from SUDI risk.

- **Continue to support a national SUDI prevention programme** that targets the two main modifiable risk factors for SUDI: unsafe bed sharing and exposure to tobacco smoke. This programme is currently coordinated by Hāpai Te Hauora, a Māori public health organisation that places health and wellbeing of tamariki, mokopuna, and whānau at the centre of everything they do.

- **Increase funding and focus within the national SUDI prevention programme to support wānanga** and other culturally appropriate ways to work with whānau Māori and Pacific families. In 2022 the Ministry of Health's Expert Advisory Group on SUDI Prevention (the Expert Advisory Group) also recommended culturally anchored approaches that enable solutions that are whānau/family led and are delivered in genuine partnership with an appropriate community-based provider. The Expert Advisory Group also noted the importance of antenatal care and education in wānanga, and specific health messages and for whānau Māori and Pacific families. For example, Hapū Wānanga is an excellent and well established kaupapa Māori (Māori methodology and engagement) model of antenatal education, and this approach to culturally appropriate support should be extended as widely as possible. [110]

- **Create supportive environments for whānau.** Government agencies and health and social service providers need to work together to ensure whānau have the income and housing support they need to live in secure, warm, dry homes that are free from crowding, and to provide access to effective SUDI-prevention interventions that deliver equitable health outcomes. The Expert Advisory Group's 2022 report recommended the relief of poverty as a fundamental measure in the prevention of SUDI deaths. The Expert Advisory Group also indicated that improved financial security for whānau/families is likely to improve many of the risk factors for SUDI, for example, by ensuring opportunities to provide safe/separate sleeping arrangements and the ability to access and provide optimal care and make good health-related decisions. [111]

110. Tipene-Leach D, Fidow JF., (2022)

111. Ibid.

Prioritising equity and improving what is already in place to prevent choking on food

We recommend addressing the structural factors that relate to choking on food, including addressing food insecurity for whānau. Choking on food is a leading cause of these hospitalisations, and a serious concern especially in relation to tamariki aged 0 to 4 years. While there are some activities focused on providing information to parents and caregivers, across the health and education sectors (see boxed text below), these need to be complemented with actions that address the structural factors that might make applying best practice easier (such as food security).

Examples of current information available to whānau on reducing the risk of food related choking in tamariki.

- The Ministry of Health provides advice for parents for caregivers on reducing the risk of food-related choking infants and young tamariki. This advice includes supervising young tamariki while eating, encouraging young tamariki to sit while eating rather than walking around or playing, and establishing routines that reinforce eating as separate from walking around and playing. There is also Ministry of Health advice on foods that pose choking risks, and how to minimise these risks/ This advice, while helpful, will be easiest to implement for those whānau with secure housing and high enough income levels to ensure reliable access to a wide range of foods. For this reason we also encourage health and social sector agencies to continue to focus on equitable access to the wider determinants of health such as housing, education, and employment as key prevention activity.

- One of the licensing criteria for early childhood education centres (ECEs) in Aotearoa is that tamariki be supervised when they eat. Where food is provided by the ECE it must be prepared in line with the Ministry of Health publication *Reducing food related choking for babies and young children at early learning services.* Where food is provided by parents, the ECE is expected to provide parents with a copy of this publication, which sets out suggestions for how to reduce the choking risk of certain foods.

Implementation, monitoring, and enforcement of safety standards

We recommend adding a mandatory product safety standard for corded | window coverings (such as roller blinds) to the Fair Trading Act 1986. This would bring Aotearoa in line with comparable jurisdictions, for example in both Australia and Canada the death rate from corded window coverings decreased following regulation. [112]

Although the numbers of tamariki injured through corded window coverings (such as blinds) is low, we are aware they still present a risk to young tamariki. In 2021, Coroner Borrowdale recommended that regulatory changes be made to protect tamariki from the hazard of corded window coverings. [113] In 2023, the Ministry of Business, Innovation, and Employment held public consultation on possible options, and noted that in Aotearoa 6 tamariki have died from 2008 to 2021 due to cords in window coverings. The Coroner has also reported that, of the 6 total deaths, 4 were New Zealand European and 2 were Māori. [114]

112. Ministry of Business, Innovation, and Employment (2023) Consultation Document: Options to address safety risks of corded window coverings. Available online at: https://www.mbie.govt.nz/dmsdocument/25929-consultation-document-options-to-address-safety-risks-of-corded-window-coverings-pdf

113. Office of the Chief Coroner (2021). Recommendations Recap A summary of coronial recommendations and comments made between 1 January and 31 March 2021. Available online at: https://coronialservices.justice.govt.nz/assets/Issue-26-1-January-31-March-2021.pdf

114. Ministry of Business, Innovation, and Employment (2023) Consultation Document: Options to address safety risks of corded window coverings. Available online at: https://www.mbie.govt.nz/dmsdocument/25929-consultation-document-options-to-address-safety-risks-of-corded-window-coverings-pdf

We recommend that mandatory product safety standards for button batteries are regulated, rather than voluntary, noting that button and coin battery standards are already mandatory in Australia. Button batteries are both a choking hazard and a burn risk, as they can get lodged between the throat and the stomach, burning a hole in as little as two hours. We have previously reported that around 20 tamariki are taken to Starship Hospital annually with injury related to button batteries. [115]

We recommend improvements to the way unsafe toys or products are reported and for more proactive monitoring by the Commerce Commission, with more transparent reporting of the numbers of non-compliant or unsafe products found. Toys and toy parts present a choking risk for tamariki, especially for those aged less than 36 months, when tamariki are less able to cough up anything they swallow. The Product Safety Standards (Children's toys) Regulations provide a mandatory safety standard that must be complied with by suppliers of children's toys, including manufacturers, retailers, and those in trade who offer second-hand toys for sale (but excluding those who are private sellers of second hand toys). Selling a non-compliant toy is also a breach of the Fair Trading Act 1986. Enforcement of this legislation falls with the Commerce Commission, and we encourage more proactive inspection of retail stores with a focus on finding those selling non-compliant children's toys and nightwear, expanding on the regime already in place. [116]

115. For more information see our website: https://starship.org.nz/safekids/button-batteries-1-2-years/

116. Commerce Commission (2022) Annual Report 2021/22. P60.

Mā te whakarongo,
ka mōhio, mā te mōhio,
ka mārama, mā te mārama,
ka matau, mā te matau,
ka ora

Through listening comes knowledge, through knowledge comes understanding, through understanding comes wisdom, through wisdom comes wellbeing

In a whānau context, this whakataukī serves as a guide to nurture the developing minds of our tamariki. It teaches them the importance of perception through active listening—a skill that lays the foundation for understanding, growth, and connection. Through this process, tamariki come to understand that wisdom and knowledge are taonga, carried across generations.

This journey is not just about acquiring skills; it is about embodying a form of leadership anchored in humility, integrity, and service. By fostering these qualities, we equip our tamariki to walk with mana—uplifting their whānau, communities, and beyond.

4. Falls

While minor slips and falls are a very common and normal part of tamariki development and are very common, some can result in broken bones, cuts, or more significant injuries. A serious fall may result in a traumatic brain injury or spinal injury that can have lifelong impact on tamariki. On a global scale, fall related injuries are one of the main causes of child related disabilities. [117]

This section covers tamariki injury due to falls, with a focus on tamariki hospitalisations between 2017 and 2021.

There were also 7 tamariki fatalities from falls in the years 2014 to 2018. Due to the small numbers, no further analysis on fatalities from falls has been presented in this chapter.

In brief

In the years 2017 to 2021, 16,218 tamariki were hospitalised in Aotearoa with injuries from falls.

The rates of tamariki hospitalisation related to falls have decreased over time since 2012, with the downward trend more marked since 2019. Tamariki aged 5 to 9 years had the highest rate of hospitalisation for injury related to falls (403.3 per 100,000), followed by those aged 0 to 4 years (312.0 per 100,000) and 10 to 14 years (300.2 per 100,000). Looking further at what has happened by age group:

- For tamariki aged 0 to 4 years, fall-related injuries mostly happened at home. For those aged under 1 year, tamariki Māori had the highest rate of hospitalisation for fall-related injury. For tamariki aged 1 to 4 years, Pacific children had the highest rate of hospitalisation for fall-related injury.

- For tamariki aged 5 to 9 years, fall-related injuries mostly occurred at school and were mostly related to playground equipment. There were significant differences in this age group between tamariki Māori, Pacific, and European/other children (higher rates of hospitalisation for fall-related injury) and Asian and MELAA children (lower rates of hospitalisation).

- For tamariki between the ages of 10 and 14 years, fall-related injuries leading to hospitalisation mostly occurred at sports and athletics areas, with Pacific children having the highest rate for this age group.

Overall, tamariki Māori, European/other children, and Pacific children had the highest rates of hospitalisation for fall-related injury across these three age groups. Tamariki living in the most relatively deprived areas of Aotearoa (the highest NZDep quintiles) had higher rates of hospitalisation for fall-related injury than those living in the least relatively deprived areas of Aotearoa (the lower NZDep quintiles).

117. Harvey, A., et al., 2009

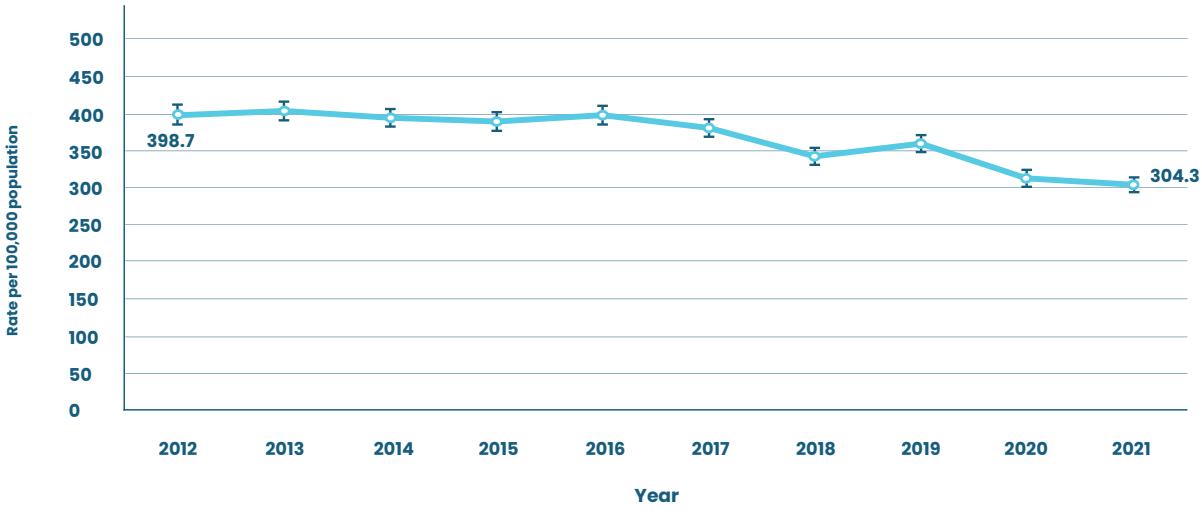
Trend over time

In the years 2017 to 2021, a total of 16,218 tamariki were hospitalised for injury from falls.

Rates of tamariki hospitalisation for injury from falls have decreased since 2012, from 398.7 per 100,000 in 2012 to 304.3 per 100,000 in 2021. This downward trend has been more marked since 2019.

Figure 34 shows the rates of tamariki hospitalisation for injury from falls, for the years 2012 to 2021.

Figure 34: Rates of tamariki hospitalisation for injury from falls over time, 2012–2021



Age group

In the years 2017 to 2021, around 41% of tamariki hospitalisations for fall related injury were in those aged 5 to 9 years. This age group also had the highest rates of hospitalisation for fall-related injuries out of all three age groups (403.3 per 100,000).

Tamariki in the age groups 0 to 4 years and 10 to 14 years had similar numbers of hospitalisation, each making up around 29% of total hospitalisations for fall related injury.

The place where tamariki were injured by falls varied by age. Looking at the 10 year trend from 2012 to 2021, for the youngest tamariki (aged 0 to 4 years), the highest rate was for injuries sustained at home (184.1 per 100,000). For tamariki aged 5 to 9 years, the highest rate was for injuries sustained at school (150.7 per 100,000); and for tamariki aged 10 to 14 years, the highest rate was for injuries sustained at sports and athletics areas (81.8 per 100,000).

When looking at fall types, the highest rates of fall-related hospitalisation across all age groups were for injuries from playground equipment, with the highest rate in tamariki aged 5 to 9 years.

Table 15 shows tamariki hospitalisations for injury from falls, presented by age group, for the years 2017 to 2021.

Figure 35 shows the rates of tamariki hospitalisation for injury from falls, presented by location and age group, for the years 2012 to 2021.

Figure 36 shows the rates of tamariki hospitalisation for injury from falls, presented by age group and the top three fall types, for the years 2017 to 2021.

Additional data on fall-related hospitalisations of each tamariki age group, by cause of fall, is provided in Appendix 2. [118]

Table 15: Tamariki hospitalisations for injury from falls, by age group, 2017–2021

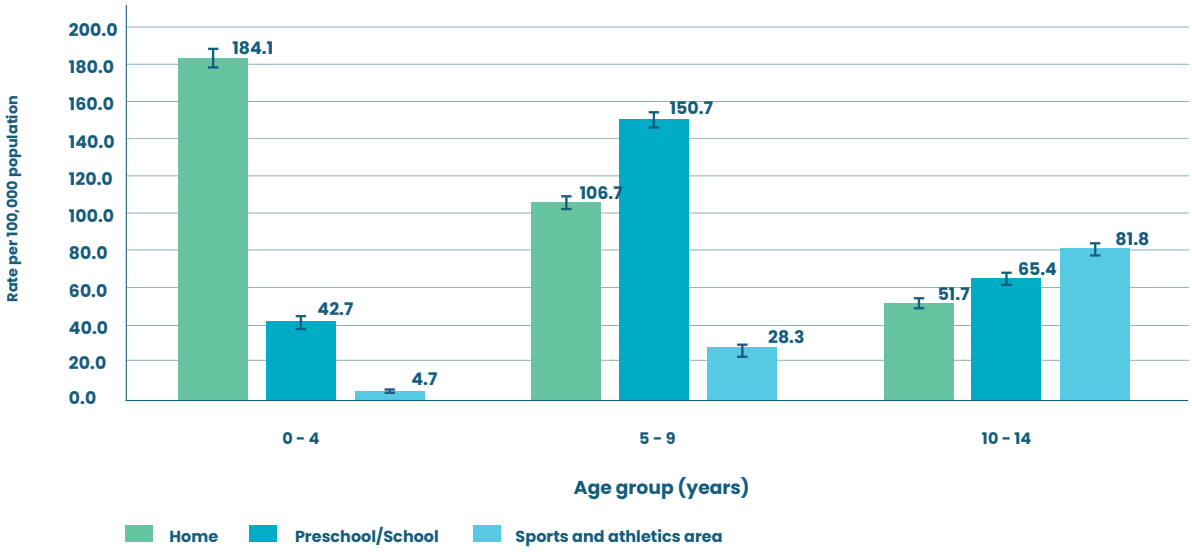
Age group (years)	Number of Hospitalisations	%	Rate per 100,000	95% CIs	
0 - 4	4,737	29	312.0	303.16	320.99
5 - 9	6,725	41	403.3	393.73	413.07
10 - 14	4,756	29	300.2	291.72	308.85
Total	**16,218**	**100**	**340.0**	**334.78**	**345.27**

Additional points to note from **Table 15**:

- The rate of fall-related hospitalisation for tamariki aged 5 to 9 years was significantly higher than the rates of hospitalisation for the other two age groups.
- The rates of fall-related hospitalisation for tamariki aged 0 to 4 years and tamariki aged 10 to 14 years were similar to each other (312 per 100,00 for age 0 to 4 years and 300.2 per 100,000 for age 10 to 14 years).

118. Table 48, Appendix 2.

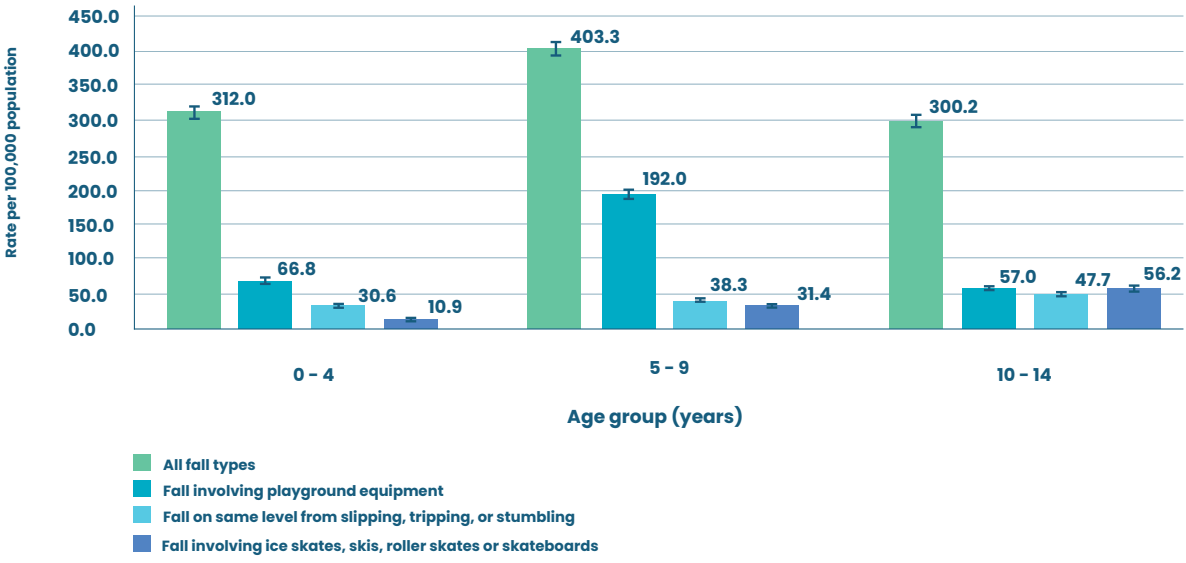
Figure 35: Rates of tamariki hospitalisation for injury from falls, by location and age group, 2012–2021



Additional points to note from **Figure 35:**

- During the period 2012 to 2021, the highest rate of fall-related hospitalisation for any of these age groups was for falls in the home for tamariki aged 0 to 4 years. This was significantly higher than the second most common location of fall-related injury for tamariki in this age group (at preschool/school, a rate of 42.7 per 100,000).
- In the age group 5 to 9 years, the highest rate of hospitalisation for fall-related injury was for falls at school (150.7 per 100,000), which was significantly higher than for the other locations.
- In the age group 10 to 14 years, the place of fall-related injury was less variable than in the other age groups. In this group, the highest hospitalisation rate for fall-related injury was for falls at sports and athletics areas (81.8 per 100,000, compared with 65.4 per 100,000 for at school and 51.7 per 100,000 for at home).

Figure 36: Rates of tamariki hospitalisation for injury from falls, by age group and top three fall types,[119] 2017–2021



Additional points to note from **Figure 36:**

- For younger tamariki (those aged 0 to 4 years and 5 to 9 years), the second-highest rate of fall related hospitalisations was from falls sustained on the same level from slipping, tripping, or stumbling.
- For tamariki aged 10 to 14 years, there was little difference between the top three fall types. Tamariki in this age group also had the highest rates of fall-related hospitalisation from falls involving ice skates, skis, roller skates or skateboards (56.2 per 100,000).

Ethnicity

In the years 2017 to 2021, tamariki Māori, Pacific children, and European/other children had the highest rates of hospitalisation for fall-related injury when compared with tamariki in the Asian or MELAA ethnic groupings.

In the age group 0 to 4 years, tamariki Māori had the highest rate of hospitalisation for injury from falls (374.9 per 100,000), closely followed by Pacific children (366.4 per 100,000).

In tamariki aged 5 to 9 years, the rates of hospitalisation for injury from falls in the Māori, Pacific, and European/other categories were very similar to each other. Although European/other children in this age group had the highest rate of hospitalisation (431.8 per 100,000), this was not statistically significant when compared with tamariki Māori or Pacific children.

119. The 'all fall types' category includes other types of fall, such as a fall from one level to another; a fall on the same level due to collision with, or pushing by, another person; a fall involving a chair; a fall from, out of, or through a building or structure; a fall involving a bed; a fall from a tree; a fall on or from stairs or steps; a fall while being carried or supported by other persons; a fall involving other furniture, diving, or jumping into water causing injury other than drowning or submersion; a fall from a cliff; a fall on or from a ladder; a fall involving a wheelchair; a fall on the same level involving ice and snow; a fall on or from scaffolding; and unspecified falls.

For tamariki aged 10 to 14 years, Pacific children had the highest rate of hospitalisation for injury from falls (375.1 per 100,000).

When looking specifically at the age group 0 to 4 years:

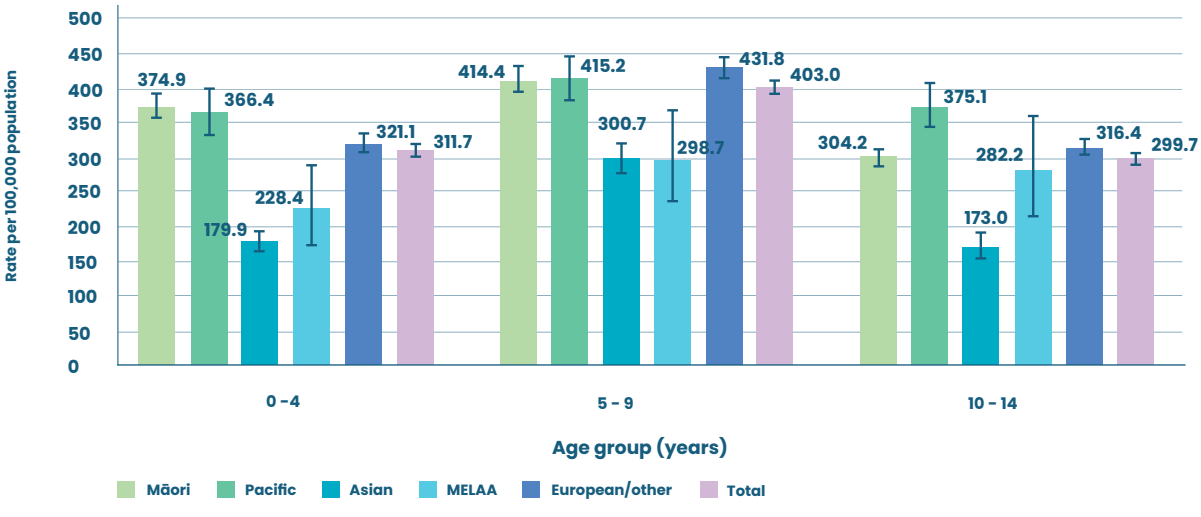
- The overall rates of falls-related hospitalisation were lower for the tamariki aged under 1 year (271.8 per 100,000, compared with 321.3 per 100,000 for those aged 1 to 4 years).
- Among the tamariki aged under 1 year, tamariki Māori had the highest rate of falls-related hospitalisation (334.6 per 100,000), followed by European/other children (278.9 per 100,000) and Pacific children (270.5 per 100,000).
- In the age group 1 to 4 years, Pacific children had the highest rate of falls-related hospitalisation (390.7 per 100,000), followed by tamariki Māori (385.1 per 100,000) and European/other children (330.8 per 100,000).

Figure 37 shows the rates of tamariki hospitalisation for injury from falls, presented by age group and prioritised ethnicity, for the years 2017 to 2021.

Figure 38 shows the rates of hospitalisation for injury from falls for tamariki aged 0 to 4 years, presented by prioritised ethnicity, for the years 2017 to 2021.

Additional data on tamariki hospitalisations from injury from falls are provided in Appendix 2. [120]

Figure 37: Rates of hospitalisation for injury from falls for tamariki, by prioritised ethnicity and age group, 2017–2021

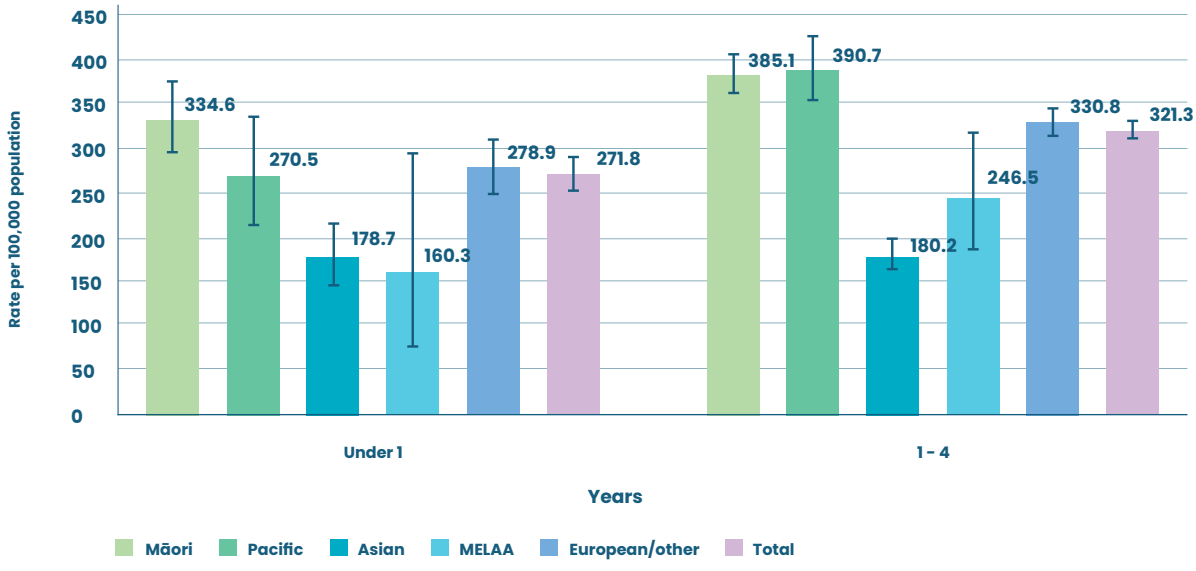


120. Table 49, Appendix 2.

Additional points to note from **Figure 37:**

- Across all age groups, the rate of hospitalisation for injury from falls was lowest for Asian tamariki. This was statistically significant.
- In tamariki aged 5 to 9 years, the rates of hospitalisation for injury from falls in the Māori, Pacific, and European/other categories were similar to each other, with the rates for each of these groups significantly higher than the rates for the Asian and MELAA ethnic groupings.

Figure 38: Rates of hospitalisation for injury from falls for tamariki aged 0–4 years, by prioritised ethnicity, 2017–2021



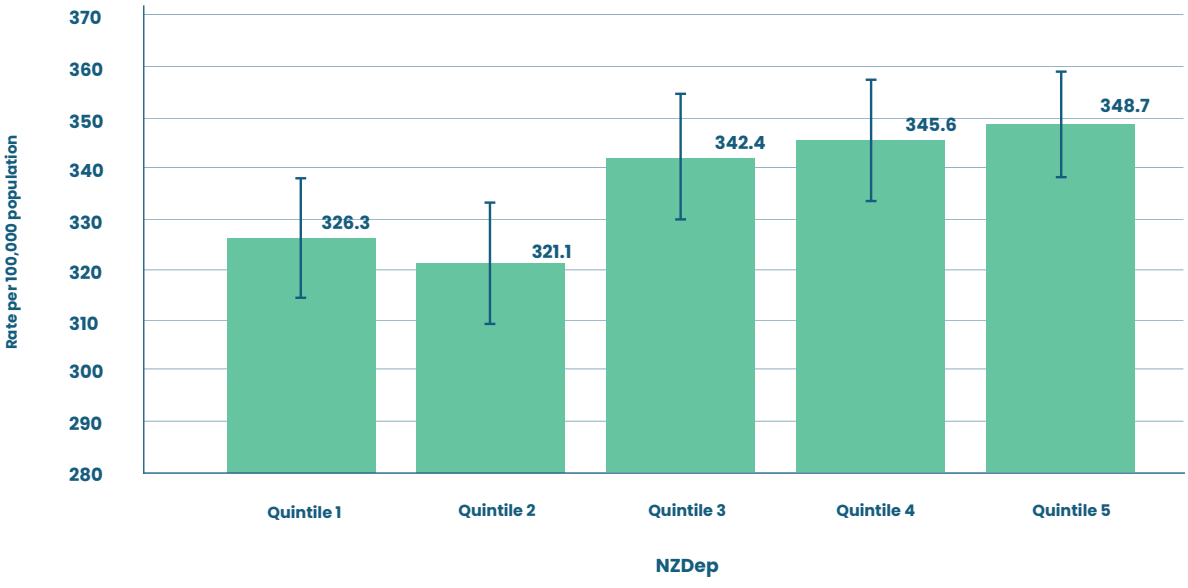
Socioeconomic deprivation

Tamariki living in the most relatively deprived areas (higher NZDep quintiles) had higher rates of hospitalisation for injury from falls compared with tamariki living in the least relatively deprived areas (lower NZDep quintiles).

Tamariki living in NZDep quintile 5 areas had the highest rate of hospitalisation from fall-related injuries (348.7 per 100,000) out of all the NZDep quintiles.

Figure 39 shows the rates of tamariki hospitalisation for injury from falls, presented by NZDep quintile, for the years 2017 to 2021.*

Figure 39: Rates of tamariki hospitalisation for injury from falls, by NZDep quintile, 2017–2021*



*** Missing data = 108 tamariki . Total number of hospitalisations = 16,110**

Gender

Male tamariki made up 56.7% of all hospitalisations for injury from falls in the years 2017 to 2021. The rate of falls-related hospitalisation for male tamariki (375.6 per 100,000) was significantly higher than that for females (302.4 per 100,000).

Table 16 shows tamariki hospitalisations for injury from falls, presented by gender, for the years 2017 to 2021.

Table 16: Tamariki hospitalisations for injury from falls, by gender, 2017–2021

Gender	Number	%	Rate per 100,000	95% CIs	
Females	7,016	43.3	302.4	295.4	309.5
Males	9,201	56.7	375.6	367.9	383.3
Total	**16,218**	**100**	**340.0**	**334.8**	**345.3**

Policy implications

Increasing our knowledge

Falls at home are a serious concern, especially for tamariki Māori and Pacific children aged between 0 and 4 years. **We recommend research into the drivers of this inequity and into evidenced-based ways to best support families/whānau to protect their tamariki from falls**, as a top priority.

More attention is also needed to reduce the risk of injury from falls that occur at sports, athletics, or other play areas for tamariki aged 10 to 14 years, especially for Pacific children.

Prioritising equity and improving what is already in place

In relation to falls, we recommend:

- **Use targeted approaches for whānau Māori and Pacific families as part of a holistic approach to services for tamariki aged under 5 years.** As noted in our 2015 report, there is good evidence for ways to reduce exposure to falls from and within buildings and homes, such as using safety gates for stairs and window latches. However, a one-size-fits-all approach to this issue is unlikely to address the inequities that have been highlighted in this current report. Targeted approaches could complement the work by government agencies and community-based providers on *Kahu Taurima* (the first 2,000 days) [121] and healthy-home programmes. They could also build on existing resources to increase awareness of what works in reducing falls at home, such as the *Preventing Falls to Under Fives Project Plan* produced by Safekids Aotearoa.

- **Increase opportunities for safe play and tākaro for tamariki.** In its 2022 Play Plan, *Kia Hīanga*, Sport New Zealand/IHI Aotearoa identified a number of areas that could be improved to support play and that we think could also reduce fall injuries in tamariki. These include the need for:

    - The voices of tamariki to be included as part of decisions on play spaces in their communities.
    - Making sure neighbourhoods have access to enough play spaces for tamariki.
    - Play space design guidelines that combine all aspects of equity and inclusiveness.
    - Coordinated approaches across government agencies and communities to support sustainable neighbourhood play systems and environments. [122]

121. Kahu Taurima is an approach to health care and support during pregnancy and the first five years for tamariki. More information is available on the website for Health NZ|Te Whatu Ora: https://www.tewhatuora.govt.nz/for-the-health-sector/maternity/kahu-taurima/

- **Provide more guidance and support to School Board on playground design and equipment.** The data in this report indicate that safe playground equipment at schools is critically important, especially for tamariki between the ages of 5 and 9 years. School Boards are responsible for ensuring that their school is a physically safe place for all students and staff. [123] They are also responsible for all aspects of building or upgrading their playgrounds and must comply with New Zealand Standard 5828:2015: Playground Equipment and Surfacing, as well as other guidance from the Ministry of Education. [124] While the data appear to suggest that the current arrangements provide a universal standard of playground safety, additional support to School Boards is needed to further reduce playground injuries for tamariki in the age group 5 to 9 years. This could include more widespread use of the S.A.F.E. (Supervision, Age Appropriateness, Fall Surfacing & Height, and Equipment Maintenance) checklist [125] by School Boards. Additional support could also be provided by the Ministry of Education to help School Boards ensure their playgrounds meet the safety and accessibility needs of disabled tamariki (e.g., through the provision of rails for fort or climbing equipment, wheelchair-inclusive equipment, and ramps). [126]

Addressing regulatory and policy gaps

- **We recommend that the Australian trampoline standard be adopted and that manufacturers, retailers, and sellers should be required to include and convey appropriate safety information to consumers at the point of sale** (including second-hand trampolines sold through online trading sites). Although there is not specific data in this report on what playground or sports equipment might have contributed to a fall, we know that some equipment has particular dangers. For example, trampolines provide a valuable opportunity for physical activity and motor skill improvement for tamariki, and they can contribute to tamariki development by encouraging risk taking and play. However, trampolines also pose a significant risk to tamariki safety. Unfortunately, there is no New Zealand standard for trampolines, as the previous voluntary standard was revoked in 2015 and has not been replaced. In the same period, the Australian standard equivalent (A4989 -2015) was strengthened to include safety net measures.

122. Sport New Zealand | IHI Aotearoa, 2022
123. Education and Training Act 2020, section 127.
124. Guidance on playgrounds on school sites is provided by the Ministry of Education: https://www.education.govt.nz/school/property-and-transport/school-facilities/playgrounds/
125. The S.A.F.E checklist is produced by Safekids Aotearoa and is available at https://media.starship.org.nz/download-playground-safety-school-lesson-plan-teacher-background%3E%3E/Starters_and_Strategies_Playground_Safety_School_lesson_plan.pdf
126. A useful resource for policy makers and schools is the 2020 profile of hospital treated child injury in primary schools in Victoria by Monash University Accident Research Centre, available online at https://www.monash.edu/__data/assets/pdf_file/0019/2431414/Hazard88-web_FA.pdf.

Ko te hononga a whānau, he hononga mau roa

A family's connection has an everlasting sense of belonging

Maintaining strong relationships is vital for the wellbeing of all whānau, regardless of life's ups and downs or the many difficulties we encounter.

This whakataukī reminds us to cherish and appreciate our loved ones, ensuring that we do not take one another for granted. When we understand this, it reassures individuals that they are not alone or isolated in times of need.

5. Drowning

Pēpi and young tamariki are inquisitive, active and eager to explore. They can be especially attracted to water because it shines, ripples, and splashes, but they don't understand its dangers. In these cases, as little as 40 mm of water can pose a drowning risk. For all tamariki, swimming pools, rivers, and the sea pose a drowning risk, and even older tamariki who have developed some water competence [127] can quickly find themselves in danger.

This chapter focuses on tamariki hospitalisations for injury from drowning.

There were 30 tamariki drowning fatalities during the years 2014 to 2018. Of these, two thirds were male (67%, n=20) and slightly more (73%, n=22) were in the age group 0-4 years old.

Following suffocation (including SUDI), drowning was the second most common cause of death from injury (a rate of 1.4 per 100,000) over this period for tamariki aged 0 to 4 years.

Over this period, the highest number of tamariki fatalities from drowning were for European/other children (n=12), followed by tamariki Māori (n=9).

Tamariki living in the most relatively deprived areas of Aotearoa (NZDep quintile 5) comprised more than one third (37%, n=11) of all tamariki drowning fatalities.

Due to the small numbers, the only further analysis on fatalities from drowning that is presented in this chapter relates to gender.

In brief

In the years 2017 to 2021, 160 tamariki were hospitalised for injury from drowning (a hospitalisation rate of 3.4 per 100,000). Male tamariki had higher rates of hospitalisation than female tamariki.

The tamariki hospitalisation rates for drowning-related injury have remained largely the same over time.

The most common site of tamariki drowning-related injury leading to hospitalisation was swimming pools, accounting for nearly half of all tamariki hospitalisations for this issue (48%, n=76).

Almost two-thirds (64%, n=103) of all tamariki hospitalisations for drowning-related injuries were for those aged 0 to 4 years, with this age-group also representing the highest rates of hospitalisation for this issue (6.8 per 100,000). The majority of these hospitalisations occurred in tamariki aged 1 to 4 years.

Tamariki Māori had the highest rates of hospitalisations for drowning-related injury (4.6 per 100,000) of all ethnic groups, followed by Pacific children (3.9 per 100,000).

Tamariki living in the most relatively deprived areas of Aotearoa (NZDep quintile 5) had the highest rate of drowning-related hospitalisations (4.69 per 100,000), accounting for over a third of relevant hospitalisations (37%, n=58).

127. Water competency is a broader term than swimming ability and refers to a broad spectrum of physical aquatic competencies as well as the integration of cognitive and affective competencies (Stallman et al, 2017).

Trend over time

In the years 2012 to 2021, 295 tamariki were hospitalised for injury from drowning, with 160 of these hospitalisations occurring between 2017 and 2021.

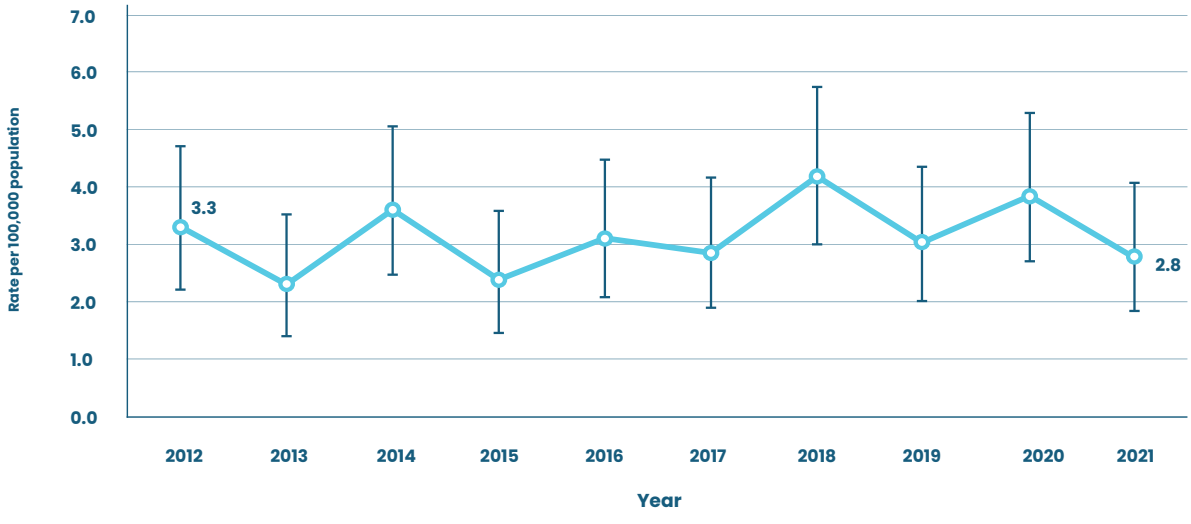
The tamariki hospitalisation rates for drowning-related injury fluctuated, with a peak in 2018, but it remained largely the same over time (3.3 per 100,000 in 2012; 2.8 per 100,000 in 2021).

The rate of tamariki hospitalisation for drowning-related injury in the years 2017 to 2021 was 3.4 per 100,000.

Figure 40 shows the rates of tamariki hospitalisation for drowning-related injury, for the years 2012 to 2021.

Additional data on tamariki hospitalisations for drowning-related injury, by year from 2012 to 2021, is provided in Appendix 2. [128]

Figure 40: Rates of tamariki hospitalisation for drowning-related injury, 2012-2021



Location

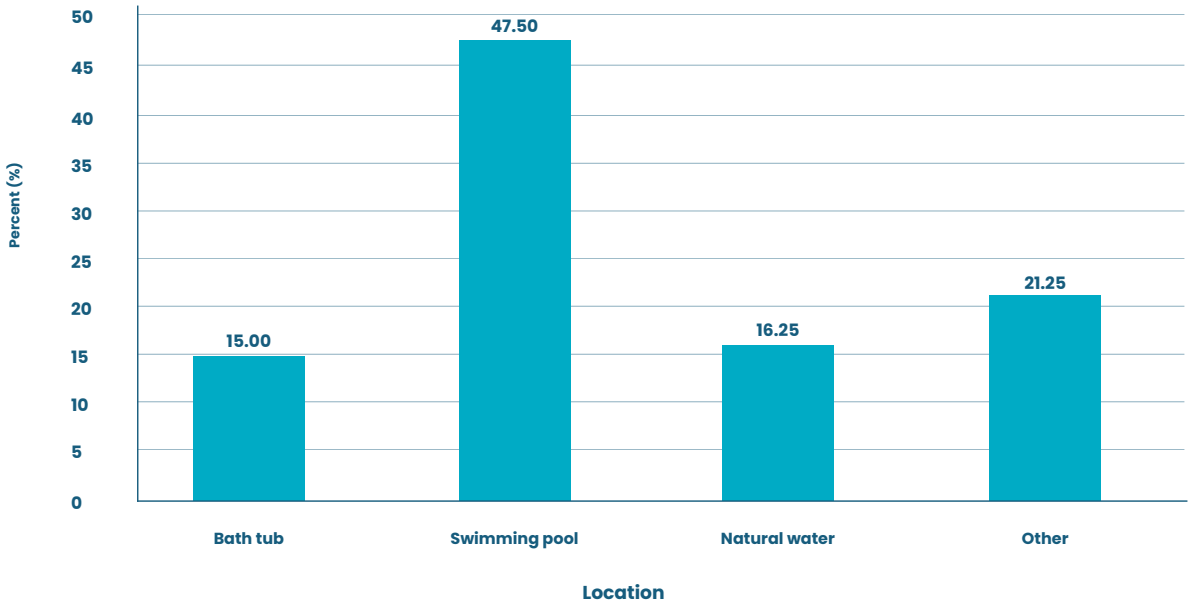
Swimming pools were the most common location for drowning-related injury leading to tamariki hospitalisation during the years 2017 to 2021, accounting for nearly half (48%, n=76) of them. Of these drowning related injuries that occurred in a swimming pool, most occurred at a home setting (49%, n=37).

128. Table 50, Appendix 2.

Sixteen percent (n=26) of tamariki hospitalisations for drowning-related injury were due to incidents that occurred in 'natural water' and 15% (n=24) were due to incidents in a 'bathtub'.

Figure 41 compares the locations of drowning injury leading to hospitalisation tamariki for the years 2017-2021.

Figure 41: Percentage of tamariki hospitalisations for drowning-related injury, by location, 2017–2021



Age group

In the years 2017 to 2021, 64% of all drowning-related tamariki hospitalisations were for those aged 0 to 4 years (n=103), with this age-group representing the highest rate of hospitalisation (6.8 per 100,000). For the age group 0 to 4 years, tamariki under 1 year of age accounted for 17% (n=17) of the drowning-related hospitalisations, compared with 83% for those aged 1-4 years (n=86).

The rate of drowning-related hospitalisation decreased with tamariki age. For tamariki aged 5 to 9 years, the rate of hospitalisation from drowning was 2.2 per 100,000. Tamariki aged 10 to 14 years had the lowest rate (1.3 per 100,000).

Looking specifically at tamariki aged 0 to 4 years, the most common location for drowning-related injury in this period was in the home (61.2%, n=63).

For tamariki aged under one year of age, 16 of the 17 drowning-related hospitalisations in this period were from incidents that occurred in the home, 13 of them (76.5%) in the bathroom.

Table 17 shows numbers of drowning-related tamariki hospitalisations, presented by age-group, for the years 2017 to 2021.

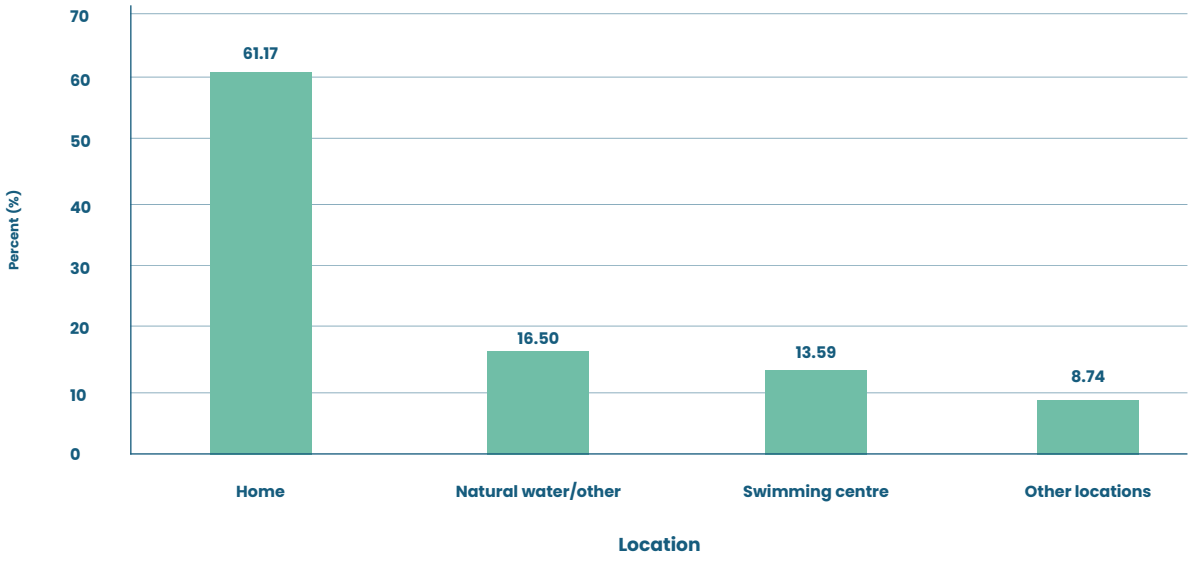
Figure 42 shows drowning-related hospitalisations for tamariki aged 0 to 4 years, by location, for the years 2017 to 2021

Table 17: Tamariki hospitalisations for drowning-related injury, by age-group, 2017-2021*

Age group (years)	No. of Hospitalisations	%	Rate per 100,000	95% CIs	
0 - 4	103	64	6.8	5.5	8.2
5 - 9	37	23	2.2	1.6	3.1
10 - 14	20	13	1.3	0.8	1.9
Total	**160**	**100**	**3.4**	**2.9**	**3.9**

** Population denominator for rate per 100,000 is children aged 0-14 years*

Figure 42: Percentages of drowning-related hospitalisations for tamariki aged 0–4 years, by location, 2017-2021



Ethnicity

In the years 2017 to 2021, out of all drowning-related tamariki hospitalisations:

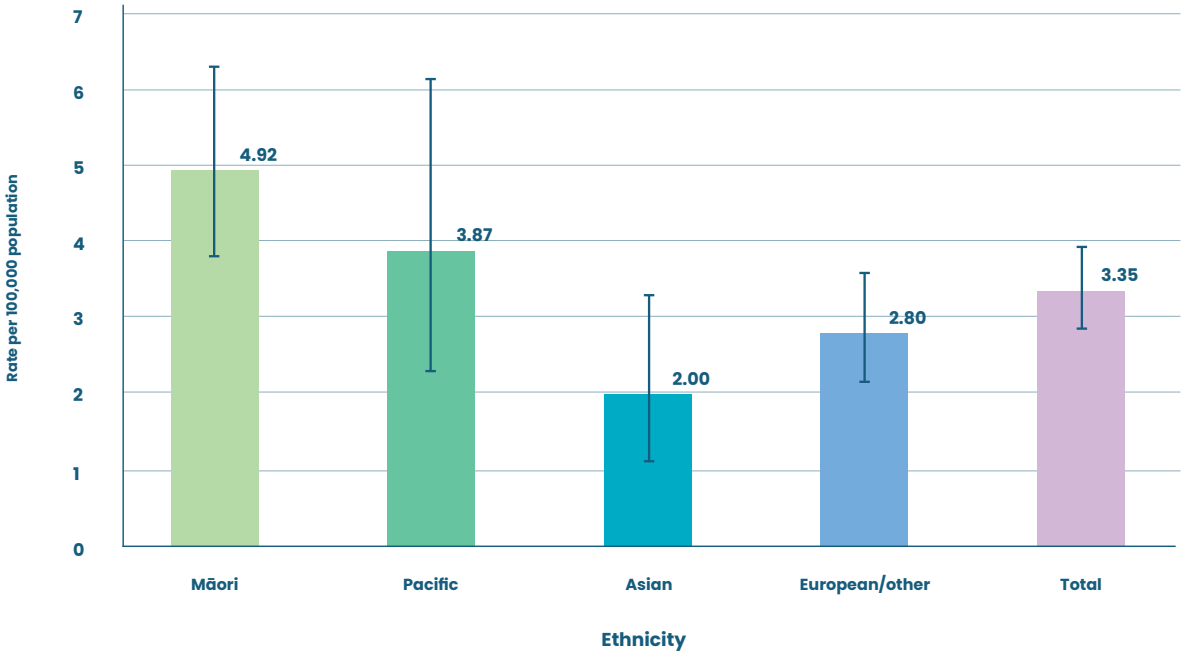
- 40% were tamariki Māori (n=64)
- 39% were European/other children (n=63)
- 11% were Pacific children (n=18),
- 9% were Asian children (n=15).[129]

Over this same period, tamariki Māori had the highest rates of hospitalisation for drowning -related injury (4.9 per 100,000) followed by Pacific children (3.9 per 100,000), European/other children (3.0 per 100,000) and Asian children (2.0 per 100,000).

129. There are no MELAA hospitalisations related to drowning during this period and therefore MELAA is not included indenominator for this analysis.

Figure 43 shows the rates of drowning-related tamariki hospitalisation, presented by prioritised ethnicity for the years 2017 to 2021.

Figure 43: Rates of drowning-related tamariki hospitalisation, by prioritised ethnicity, 2017-2021

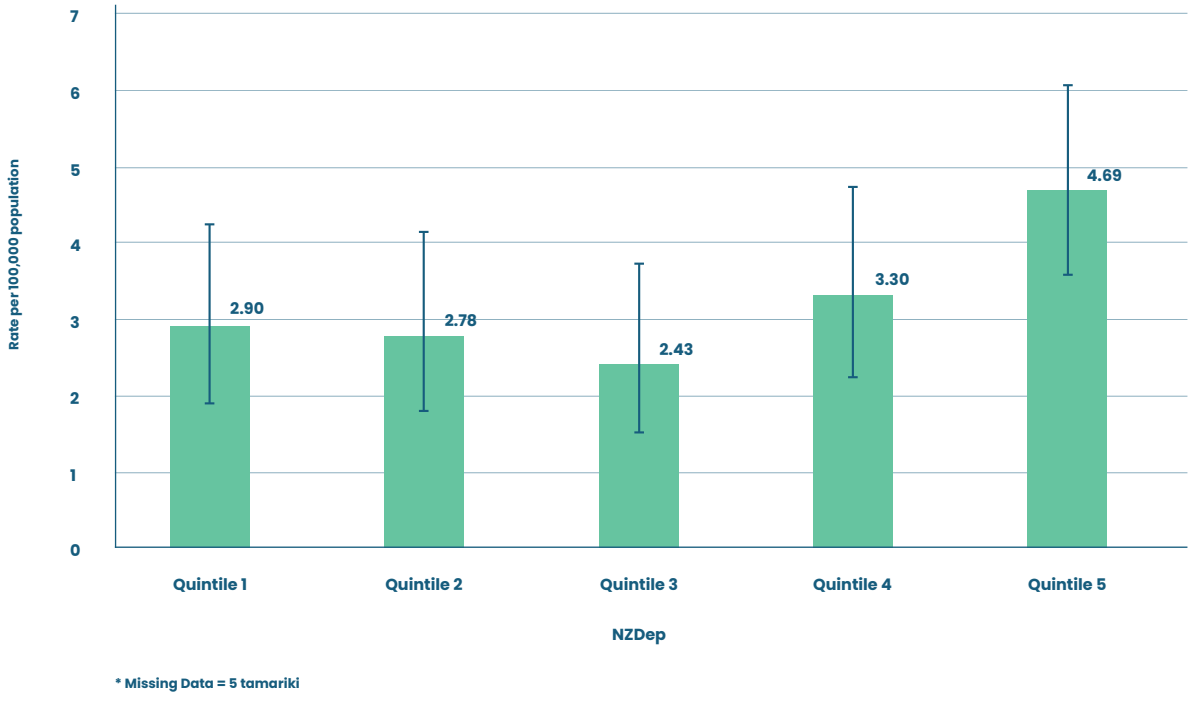


Socioeconomic deprivation

In the years 2017 to 2021, tamariki living in the most relatively deprived areas of Aotearoa (NZDep quintile 5) had the highest rates of hospitalisation from drowning-related injury (4.69 per 100,000) of any NZDep quintile, accounting for more than a third (37%, n=58) of them.

Figure 44 shows the rates of drowning-related tamariki hospitalisation, presented by NZDep quintile, for the years 2017 to 2021.

Figure 44: Rates of drowning-related tamariki hospitalisation, presented by NZDep quintile, 2017–2021*



* Missing Data = 5 tamariki

Gender

In the years 2017 to 2021, male tamariki made up a higher proportion of hospitalisations (58%, n=93) than female tamariki (42%, n=67).

Table 18 shows tamariki drowning fatalities for the years 2014 to 2018 and hospitalisations for drowning-related injury for the years 2017 to 2021, presented by gender.

Table 18: Tamariki drowning fatalities for the years 2014-2018 and tamariki hospitalisations for drowning-related injury, by gender, 2017–2021

	Deaths (2014 - 2018)					Hospitalisations (2017 - 2021)				
Gender	**Number**	**%**	**Rate per 100,000**	**95% CIs**		**Number**	**%**	**Rate per 100,000**	**95% CIs**	
Female	10	33.3	0.4	0.2	0.8	67	41.9	2.9	2.2	3.7
Male	20	66.6	0.8	0.5	1.3	93	58.1	3.8	3.1	4.7
Total	**30**	**100**	**0.6**	**0.4**	**0.9**	**160**	**100**	**3.4**	**2.9**	**3.9**

Policy implications

Active supervision

While this section focuses on the policy implications related to drowning and water safety, especially around swimming pools, one of the most important protection measures is active supervision of young tamariki. Adults must be vigilant with *all* young tamariki around water *all* of the time – remaining within arm's reach of tamariki aged less than 5 years. When a pēpi is in the bath an adult must maintain hand contact with the infant at all times.

Safe swimming pools

Swimming pools accounted for nearly half of all drowning-related hospitalisations. While the numbers of deaths and injuries are still unacceptably high, this is an area where – over time – we have seen some success. Legislation introduced in the 1980s, [130] requiring residential swimming pools to be fenced, had a real impact on reducing the numbers of deaths from drowning and drowning-related injuries in spite of growing numbers of swimming pools. [131]

Pool owner responsibilities were updated with the Building (Pools) Amendment Act 2016, which incorporated child safety provisions for residential swimming pools into the Building Act 2004. Under this legislation all residential pools are required to have a physical barrier that stops unsupervised young tamariki (under the age of 5 years) from entering the pool or area around it, and they must be inspected every three years by either a territorial authority (local councils) or an independently qualified pool inspector. A barrier can include a fence, a concrete block wall, or the wall of a house or other building. Where a building wall is part of the pool barrier there are additional requirements regarding windows (restricting the size of window openings) and doors (requiring self-closing devices or audible alarms, self-latching, and signage). [132]

In January 2024, new safety guidance was released by the Ministry of Business, Innovation and Employment's Building Performance section for swimming pool owners (including inflatable, portable and temporary pools). This explains the risks swimming pools pose to tamariki, the legislative obligations of swimming pool owners, and how the enforcement of swimming pool requirements works. [133]

While it is too soon to make conclusive observations about the effectiveness of the most recent legislative changes, we note that a quarter of private pools checked by Auckland Council in 2023 were found to be unsafe, highlighting the importance of regular homeowner checks, regular inspection and the need for local councils to keep up-to-date swimming pool registers. [134]

Public swimming pools

- **We recommend taking a more in depth look at whether current self-regulation and voluntary schemes are sufficiently robust and resourced appropriately to ensure swimming pool safety.** Owners of swimming pool facilities (such as local councils) should make sure their facilities are safe – this extends beyond fencing requirements. Many, but not all, public pools in Aotearoa are part of a voluntary pool or water safety scheme, indicating – for example – trained lifeguards will be on duty at all times. Voluntary schemes, while they have many positive aspects, mean that some of the geographic areas that most need additional pool safety and harm-prevention activities miss out.

130. Fencing of Swimming Pools Act 1987
131. Starship Child Health (2015) Submission to the Building (Pools) Amendment Bill 2015. Released on the Parliament website at https://www.parliament.nz/resource/en-NZ/51SCLGE_EVI_00DBHOH_BILL64825_1_A454556/6027973dcb9efe5dc3b2f0d4784e0794844535a8
132. Ministry of Business, Innovation and Employment (2017) F9 Building Code Acceptable Solution, available online https://www.building.govt.nz/assets/Uploads/building-code-compliance/f-safety-of-users/f9-restricting-access-residential-pools/asvm/f9-restricting-access-to-residential-pools.pdf
133. Safety guidance for pool owners is available online at: https://www.building.govt.nz/building-code-compliance/f-safety-of-users/pool-safety/guidance-for-pool-owners/
134. Radio New Zealand (15 December 2023) "Quarter of pools checked by Auckland Council unsafe". Available online https://www.rnz.co.nz/news/national/504850/quarter-of-all-pools-checked-by-auckland-council-unsafe

- **We recommend investment in capacity and capability of the lifeguard workforce.** There are also reports of difficulties in recruiting lifeguards across the country. [135] Lifeguards are an essential workforce for public swimming pools. Lifeguarding should be recognised as a legitimate career pathway, and the profile of the appropriate qualifications should be raised. Attention should be given to recruiting Māori and Pacific lifeguards, given the increased rates of drowning-related tamariki hospitalisation for these ethnic groups.

Developing Water Competence

- **We recommend a continued focus on building lifelong water competence amongst tamariki, connected to te taiao (the natural environment).** Developing water competence, including learning to swim is an important life skill for tamariki, and there is evidence of their effectiveness, including in areas of high socioeconomic deprivation. [136] Including water skills in the health and physical education curriculum at schools and connecting this to an appreciation of the natural environment, in recognition that swimming pools are not the only place where people swim or injure themselves near water, is an important step towards reducing drowning-related injury.

Supporting culturally relevant approaches to water safety

- **We recommend investment in culturally relevant and appropriate programmes to address the inequitable impacts of drowning-related injury and death for tamariki Māori and Pacific children.** This would include, for example, supporting Māori water safety education programmes built on mātauranga Māori, emphasising and strengthening the connection with water as a means of recreation and physical activity, a source of traditional kai, and a link to tīpuna. [137]

135. Recreation Aotearoa (2023) Poolsafe Annual Report, available online at: https://www.nzrecreation.org.nz/Site/aquatics/poolsafe.aspx
136. Safekids Aotearoa (2017) Child Unintentional Deaths and Injuries in New Zealand and Prevention Strategies. Auckland, NZ; Safekids Aotearoa. P. 53.
137. This has also been identified as a priority in the New Zealand Water Safety Sector Strategy 2025, available online at https://www.watersafetynz.org/_files/ugd/6f2a10_79f64b16287d4950b97d2dea2eb6e9ee.pdf

Tū whitia te hopo, mairangatia te angitū!

Feel the fear, but do it anyway!

While fear has the potential to stop us in our tracks, it can also be acknowledged and embraced as a force for growth.

This whakataukī encourages us to be brave and not let fear hold us back.

It urges us to release negativity and, in doing so, amplify the positive, leading to confidence, resilience, and triumph in overcoming challenges and obstacles.

6. Inanimate mechanical forces

Injury from inanimate mechanical forces involve being struck by, cut, or otherwise injured by an object. This includes being caught, crushed, jammed, or pinched between objects. It can include injuries from sports equipment, jammed fingers, and injuries from sharp objects such as knives, scissors, or glass.

This chapter looks at tamariki hospitalisation for injury from inanimate mechanical force.

In the years 2014 to 2018, there were 8 tamariki deaths from inanimate mechanical forces for tamariki aged 0 to 14 years. Due to small numbers, there is no further analysis on fatalities from inanimate mechanical forces presented in this chapter.

In brief

From 2017 to 2021, 5,852 tamariki were hospitalised for injury from inanimate mechanical forces. The most common cause was a 'cut/pierce injury' (30%, n=1,780) followed by 'striking against or being struck by objects' (26%, n=1,546) and from being 'caught, crushed, jammed, or pinched between objects' (25%, n=1,455).

Over the same period, 42% (n=2,436) of hospitalisations for injury from inanimate mechanical forces were in tamariki aged 0 to 4 years, who also had the highest rate of hospitalisation of any of the age groups (160.4 per 100,000).

Looking at the three main age groups:

- For tamariki aged 0 to 4 years the most common causes of hospitalisation for injury from inanimate mechanical forces was of being 'caught and jammed between objects' (58.6 per 100,000). The majority of these were in tamariki aged 1 to 4 (90.8%, n=2,213).
- For tamariki in the age groups 5 to 9 years and 10 to 14 years, the most common cause of hospitalisation for injury from inanimate mechanical forces was 'cut/pierce' injury (39.9 and 45.8 per 100,000 respectively).

Pacific children had the highest rates of hospitalisation for inanimate mechanical force injury out of all ethnic groups. The highest rate of hospitalisation for Pacific children was in the age group 0 to 4 years (216.3 per 100,000, n=317). Asian children had the lowest rate of hospitalisation for inanimate mechanical force injury in all of the age groups.

Tamariki living in the most relatively deprived areas of Aotearoa (NZDep quintile 5) had the highest level of hospitalisation for inanimate mechanical force injury (n=1,776, rate of 143.6 per 100,000), while tamariki living in the least relatively deprived areas (NZDep quintile 1) had the lowest level (n=877, rate of 97.9 per 100,000).

Male tamariki accounted for a greater proportion of hospitalisations for injury related to inanimate mechanical forces (60.5%), compared with 39.5% for female tamariki.

Trend over time

In the years 2017 to 2021, 5,852 tamariki were hospitalised for injury from inanimate mechanical forces.

Tamariki hospitalisation rates for injury related to inanimate mechanical forces have decreased over time (from 163.2 per 100,000 in 2012 to 110.5 per 100,000 in 2021).

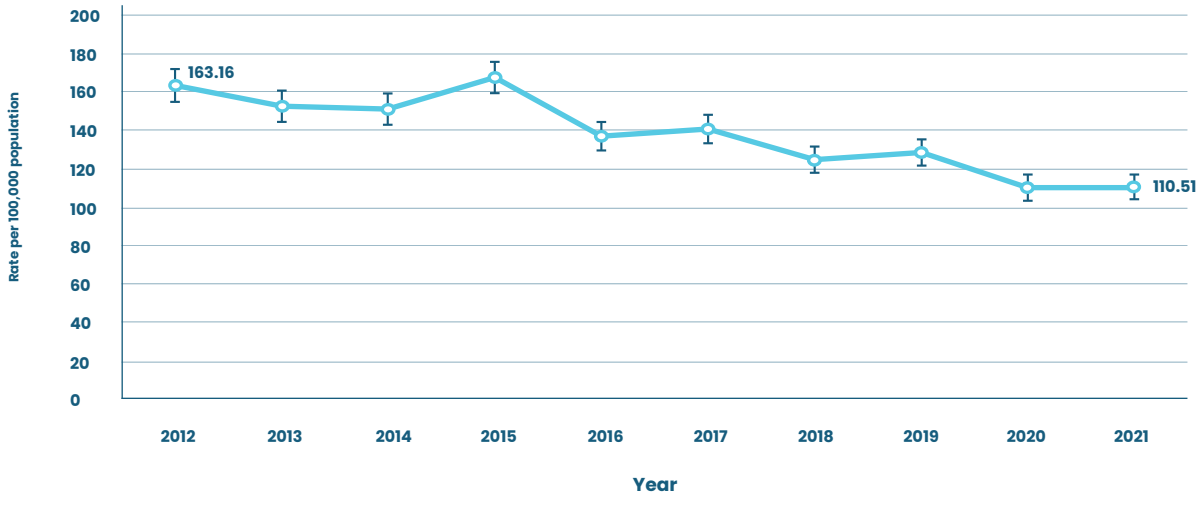
The most common causes of tamariki hospitalisation for injury from inanimate mechanical forces for tamariki were:

- 'Cut/pierce injury' (30%, n=1,780)
- 'Striking against or being struck by objects' (26%, n=1,546)
- Being 'caught, crushed, jammed or pinched between objects' (25%, n=1,455).

Figure 45 shows the rates of tamariki hospitalisation for injury from inanimate mechanical forces, over time, for the years 2012 to 2021.

Additional data on tamariki hospitalisation for injury from inanimate mechanical forces, broken down by year, are provided in Appendix 2.[138]

Figure 45: Rates of tamariki hospitalisation for injury from inanimate mechanical forces, over time, 2012–2021



Age group

In the years 2017 to 2021, 42% (n=2,439) of all tamariki hospitalisations from inanimate mechanical forces were for those aged 0 to 4 years, and this group had the highest rate of these hospitalisations out of all the age groups (160.4 per 100,000). The majority of hospitalisations in the 0 to 4 age group were in

138. Table 51, Appendix 2.

tamariki aged 1 to 4 years (90.8%, n=2,215), compared with 9.2% (n=224) of hospitalisations in tamariki under 1 year of age.

The hospitalisation rates for injury from inanimate mechanical forces for tamariki aged 5 to 9 years and 10 to 14 years were similar to each other (109.5 per 100,000 and 100.2 per 100,000 respectively).

When looking at the causes of tamariki injury from inanimate mechanical forces by age, the highest rate of hospitalisation of those aged 0 to 4 years was for injury in the categories 'caught and jammed between objects' (58.6 per 100,000), followed by 'striking against or being struck by objects' (36.4 per 100,000) and injury from a 'cut/pierce' injury (25.6 per 100,000).

For tamariki in the age groups 5 to 9 years and 10 to 14 years, the rates of hospitalisation for injury from inanimate mechanical forces had a different pattern from those of the youngest age group. For both of these older age groups, the most common cause of hospitalisation was from a 'cut/pierce' injury (39.9 and 45.8 per 100,000 respectively), followed by 'striking against or being struck by objects' (27.8 and 33.4 per 100,000 respectively) and from 'caught and jammed between objects' (25.4 and 8.9 per 100,000, respectively).

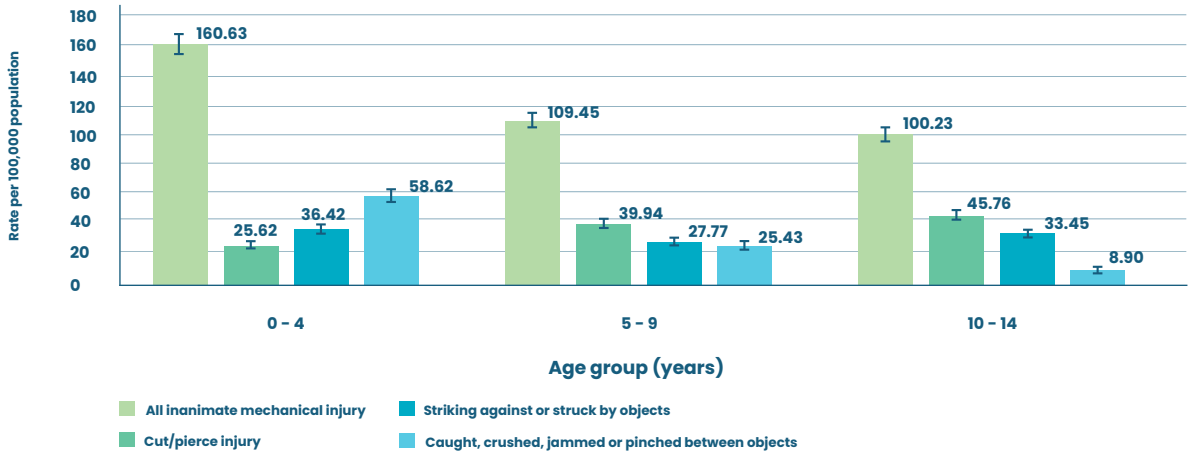
Table 19 shows tamariki hospitalisations for injury from inanimate mechanical forces, presented by age-group, for the years 2017 to 2021.

Figure 46 shows the rates of tamariki hospitalisation for injury from inanimate mechanical forces, presented by age-group and the top three causes, for the years 2017 to 2021.

Table 19: Tamariki hospitalisations for injury from inanimate mechanical forces, by age-group, 2017–2021

Age group (years)	No. of Hospitalisations	%	Rate per 100,000	95% CIs	
0 - 4	2,439	41.7	160.63	154.13	166.94
5 - 9	1,825	31.2	109.45	104.49	114.59
10 - 14	1,588	27.1	100.23	95.24	105.15
Total	**5,852**	**100**	**122.68**	**119.56**	**125.87**

Figure 46: Rates of tamariki hospitalisation for injury from inanimate mechanical forces, by age-group and top three causes, 2017-2021



Ethnicity

In the years 2017 to 2021, Pacific children had the highest rates of hospitalisation for injury from inanimate mechanical forces out of all ethnic groups and across every age group. The highest rate of hospitalisation for Pacific children was in the 0 to 4 years age group (216.3 per 100,000, n=317).

Asian children had the lowest rates of hospitalisation for injury from inanimate mechanical forces, across each age group.

Differences between ethnic groups in rates of hospitalisation for injury from inanimate mechanical forces were most pronounced in the age group 0 to 4 years. Looking at the age group 0 to 4 years:

- For tamariki aged less than 1 year old, MELAA children had the highest rate of hospitalisation for injury from inanimate mechanical forces (128.2 per 100,000), although this should be interpreted with caution due to low numbers (n=8). European/other children had the second-highest rate of hospitalisation (99.2 per 100,000, n=117), followed by tamariki Māori (76.6 per 100,000, n=65).

- For children in the age group 1 to 4 years, Pacific children had the highest rate of hospitalisations for injury from inanimate mechanical forces (254.7 per 100,000, n=298) followed by tamariki Māori (213.3 per 100,000, n=716).

Figure 47 shows the rates of tamariki hospitalisation for injury from inanimate mechanical forces, presented by age group and prioritised ethnicity for the years 2017 to 2021. [139]

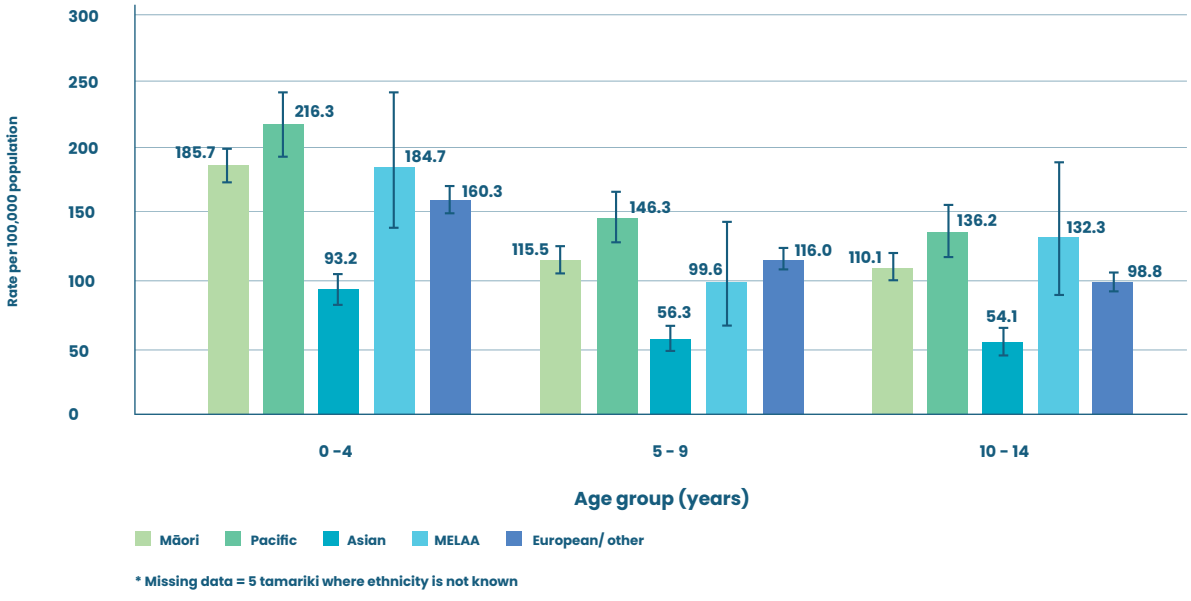
Figure 48 shows the rates of hospitalisation for injury from inanimate mechanical forces for tamariki aged 0 to 4 years, by prioritised ethnicity, for the years 2017 to 2021.

Additional data on tamariki hospitalisations for injury from inanimate mechanical forces, by prioritised ethnicity and age, are provided in Appendix 2. [140]

139. Please note that the MELAA analysis should be interpreted with caution due to low numbers.

140. Table 52, Appendix 2.

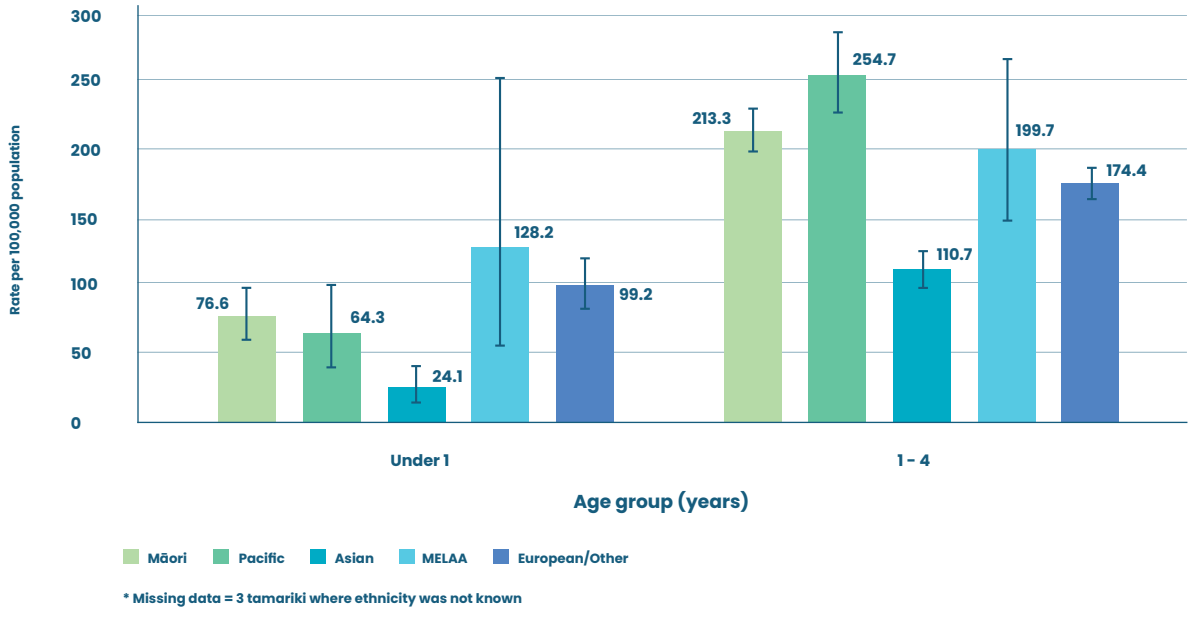
Figure 47: Rates of tamariki hospitalisation for injury from inanimate mechanical forces, by age group and prioritised ethnicity, 2017–2021*,



Points to note from **Figure 47:**

- The differences in rates of hospitalisation were larger between younger age groups than in older age groups. For example, in the 5 to 9 years age group, tamariki Māori and European/other children had very similar rates of hospitalisation (115.5 per 100,000 for Māori and 116.0 for European/other) but in the 0 to 4 years age group, the rates of hospitalisation for tamariki Māori were significantly higher than those for European/other children (185.7 per 100,000 for tamariki Māori compared with 160.3 per 100,000 for European/other children).

Figure 48: Rates of hospitalisation for injury from inanimate mechanical forces for tamariki aged 0–4 years, by prioritised ethnicity, 2017-2021*



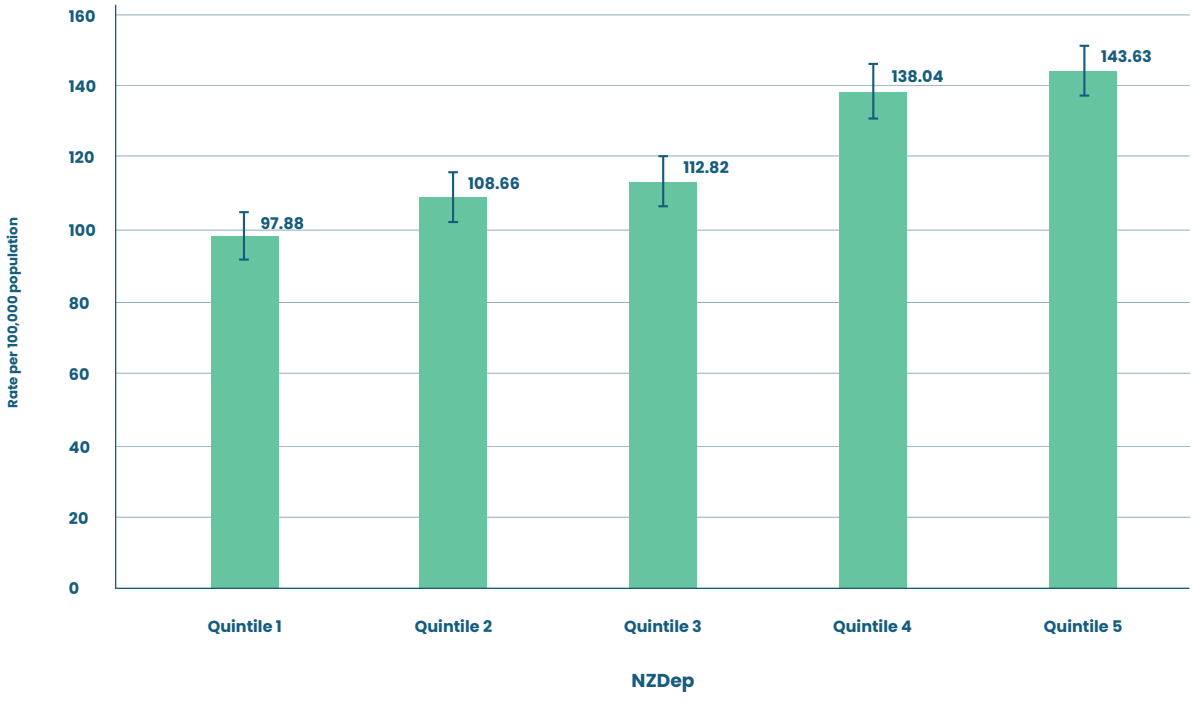
Socioeconomic deprivation

In the years 2017 to 2021, tamariki living in the most relatively deprived areas of Aotearoa (NZDep quintile 5) had the highest number of hospitalisations for injury from inanimate mechanical forces (n=1,776), and a hospitalisation rate of 143.6 per 100,000.

Tamariki living in the least relatively deprived areas of Aotearoa (NZDep quintile 1) had the lowest number of hospitalisations for injury from inanimate mechanical forces (n=877) with a hospitalisation rate of 97.9 per 100,000.

Figure 49 shows the rates of tamariki hospitalisation for injury from inanimate mechanical forces, presented by NZDep quintile for the years 2017 to 2021.

Figure 49: Rates of tamariki hospitalisation for injury from inanimate mechanical forces, by NZDep quintile, 2017–2021*



* Missing data = 31 tamariki in the NZDep quintile data . Total = 5,821

Gender

In the years 2017 to 2021, male tamariki accounted for a greater proportion of hospitalisations for injury from inanimate mechanical forces (60.5%, n=3,543) than female tamariki (39.5%, n=2,309). The hospitalisation rate for males (144.6 per 100,000) was significantly higher than that for females (99.5 per 100,000).

Table 20 shows tamariki hospitalisations for injury from inanimate mechanical forces, presented by gender, for the years 2017 to 2021.

Table 20: Tamariki hospitalisations for injury from inanimate mechanical forces, by gender, 2017–2021

Gender	Number	%	Rate per 100,000	95% CIs	
Females	2,309	39.5	99.52	95.50	103.66
Males	3,543	60.5	144.62	139.90	149.46
Total	**5,852**	**100.00**	**122.68**	**119.56**	**125.87**

Policy implications

Inanimate mechanical force injury is a broad category, which presents challenges for policy-level intervention and focus for injury prevention specialists. This highlights the need for additional research to help explain the data and understand the best ways to intervene to reduce tamariki injury from inanimate mechanical forces.

Notwithstanding the need for more research, our main recommendation is that ongoing investment is needed in holistic home safety and healthy-home visits for whānau.

The Home Safety Programme currently offered by Ririki Haumaru | Safekids Aotearoa and its network of community providers, in partnership with ACC, provides the basis for such a programme, with its focus on working with whānau, both in the community and in their homes, to make changes that keep their tamariki safe from avoidable harm.

Taking a holistic approach also means making injury prevention a legitimate part of the mandate of numerous home visit providers who already have well-established family and whānau relationships. This could include:

- Healthy Homes Initiatives, which work with eligible whānau to carry out a comprehensive housing assessment and complete an individualised action plan to create a warmer, drier, healthier home.
- Well Child Tamariki Ora, a series of health visits and support that are free to all whānau for tamariki from around the age of 6 weeks up to 5 years.
- Child Development Services, Whaikaha (Ministry for Disabled People)-funded community-based services to support disabled children and children who are not meeting development milestones.
- The Family Start programme, a free home-visiting programme in parts of the country, focusing on improving children's growth, health, relationships, family circumstances, environment, and safety.

From the data we have presented in this chapter, addressing the risk of tamariki aged 1 to 4 years being 'caught, crushed, jammed or pinched between objects' (such as drawers) would have the biggest impact. This would have to be done in partnership with Pacific communities to ensure prevention measures were effective for Pacific children, who had the highest rates of tamariki hospitalisation for injury from inanimate mechanical forces out of all the ethnic groups. As we noted in our previous data book, there is good evidence for home safety programmes where injury prevention specialists are able to work with whānau on reducing risks to tamariki (e.g., by removing opportunities to climb onto furniture). [141]

Supporting whānau in rental accommodation is also an important part of addressing the injury risk from inanimate mechanical forces. Some evidence suggests that being in rental accommodation is a barrier to fitting safety equipment in the home to keep tamariki safe. [142] We also recommend the increased use of safety glass in windows and doors in rental properties.

141. Safekids Aotearoa, 2015.
142. Ingram et al., 2012.


HARRISVILLE

Hoki ki tō ūkaipō, kia rongo i te ihirangaranga

Return to your place of belonging and the source of your vibration

Connection to place or people offers a deep source of identity, spiritual nourishment, and emotional healing.

Much like the whakataukī ‘Hokia ki ō maunga kia purea ai koe e ngā hau a Tāwhirimātea’ (Return to your mountain to be cleansed by the winds of Tāwhirimātea), this saying acknowledges that when one is away from home, they may feel a sense of aroha (love) and longing for fulfillment.

This pull can compel them to return home, seeking to nourish and restore their soul. In times of emotional turmoil, returning to one’s place of belonging can offer profound healing.

7. Animate mechanical forces

Animate mechanical force injuries are those incurred through being struck, bitten, or otherwise injured by an animal, such as a human being, dog, or insect.

This chapter sets out tamariki hospitalisations for injury from animate mechanical forces. Because of the small numbers, this chapter does not include data on fatalities.

In brief

In the years 2017 to 2021, 1,917 tamariki aged 0-14 years were hospitalised for injury from animate mechanical forces.

Between 2012 and 2018, the rates of tamariki hospitalisation generally fluctuated, but they have decreased after 2019 (from 42.2 per 100,000 in 2019 to 37.0 per 100,000 in 2021).

The most common cause of tamariki hospitalisations for animate mechanical force injury was due to 'accidental hit, strike, kick, twist, bite, scratch or trample by another person' (48%, n=922). 'Contact with dog' (36%, n=696) was the second highest cause.

The most common causes of tamariki hospitalisation for animate mechanical force injury varied by age group, as follows:

- For tamariki aged 0 to 4 years the most common cause of hospitalisation was 'contact with dog' (18.3 per 100,000).
- For tamariki aged 5 to 9 years there were similar hospitalisation rates from 'contact with dog' (16.0 per 100,000) and from 'accidental hit, strike, kick, twist, bite, scratch or trample by another person' (15.5 per 100,000).
- For tamariki aged 10 to 14 years, the most common cause of hospitalisations was 'accidental hit, strike, kick, twist, bite, scratch or trample by another person' (rate of 32.2 per 100,000).

Tamariki Māori and Pacific children had the highest rates of hospitalisation for animate mechanical force injury across all of the age groups.

Tamariki living in the most relatively deprived areas of Aotearoa had significantly higher hospitalisation rates from animate mechanical force injury (51.3 per 100,000), compared with tamariki living in the least relatively deprived areas (33.5 per 100,000).

Male tamariki (63%, n=1,206) accounted for a greater proportion of the hospitalisations for animate mechanical force injury than females (37%, n=711), with a hospitalisation rate of 49.2 per 100,000 for males, compared with 30.6 per 100,000 for females.


ÉALLY
IKE
SNACKS

Trend over time

In the years 2017 to 2021, 1,917 tamariki were hospitalised for injury from animate mechanical forces.

Tamariki hospitalisation rates for animate mechanical force injuries fluctuated between 2012 and 2018, before decreasing between 2019 and 2021 (42.2 per 100,000 to 37.0 per 100,000 respectively).

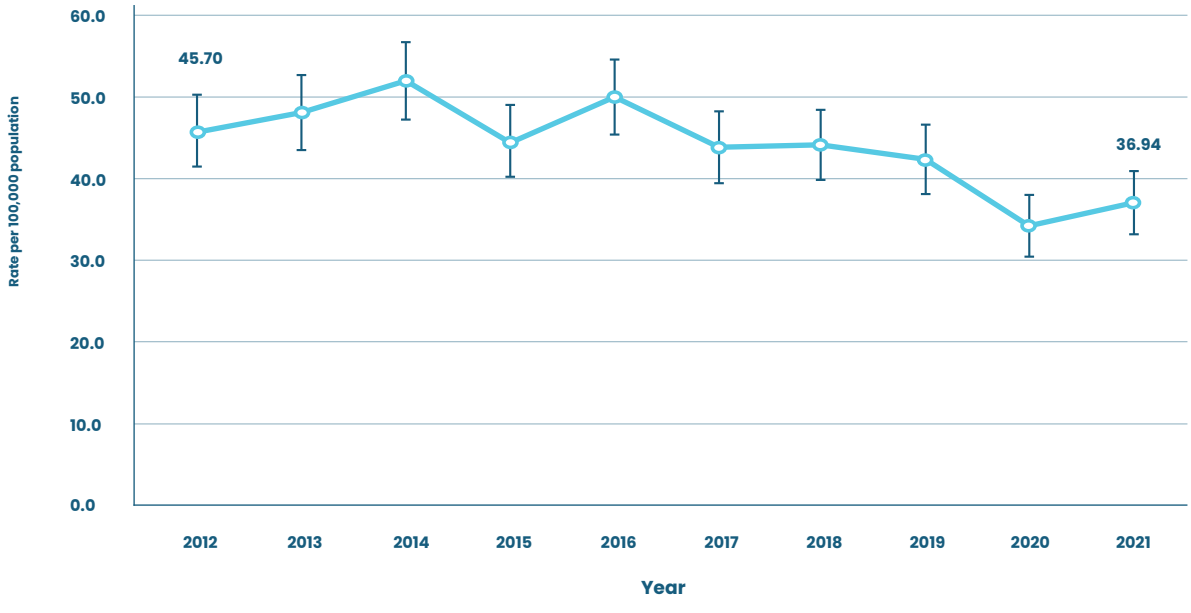
The top three causes of tamariki hospitalisation for injury from animate mechanical forces were due to:

- 'Accidental hit, strike, kick, twist, bite, scratch or trample by another person' (48%, n=922)
- 'Contact with dog' (36%, n=696)
- Being 'bitten or stung by nonvenomous insect and other nonvenomous arthropods' (8%, n=158).

Figure 50 shows the rates of tamariki hospitalisations for injury from animate mechanical forces, for the years 2012 to 2021.

Additional data on tamariki hospitalisation for injury from animate mechanical forces, in the years 2012 to 2021, are provided in Appendix 2.[143]

Figure 50: Rates of tamariki hospitalisation for injury from animate mechanical forces, over time, 2012–2021



143. Table 53, Appendix 2.

Age group

In the years 2017 to 2021, 39% (n=738) of all tamariki hospitalisations for injury from animate mechanical forces were in those aged 10 to 14 years, which represented the highest rates of hospitalisation of all the age groups (46.6 per 100,000).

The rates of hospitalisation for injury from animate mechanical forces for tamariki aged 0 to 4 years and 5 to 9 years were similar to each other (36.5 per 100,000 and 37.5 per 100,000, respectively).

The majority of tamariki hospitalisations in the age group 0 to 4 years were in those aged 1 to 4 years (88%, n=486), compared with 12% (n=68) in those aged less than 1 year.

For tamariki aged 0 to 4 years, the most common cause of hospitalisation for injury from animate mechanical forces was 'contact with dog' (18.3 per 100,000), followed by 'accidental hit, strike, kick, twist, bite, scratch, or trample by another person' (10.1 per 100,000).

Tamariki aged 5 to 9 years had similar rates of injury from the categories 'contact with dog' (16.0 per 100,000) and 'accidental hit, strike, kick, twist, bite, scratch, or trample by another person' (15.5 per 100,000).

For tamariki aged 10 to 14 years, the highest hospitalisation rates for injury from animate mechanical forces related to 'accidental hit, strike, kick, twist, bite, scratch, or trample by another person' (32.2 per 100,000).

Table 21 shows tamariki hospitalisations for injury from animate mechanical forces, presented by age group, for the years 2017 to 2021.

Figure 51 shows the rates of tamariki hospitalisation for injury from animate mechanical forces and the top three contributing causes, presented by age group, for the years 2017 to 2021.

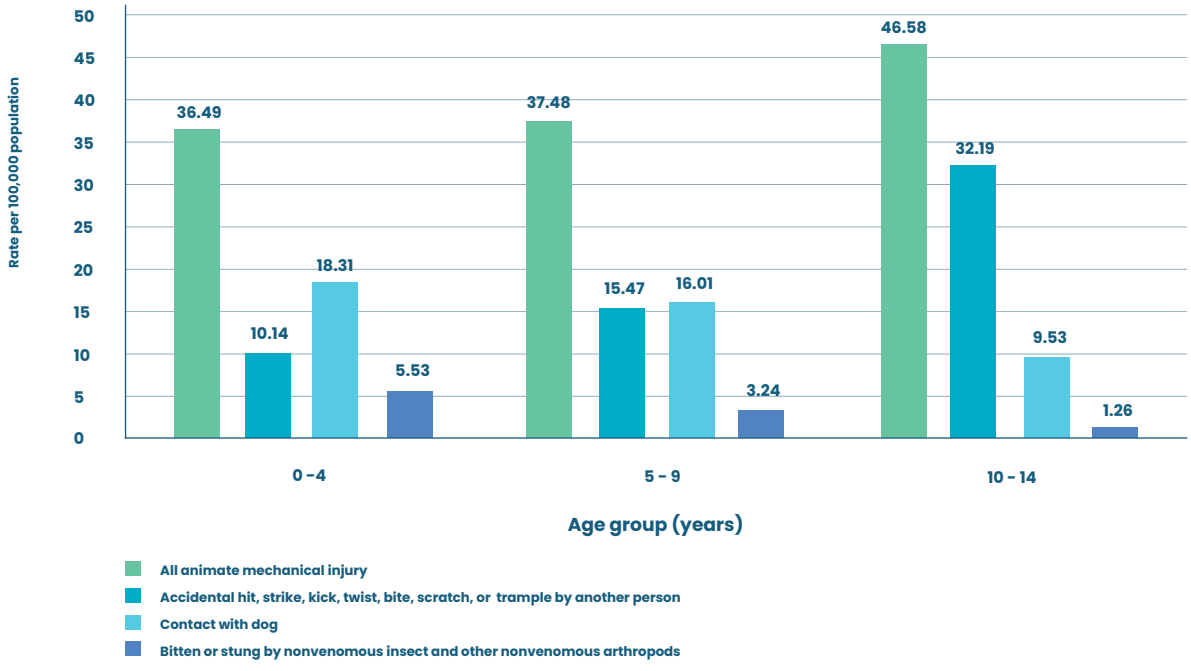
Additional data on tamariki hospitalisations for injury from animate mechanical forces, by age group and top three causes of injury, are provided in Appendix 2. [144]

Table 21: Tamariki hospitalisations for injury from animate mechanical forces, by age-group, 2017–2021

Age group (years)	No. of Hospitalisations	%	Rate per 100,000	95% CIs	
0 - 4	554	28.9	36.49	33.51	39.66
5 - 9	625	32.6	37.48	34.60	40.54
10 - 14	738	38.5	46.58	43.28	50.07
Total	**1,917**	**100**	**40.19**	**38.41**	**42.03**

144. Table 54, Appendix 2.

Figure 51: Rates of tamariki hospitalisation for injury from animate mechanical forces, by age-group and top causes, 2017–2021



Ethnicity

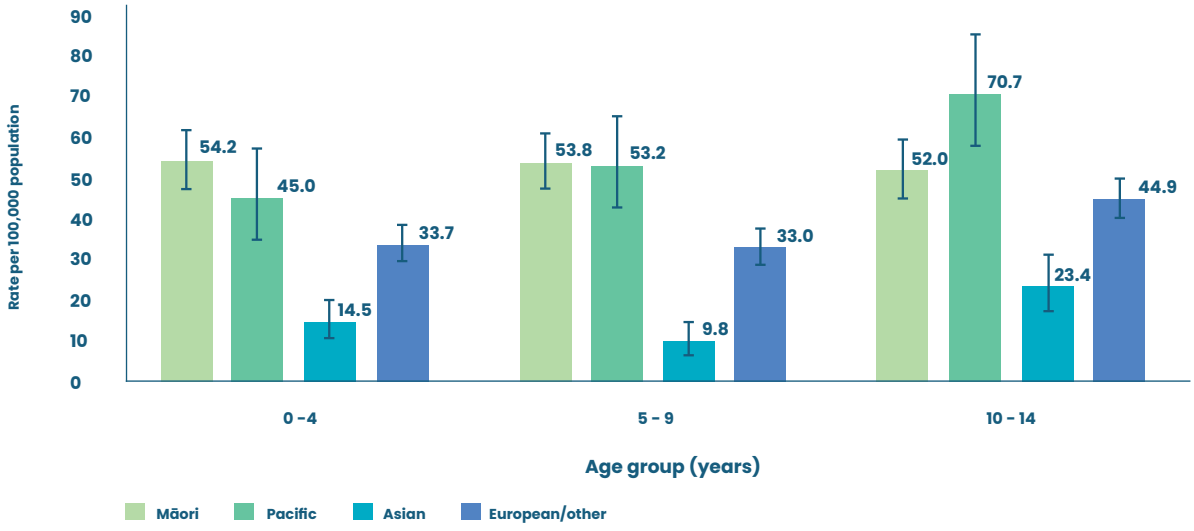
In the years 2017 to 2021, tamariki Māori and Pacific children had the highest rates of hospitalisation for injury from animate mechanical forces across all the age groups, while Asian children had the lowest rates.

Pacific children aged 10 to 14 years had the highest rate of hospitalisation for injury from animate mechanical forces, out of all the age groups (70.7 per 100,000). This was significantly higher than the rate for European/other or Asian children in the same age group.

The hospitalisation rate for injury from animate mechanical forces for tamariki Māori aged 0 to 4 years was significantly higher than the rates for European/other and Asian children in the same age group. Both tamariki Māori (53.8 per 100,000) and Pacific children (53.2 per 100,000) aged 5 to 9 years had significantly higher rates, compared with European/other (33.0 per 100,000) and Asian (9.8 per 100,000) tamariki aged 5 to 9 years.

Figure 52 shows the rates of tamariki hospitalisation for injury from animate mechanical forces, presented by age group and prioritised ethnicity, for the years 2017 to 2021.

Figure 52: Rates of tamariki hospitalisations for injury from animate mechanical forces , by age group and prioritised ethnicity , 2017 – 2021 [145]



Additional points to note from **Figure 52:**

- In the age group 0 to 4 years, tamariki Māori had the highest rate of hospitalisation for injury from animate mechanical forces (54.2 per 100,000), followed by Pacific children (45.0 per 100,000), European/other children (33.7 per 100,000), and Asian children (14.5 per 100,000). The rate for tamariki Māori aged 0 to 4 years was significantly higher than the rates for European/other and Asian children in the same age group.

- In the age group 10 to 14 years, Pacific children had the highest rate of hospitalisation for injury from animate mechanical forces (70.7 per 100,000), followed by tamariki Māori (52.0 per 100,000), European/other children (44.9 per 100,000) and Asian children (23.4 per 100,000). The differences in hospitalisation rates for Pacific children aged 10 to 14 years were statistically significant when compared with the rates for European/other and Asian children of the same age.

145. MELAA is not included in analysis due to small numbers.

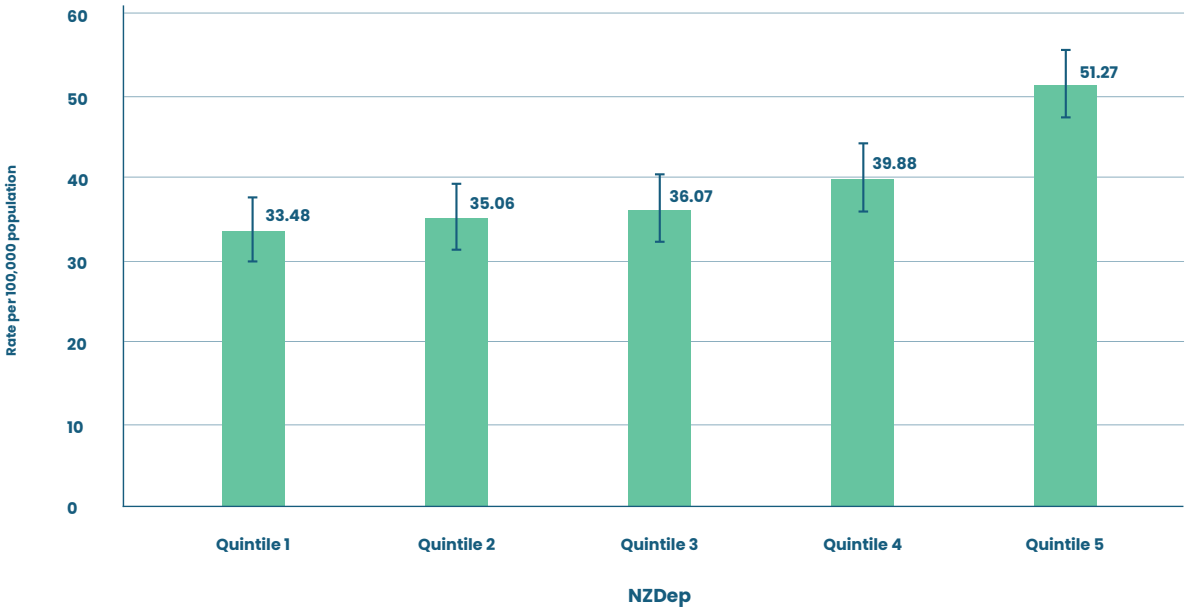

HAPPY!!
LOVE

Socioeconomic deprivation

In the years 2017 to 2021, tamariki living in the most relatively deprived areas of Aotearoa (NZDep quintile 5) had the highest number and greatest proportion of hospitalisations (33%, n=634) compared with tamariki living in the least relatively deprived areas of Aotearoa (NZDep quintile 1: 16%, n=300).

Figure 53 shows the rates of tamariki hospitalisation for injury from animate mechanical forces, presented by NZDep quintile, for the years 2017 to 2021.

Figure 53: Rates of tamariki hospitalisation for injury from animate mechanical forces, by NZDep quintile, 2017–2021*



* Missing data = 6 tamariki

Additional points from **Figure 53:**

- The rate of hospitalisations for tamariki living in the most relatively deprived areas of Aotearoa (NZDep quintile 5) was significantly higher (51.3 per 100,000) than that for tamariki living in the least relatively deprived areas of Aotearoa (NZDep quintile 1: 33.5 per 100,000).

Gender

In the years 2017 to 2021, male tamariki accounted for a greater proportion of hospitalisations for injury from animate mechanical forces (63%, n=1,206) than female tamariki (37%, n=711) and had a higher rate of hospitalisation for injury from animate mechanical forces (49.2 per 100,000) than that of females (30.6 per 100,000).

Table 22 shows tamariki hospitalisations for injury from animate mechanical forces, presented by gender, for the years 2017 to 2021.

Table 22: Tamariki hospitalisations for injury from animate mechanical forces for tamariki, by gender, 2017–2021

Gender	Number	%	Rate per 100,000	95% CIs	
Females	711	37.1	30.64	28.43	32.98
Males	1,206	62.9	49.23	46.49	52.09
Total	**1,917**	**100**	**40.19**	**38.41**	**42.03**

Policy implications

Dog-related injury

The harm caused to tamariki by dog-related injury remains unacceptably high in Aotearoa, especially for tamariki aged 0 to 4 years. These harms can extend beyond physical injury to include psychological trauma following a dog attack and the development of post-traumatic stress disorder.

Addressing dog-related injury is a key part of kaupapa Māori focused research jointly led by Ririki Haumaru | Safekids Aotearoa, the Starship Foundation and the University of Auckland, who have published five studies on this topic over three years. [146]

Evidence-based policy recommendations in this section draw on this research, and have two fundamental components:

- Ensure the protection of tamariki is paramount when considering strategies for prevention of dog-related injury.

- Honour Te Tiriti o Waitangi by working in partnership with, and recognising the rangatiratanga of, whānau Māori in the development of strategies for, and research into, prevention of harm to people from dogs.

Improved regulation, implementation, and enforcement

The Dog Control Act 1996 is the main legislation in relation to dogs in Aotearoa and requires the registration of dogs, makes special provisions for 'dangerous' or 'menacing' dogs, and imposes obligations on dog owners to ensure that dogs do not cause a nuisance or injury. Implementing and enforcing the legislation is largely the responsibility of territorial authorities (City or District Councils).

Research suggests that while regional differences in dog-related injury cannot be explained by differences in registered dog populations, there is a correlation between geographical regions with greater rates of injury having more issues with out-of-control dogs. [147] This could be connected to higher numbers of unregistered dogs. [148] This suggests that merely having requirements to register dogs is not enough to ensure the level of safety required to protect tamariki from the risks of dog-related injury.

As a result, we recommend the following:

- **Remove cost barriers to best practice around dog safety.** This includes offering low- or no-cost dog registration and sterilisation, particularly in areas of relatively high deprivation, and offering subsidies for fencing and gate requirements where the cost would otherwise prevent a dog owner providing appropriate fences and gates. [149]

- **Increase resourcing for greater enforcement of dog-control strategies (sterilisation, registration, fencing, leash, and muzzle use)**. A recent survey of territorial authorities suggested that there are substantial variations amongst territorial authorities with some areas only having one

146. Duncan-Sutherland et al., 2022a, 2022b, 2022c, 2022d, 2022e.
147. Duncan-Sutherland et al., 2022a.
148. Ibid. This article estimated that around 20% of dogs in Aotearoa were unregistered.
149. Duncan-Sutherland et al., 2022e.

or two staff members responsible for animal management services. [150] In addition to better resourcing animal management services, territorial authorities could also explore the introduction of means-tested infringement notices to ensure enforcement is equitable.

- **Legislate and enforce dog sterilisation.** Controlling the dog population is known to reduce injuries in people, and it is also thought to improve dog welfare by avoiding having large numbers of unwanted dogs. Current policy is that neutering (of male dogs) is only required for dogs categorised as 'menacing or dangerous'. We recommend that sterilisation (of both male and female dogs) should be mandatory for all dogs, unless owned by a registered breeder. [151]

- **Strengthen and enforce legislated fencing and gate requirements.** Currently, dogs need to be under the direct control of a person or "confined within the land or premises in such a manner that it cannot freely leave the land or premises".[152] However, the reports from both a study of dog-control legislation showing high numbers of out-of-control dogs, and from caregivers describing incidents with dogs occurring due to strays, dogs escaping or being let out of properties or being walked off-leash,[153] suggest that these requirements are either not strong enough or are not being adequately enforced. Specific fencing regulations should be introduced, including height recommendations based on dog size.

- **Extending leash and muzzle requirements and change the use of the word 'menacing'.** Current legislation categorises some dog breeds as 'menacing'. This language risks discriminating against groups of people who have dogs that fall into this category and creating a stigma that discourages owners from taking appropriate safety precautions. The owners of dogs categorised as 'menacing' have additional obligations to ensure the dog is not able to be 'at large' in any public space without being muzzled.[154] Our assessment is that muzzle (and leash and fencing) requirements should be extended to apply to all large dogs, based on the higher risk they pose to tamariki, and that this would be more effective than regulating a subset of dog breeds.

We recommend that territorial authorities find better ways to support communities to practise responsible dog ownership

- Territorial authorities should provide safe and separate off-leash dog areas that are clearly marked as high-risk areas. Access to these must be equitable, which might include providing a greater number of small, fenced off-leash areas (as distinct from large areas within parks or beaches), within easy walking distance of residential areas, and particularly in areas with relatively higher levels of deprivation.

- Territorial authorities should provide clear regulations for high-risk situations in which a dog owner should be required to use a humane basket-muzzle on their dog. Potential situations could include on public transport and in taxis, visits to veterinarians, walking larger/stronger dogs in public spaces, and when leaving a dog tied up in a public area (such as busy shopping areas, education centres, and sports grounds).

- Education on responsibilities for keeping children safe around dogs and the key message that 'any dog can bite' should be directed to dog owners. This could be facilitated through community groups, online information at the time of dog-registration, or during regular veterinarian visits.

---

150. Duncan-Sutherland et al., 2022a.
151. Duncan-Sutherland et al, 2022c.
152. Dog Control Act 1996, s52A(2)(b).
153. Duncan-Sutherland et al., 2022b.
154. Dog Control Act 1996, s33E(1)(a).

We recommend more consistent reporting of dog bite injuries by health professionals

Secondary prevention refers to the actions taken following an incident of dog aggression. For secondary prevention strategies to be formally put in place, territorial authorities need to be aware of such incidents. While some are reported by members of the public, health practitioners play an important role. Health practitioners should be required to consider notifying all dog bite injuries to animal management services. [155]

While there is a possibility that notification may deter people from seeking medical attention for themselves or for tamariki or dogs in their care, notification of child-protection issues is standard practice in healthcare and there is good evidence that this strategy reduces injuries. [156]

Territorial authorities should also be empowered to act on notifications of dog-related injury, with a view to ensuring tamariki are not at risk of injury within their home or wider community and to giving more targeted support to geographical areas with higher rates of incidence.

We also note that a number of health professionals are in the privileged position of being invited into whānau homes to provide health and wellbeing services, including midwives and Well Child Tamariki Ora nurses. We recommend that increased support is provided to these workforces so that they can work with whānau on strategies to address risks posed to tamariki by dogs. [157]

Māori-led programmes

Te ao Māori-informed approaches to dog control and management are currently under-valued and under-resourced. This should be addressed through investment in Māori-led solutions to dog-related injury prevention that positions dogs in ways that align with mātauranga Māori. This includes recognising the roles that dogs play as mōkai (pets) as well as guardians and companions. Indigenous approaches have had some success overseas [158] and are likely to also work in Aotearoa.

155. Duncan-Sutherland, N., et al., 2022a.

156. Duncan-Sutherland, N., et al., 2022a.

157. General guidance to health professionals on responding to and notifying bite injuries is available on the Starship website. https://starship.org.nz/guidelines/dog-related-injuries-notification-safeguarding-and-bite-management/

158. Ibid. See also Dhillon, J. et al., 2016.

He iti hoki te mokoroa nāna i kakati te kahikatea

The mokoroa (grub) may be small, but it cuts through the kahikatea (whitepine)

This whakataukī reflects how small things can have a profound impact.

It encourages us to think big: even when numbers or resources seem limited, like the mokoroa (grub), great tasks can still be achieved.

For our children, it is the small, everyday moments that hold the greatest power.

Simple acts of care, love, and attention can create lasting change and growth, reminding us that even the smallest efforts can shape the future in significant ways.

8. Poisoning

This chapter sets out tamariki hospitalisations for injury from unintentional poisoning (henceforth referred to as poisoning). Poisoning can be caused by a range of products, many of them found in the home, including alcohol, petrol, insecticides, soaps, and detergents . Medications are a common cause of poisoning in tamariki, and the text box below describes the medications terms used in this chapter.

In the years 2014 to 2018, there were nine tamariki deaths from poisoning (a rate of 0.19 per 100,000), representing nearly 5% of all deaths from injury for tamariki over this period. Due to small numbers, there is no further analysis on fatalities from poisoning presented in this chapter.

Injury from poisoning from medication is a common cause of tamariki hospitalisations. Medications referred to in this chapter include:

- **Non-opioid analgesics, anti-pyretics and anti-rheumatics.** This includes common over-the-counter medicines like paracetamol, aspirin, and non-steroidal anti-inflammatory drugs (NSAIDs, such as ibuprofen). This also includes prescription medications such as colchicine and methotrexate.
- **Antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs not elsewhere classified.** This includes antidepressants, anti-anxietymedications (i.e. benzodiazepines) and antipsychotic medications. This may also include therapeutic psychostimulants such as those used for Attention Deficit Hyperactivity Disorders (ADHD).
- **Other and unspecified drugs, medicaments, and biological substances.** These include most medications that are not otherwise specifically classified, such as prescription medications for diabetes or blood pressure, hormones (e.g., birth control), antibiotics, and herbal/traditional remedies.

In brief

In the years 2017 to 2021, 1,112 tamariki were hospitalised for injury from poisoning (23.3 per 100,000).

Over time, there has been a decrease in the rate of tamariki hospitalisation for poisoning, from 30.7 per 100,000 in 2012 to 23 per 100,000 in 2021.

Poisoning from drugs, such as medications was the cause of the vast majority of tamariki hospitalisations for injury from poisoning.

In the years 2017 to 2021, 82% (n=911) of all hospitalisations from poisoning were for tamariki aged 0 to 4 years. The majority of these were for tamariki aged 1 to 4 years (94%, n=854).

Within the age group 0 to 4 years, European/other children (40%, n=441) and tamariki Māori (27%, n=304) accounted for the greatest proportion of tamariki hospitalisations from poisoning. MELAA children aged 0 to 4 years had the highest rate (77.3 per 100,000), when compared with other ethnic groups, but this should be interpreted with caution due to the low numbers (3%, n=23).

Tamariki living in the most relatively deprived areas of Aotearoa had higher rates of hospitalisation from poisoning than those living in the least relatively deprived areas of Aotearoa, with those living in the most relatively deprived areas (NZDep quintiles 4 and 5) accounting for more than half of all hospitalisations for poisoning (52%, n=572).

Trend over time

The rates of tamariki hospitalisation for injury related to poisoning have decreased over time (from 30.7 per 100,000 in 2012 to 23.0 per 100,000 in 2021).

In the years 2017 to 2021, 1,112 tamariki were hospitalised for injury from poisoning.

Poisoning from medications represented the cause of the vast majority of tamariki hospitalisations for injury from poisoning. This included poisoning by:

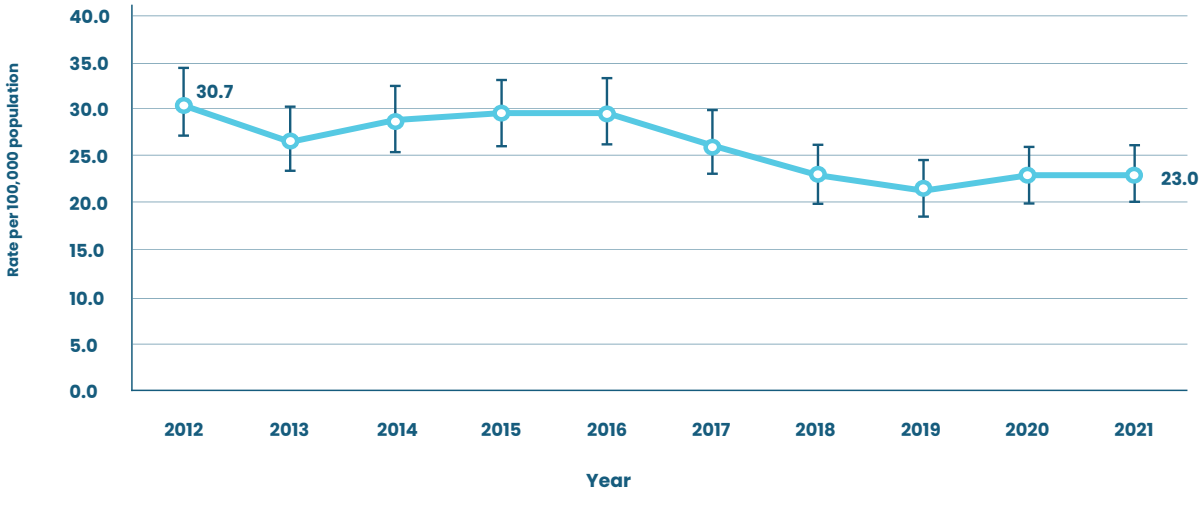
- 'Other and unspecified drugs, medicaments, and biological substances' (29%, n=317)
- 'Antiepileptic, sedative-hypnotic, antiparkinsonism, and psychotropic drugs, not elsewhere classified' (20%, n=220)
- 'Nonopioid analgesics, antipyretics, and antirheumatics' (17%, n=191).

Thirteen percent of tamariki hospitalisations in these years related to poisoning were caused by 'accidental poisoning by, and exposure to, other and unspecified chemicals and noxious substances' (n=145). [159]

Figure 54 shows the rates of tamariki hospitalisation for injury from poisoning, for the years 2012 to 2021.

Additional data on tamariki hospitalisations for poisoning in the years 2017 to 2021, and data on the causes of poisoning, are provided in Appendix 2. [160]

Figure 54: Tamariki hospitalisations for injuries from poisoning, 2012-2021



159. This category of poisoning is code ICD-10-AM-X-49 and includes poisoning from glues, poisonous foods and plants, soaps, and detergents.

160. Tables 55 and 56, Appendix 2.

Age group

In the years 2017 to 2021, 82% (n=911) of all hospitalisations for injury from poisoning were for tamariki aged 0 to 4 years, representing the highest rate of hospitalisation of all the age groups (60.0 per 100,000). Most of these hospitalisations were for those aged 1 to 4 years (94%, n=854).

The rate of hospitalisation for injury from poisoning was significantly lower for tamariki aged 5 years or more (6.0 per 100,000 for those aged 5 to 9 years; 6.4 per 100,000 for those aged 10 to 14 years).

Looking at specific causes of injury from poisoning, tamariki aged 0 to 4 years had the highest hospitalisation rates of all the age groups for:

- 'Accidental poisoning by, and exposure to, other and unspecified drugs, medicaments, and biological substances' (17.0 per 100,000)
- 'Accidental poisoning by, and exposure, to antiepileptic, sedative-hypnotic, antiparkinsonism, and psychotropic drugs, not elsewhere classified' (11.5 per 100,000)
- 'Accidental poisoning by, and exposure to, nonopioid analgesics, antipyretics, and antirheumatics' (11.1 per 100,000).

Table 23 shows tamariki hospitalisations for injury from poisoning, presented by age group, for the years 2017 to 2021.

Figure 55 shows the rates of tamariki hospitalisation for injury from poisoning, presented by age group and the top three causes, for the years 2017 to 2021.

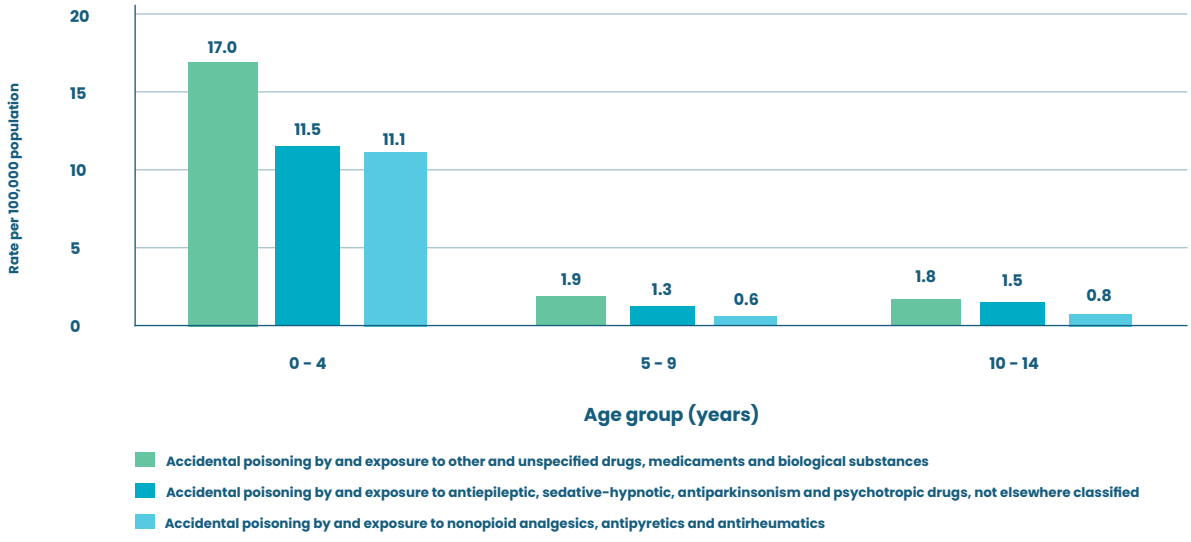
Additional data on tamariki hospitalisation for injury from poisoning are provided in Appendix 2.[161]

Table 23: Tamariki hospitalisations for injury from poisoning, by age-group, 2017–2021

Age group (years)	No. of Hospitalisations	%	Rate per 100,000	95% CIs	
0 - 4	911	82	60.0	56.2	64.0
5 - 9	100	9	6.0	4.9	7.3
10 - 14	101	9	6.4	5.2	7.7
Total	**1,112**	**100**	**23.3**	**22.0**	**24.7**

161. Table 57, Appendix 2.

Figure 55: Rates of hospitalisations for injury from poisoning for tamariki , by age group, and the top three causes, 2017 – 2021



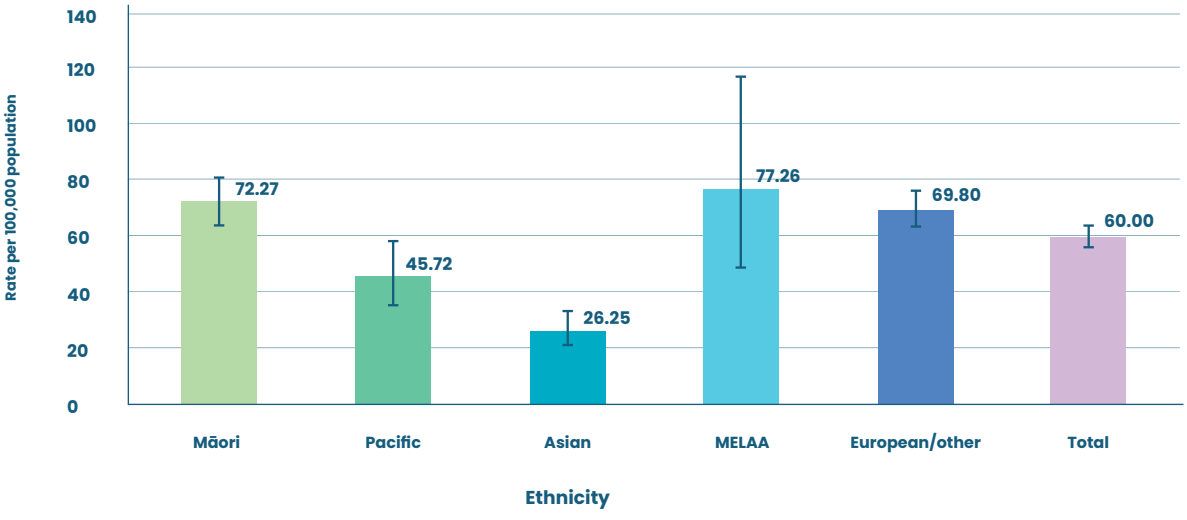
Ethnicity

As previously mentioned, the vast majority of tamariki hospitalisations for injury from poisoning in the years 2017 to 2021 were in the age group 0 to 4 years. European/other children aged 0 to 4 years (40%, n=441) and tamariki Māori (27%, n=304) aged 0 to 4 years accounted for the greatest proportion of hospitalisations, compared with Asian (7%, n=76), Pacific (6%, n=67), and MELAA (3%, n=23) children of the same age.

In this age group (0 to 4 years), MELAA children had the highest rate of hospitalisation (77.3 per 100,000), followed by tamariki Māori (72.3 per 100,000), European/other children (69.8 per 100,000), Pacific children (45.7 per 100,000) and Asian children (26.3 per 100,000). However, the rate for MELAA children aged 0 to 4 years should be interpreted with caution, due to the low numbers (n=23).

Figure 56 shows the rates of hospitalisation for injury from poisoning for tamariki aged 0 to 4 years, by prioritised ethnicity, for the years 2017 to 2021.

Figure 56: Rates of hospitalisation for injury from poisoning for tamariki aged 0 – 4 years, by prioritised ethnicity, 2017 – 2021 [162]



Socioeconomic deprivation

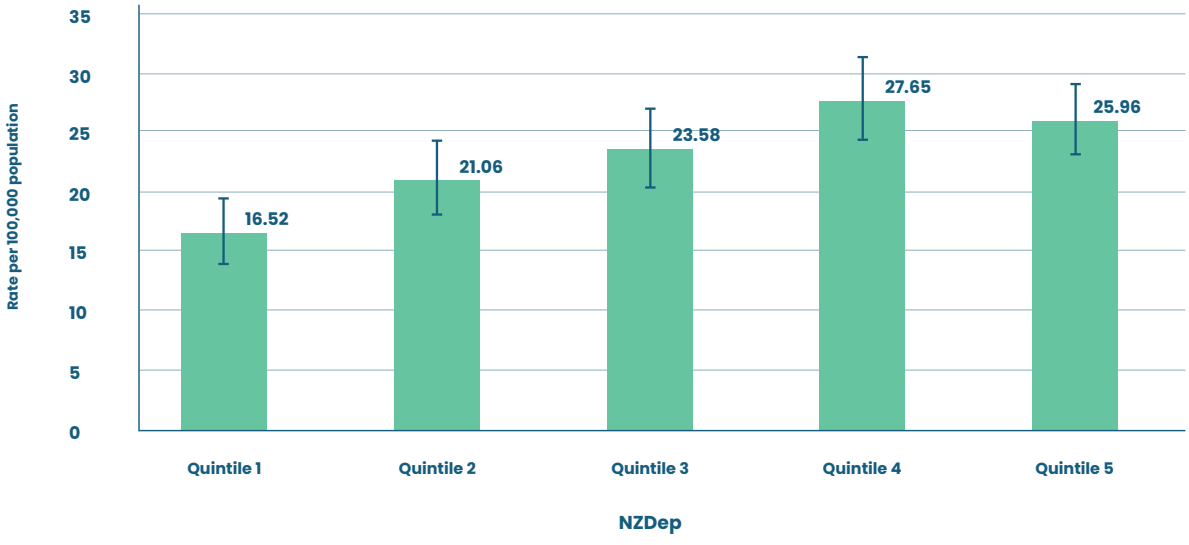
In the years 2017 to 2021, tamariki living in the more relatively deprived areas of Aotearoa had higher rates of hospitalisation for poisoning than those living in the least deprived areas.

As the level of relative deprivation increased, there was a corresponding increase in tamariki hospitalisations for injury from poisoning. Tamariki living in NZDep quintiles 4 and 5 had the highest rates (27.7 per 100,000 for quintile 4; 26.0 per 100,000 for quintile 5) and accounted for over half of them (52%, n=572).

Figure 57 shows the rates of tamariki hospitalisation for injury from poisoning, presented by NZDep quintile, for the years 2017 to 2021.

162. Rates of hospitalisations for children aged 5-9 years and 10-14 years by ethnic group cannot be reported because of low numbers.

Figure 57: Rates of tamariki hospitalisations for injury from poisoning , by NZDep quintile 2017 – 2021*



* Missing data = 6 tamariki

Gender

In the years 2017 to 2021, male tamariki accounted for a greater proportion of hospitalisations for injury from poisoning (54%, n=605) than female tamariki (46%, n=507). The hospitalisation rate for injury from poisoning for male tamariki was 24.7 per 100,000 compared with 21.8 per 100,000 for females.

Table 24 shows tamariki hospitalisations for injury from poisoning, by gender, for the years 2017 to 2021.

Table 24: Tamariki hospitalisations for injury from poisoning, by gender, 2017–2021

Gender	Number	%	Rate per 100,000	95% CIs	
Females	507	45.6	21.9	20.0	23.8
Males	605	54.4	24.7	22.8	26.7
Total	**1,112**	**100**	**23.3**	**22.0**	**24.7**

Policy implications

The analysis in this report highlights the poisoning risk that medications pose to tamariki, especially those aged 1 to 4 years. The National Poisons Centre also reports that 50% of its calls relate to tamariki aged 5 years and under. Three of the top five reasons for those calls relate to medications of some kind (paracetamol, ibuprofen, and vitamin/supplements). [163] While not all calls received by the National Poisons Centre are for incidents that lead to hospitalisation, this information serves to reinforce the extent of the risks to tamariki posed by medications in the home. [164]

The following policy implications relate primarily to addressing this poisoning risk, by both putting regulated solutions in place and by providing improved support to parents, caregivers, and whānau to ensure medicines are stored safely.

We recommend improving and extending the use of child resistant packaging of medicines

Under the Medicines Regulations 1984, [165] some groups of medicines – including aspirin, medicines containing elemental iron, paracetamol, barbiturates, phenothiazine (and derivatives), and tricyclic and tetracyclic (or analogous) anti-depressants – must be sold in a safety container that is *reasonably resistant to attempts by young children to open it.* [166] The regulations also allow for exemptions to be made, [167] including in situations where such packaging would make it difficult for disabled people or older people to access their medications. There is not, however, a New Zealand standard for child resistant packaging, as the previous standard was withdrawn in September 2014.

The following further safeguards could be put in place around packaging including: [168]

- Extending regulatory requirements for child-resistant packaging to cover a wider range of products, including over-the-counter medicines that may be toxic to tamariki.
- Develop a conjoint Australia and New Zealand standard to guide child-resistant packaging requirements in Aotearoa.

We recommend increasing relevant support for parents, caregivers, and whānau

While child-resistant packaging increases the time it takes for tamariki to open a package and get to the medicine or other substance inside, it does not completely remove the risk of tamariki accessing, and being poisoned by, medicines. Therefore, it is important to ensure parents, caregivers, and whānau store and use medicines appropriately. This is also part of the 'optimal use of medicines', whereby 'the impacts of illnesses are reduced and drug-related harms mitigated'.[169]

163. The National Poisons Centre, correspondence (January 2024). The full list of the top five reasons for calling the National Poisons Centre is: paracetamol, ibuprofen, vitamin/supplements, household chemicals (such as cleaning products), and plants.
164. The National Poisons Centre also advise that there is not a correlation between the number of calls on a particular substance and the risk of hospitalisation from that substance. Each of these medications have different level of risk, for example high-risk prescription medications (such as colchicine) might have a low call rate to the National Poisons Centre compared with over-the-counter medications but it is more likely to cause serious injury that in turn could lead to tamariki hospitalisation.
165. Made under the Medicines Act 1981.
166. Regulation 37 of the Medicines Amendment Regulations 1984
167. Ibid, subclause 2.
168. These are based on recommendations previously made in Safekids Aotearoa (2015) Position Paper: Child Poisoning Prevention. Auckland, Safekids Aotearoa.
169. Te Karu, L., 2022, p234.

Increased supports to parents, caregivers, and whānau include:

- **A focus on 'medicines access equity' and medicines optimisation** so that medicines can be accessed, provided, and administered as prescribed in ways that are empowering. This includes providing good quality, low- or no-cost primary health care [170] so that the right medicines are prescribed in the right quantity (reducing the risks of wasted or excess medication being stored in homes), and so that people who are prescribed medicines are given appropriate information about medication use and storage. In making this recommendation we are aware that primary health care in Aotearoa is not always delivered in culturally safe ways that work for Māori and Pacific populations, [171] and that Māori in particular experience cost barriers to accessing care, [172] and the primary health care policy overall has failed to honour the principles of Te Tiriti o Waitangi. [173]

- **Improving information provided to parents through official websites** (e.g., Health New Zealand | Te Whatu Ora and Ministry of Health) on the safe storage of medicines and household chemicals and reducing the risk of poisoning young tamariki. [174]

- **Maintaining the support provided by the National Poisons Centre,** a free-of-charge 24/7 poisons information service available to all New Zealanders.

170. Primary health care refers to a full range of health services provided in the community and includes access to general practice, nurse prescribing, and pharmacy services.
171. Mullane, T., et al. 2022.
172. Jeffries, M., et al., 2023
173. Waitangi Tribunal, 2023
174. Currently, a small amount of information is provided on the Health New Zealand|Te Whatu Ora website (https://www.tewhatuora.govt.nz/our-health-system/environmental-health/household-items-and-electronics/child-resistant-packaging/) and the Ministry of Health website (https://www.health.govt.nz/your-health/conditions-and-treatments/treatments-and-surgery/medications/medicine-safety), the latter of which was lastupdated in 2015.

Taku ahi tūtata taku mata kikoha, tahu ahi tawhiti taku mata kiporo

When you are close to the fire, you have the ability to keep your blade sharp and ready for action

This whakataukī speaks to the importance of staying close to one's passion (fire) in order to be skilled and sharp. As caregivers and stewards of tamariki, we must remain attuned to the needs of our children, staying close to the 'fire' of our purpose. The further we stray from this passion, the less effective we become in advocating for their wellbeing.

Our responsibility is to stay astute, continually sharpening our skills, and being ready to fight for causes that make the most difference in their lives. The small actions we take today can have a lasting impact on the future of tamariki.

9. Burns

This chapter looks at tamariki injury from burns. These burns are due to either fire/flame or hot objects/substances.

Childhood burns are a considerable issue in Aotearoa, and they are largely preventable. Tamariki have thinner skin that burns faster, deeper, and at a lower temperature than that of adults. Depending on the severity, childhood burns can cause death or be a debilitating condition with intense pain and long-term physical and psychological impacts that create more suffering for the tamariki and their whānau. [175]

The focus of this chapter is on hospitalisations for injury from burns. There were 5 burns-related tamariki fatalities during the years 2014 to 2018. All of these were related to 'fire/flame'. No further analysis of these fatalities has been presented in this chapter because of the low numbers.

In brief

Over time, there has been a decrease in the rate of tamariki hospitalisation for injury from burns, from 31.7 per 100,000 in 2012 to 22.6 per 100,000 in 2021.

In the years 2017 to 2021, 1,162 tamariki were hospitalised for injury from burns (a rate of 24.4 per 100,000).

The most common causes of tamariki hospitalisations for injury from burns during this time were:

- 'Contact with hot drinks, food, fats, and cooking oils' (37%)
- 'Contact with other hot fluids' (24%)
- 'Contact with hot household appliances' (10%)
- 'Fire/flame' (10%).

Tamariki aged 0 to 4 years made up the greatest proportion of hospitalisations for injury from burns, and within this age group, most hospitalisations were for children aged 1 to 4 years (85%, n=764).

Nearly two-fifths (38%) of tamariki aged 0 to 4 years who were hospitalised for injury from burns were tamariki Māori (n=339). Pacific children aged 0 to 4 years had the highest hospitalisation rates within this age group (116 per 100,000).

Tamariki living in the most relatively deprived areas of Aotearoa had higher rates of hospitalisation for injury from burns than those living in the least relatively deprived areas, with those living in NZDep quintile 5 areas accounting for two-fifths of all tamariki hospitalisations for injury from burns (41%, n=469).

175. Safekids Aotearoa, 2020.

Trend over time

In the years 2017 to 2021, there were 1,162 tamariki hospitalised for injury from burns.

The rates of tamariki hospitalisation for injury from burns have decreased over time, from 31.7 per 100,000 in 2012 to 22.6 per 100,000 in 2021.

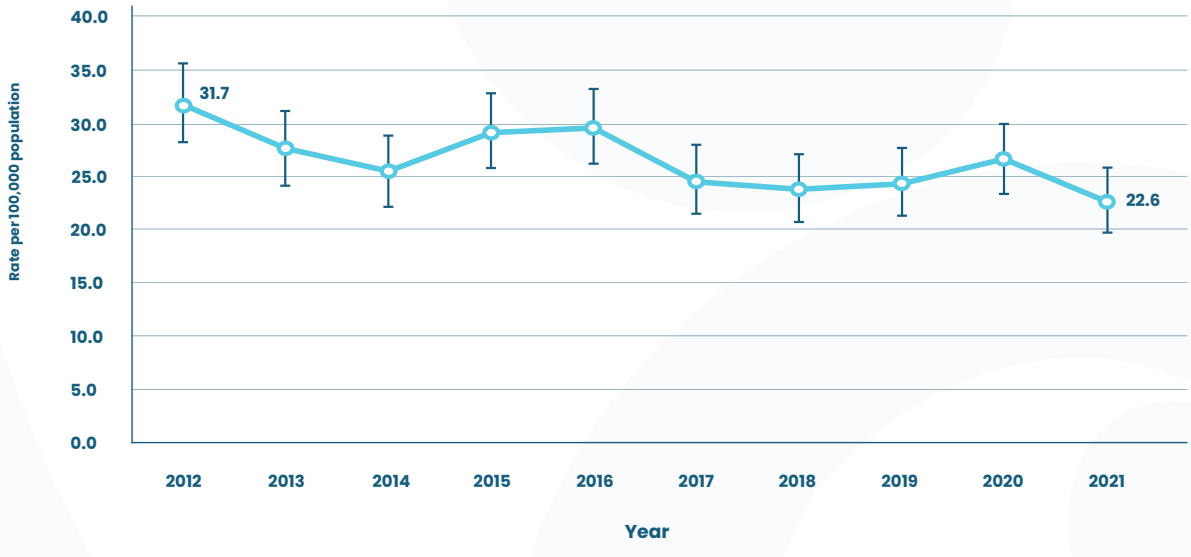
The most common causes of tamariki hospitalisations for injury from burns were:

- 'Contact with hot drinks, food, fats, and cooking oils' (37%)
- 'Contact with other hot fluids' (24%)
- 'Contact with hot household appliances' (10%)
- 'Fire/flame' (10%).

Figure 58 shows rates of tamariki hospitalisation for injury from burns for tamariki, for the years 2012 to 2021.

Additional data on tamariki hospitalisation for injury from burns for the years 2012 to 2021 are provided in Appendix 2. [176]

Figure 58: Rates of tamariki hospitalisations for injury from burns , 2012 - 2021



176. Table 58, Appendix 2.

Age group

In the years 2017 to 2021, around 78% of all tamariki hospitalisations for injury from burns were for those aged 0 to 4 years (n=902), representing the highest rate of all the age groups (59.4 per 100,000).

For tamariki aged 5 to 9 years, the rate of hospitalisation for injury from burns was 10.1 per 100,000.

Tamariki aged 10 to 14 years had the lowest rate of hospitalisation for injury from burns out of all the age groups (5.8 per 100,000).

Tamariki aged 0 to 4 years had the highest rates of hospitalisation for injury from burns across all four of the top causes of burn injuries. This was especially pronounced for burn injuries from 'contact with hot drinks, food, fats, and cooking oils' (24.1 per 100,000, compared with 2.4 per 100,000 for those aged 5 to 9 years and 1.3 per 100,000 for those aged 10 to 14 years).

Looking in more detail at tamariki hospitalisations for injury from burns for the age group 0 to 4 years, most of them were for those aged more than 1 year (85%, n=764), compared with those aged less than 1 year (15%, n=138).

Table 25 shows tamariki hospitalisations for injury from burns, presented by age group, for the years 2017 to 2021.

Figure 59 shows the rates of tamariki hospitalisation for injury from burns, presented by age group and the top four causes, for the period 2017 to 2021.

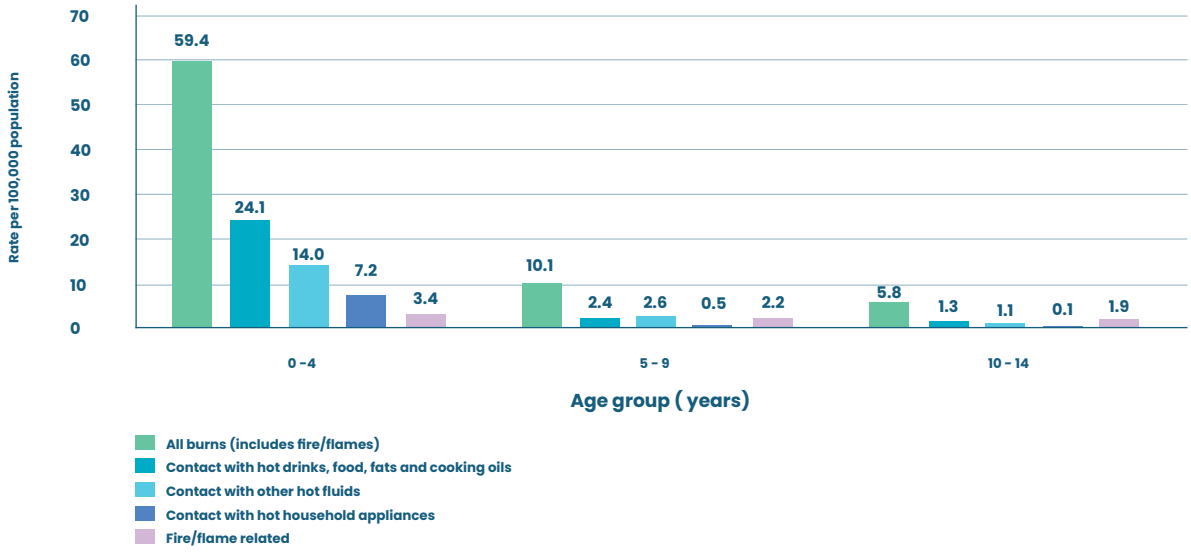
Additional data on tamariki hospitalisations for injury from burns are provided in Appendix 2. [177]

Table 25: Tamariki hospitalisations for injury from burns, by age-group, 2017-2021

Age group (years)	No. of Hospitalisations	%	Rate per 100,000	95% CIs	
0 - 4	902	77.62	59.4	55.6	63.4
5 - 9	168	14.46	10.1	8.6	11.7
10 - 14	92	7.92	5.8	4.7	7.1
Total	**1,162**	**100**	**24.4**	**23.0**	**25.8**

177. Table 59, Appendix 2.

Figure 59: Rates of tamariki hospitalisation for injury from burns , by age group , and top four causes, 2017 – 2021



Ethnicity

In the years 2017 to 2021, Māori comprised the highest proportion of tamariki hospitalised for injury from burns (36%, n=415). European/other children were the second-highest proportion (30%, n=349), followed by Pacific children (19%, n=223).

Pacific children had the highest rates of hospitalisation for injury from burns (48.0 per 100,000), followed closely by MELAA children (47.2 per 100,000). (101.1 per 100,000) and tamariki Māori (31.9 per 100,000).

However, the rate for MELAA children must be interpreted with considerable caution due to the low numbers (n=38).

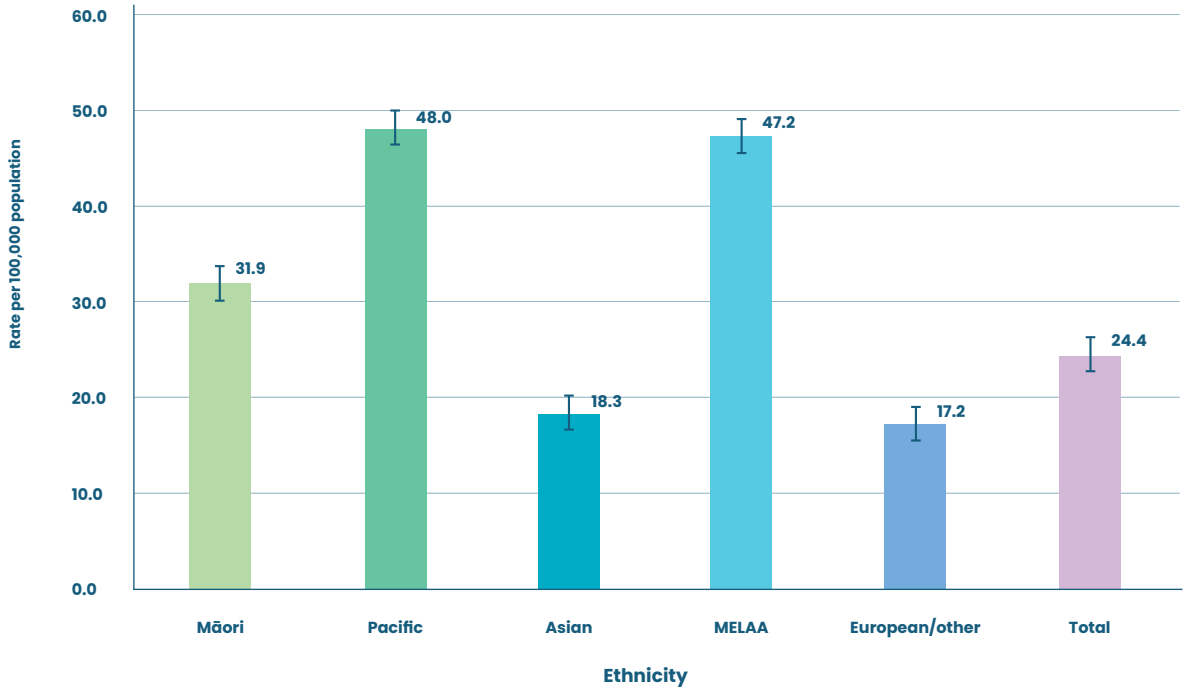
Looking specifically at the age group 0 to 4 years:

- For tamariki aged less than 1 year, tamariki Māori and Pacific children had the highest hospitalisation rates for injury from burns (64.8 per 100,000 for tamariki Māori; 64.2 per 100,000 for Pacific children).
- For tamariki between the ages of 1 and 4 years, Pacific children had the highest rate of hospitalisation for injury from burns (129.1 per 100,000), followed by tamariki Māori (84.6 per 100,000).

Figure 60 shows the rates of tamariki hospitalisation for injury from burns for 0-14 year olds, presented by prioritised ethnicity, for the years 2017 to 2021.

Figure 61 shows the rates of hospitalisations for injury from burns for tamariki aged less than one year old compared with those aged 1 to 4 years, by prioritised ethnicity, for the years 2017 to 2021.

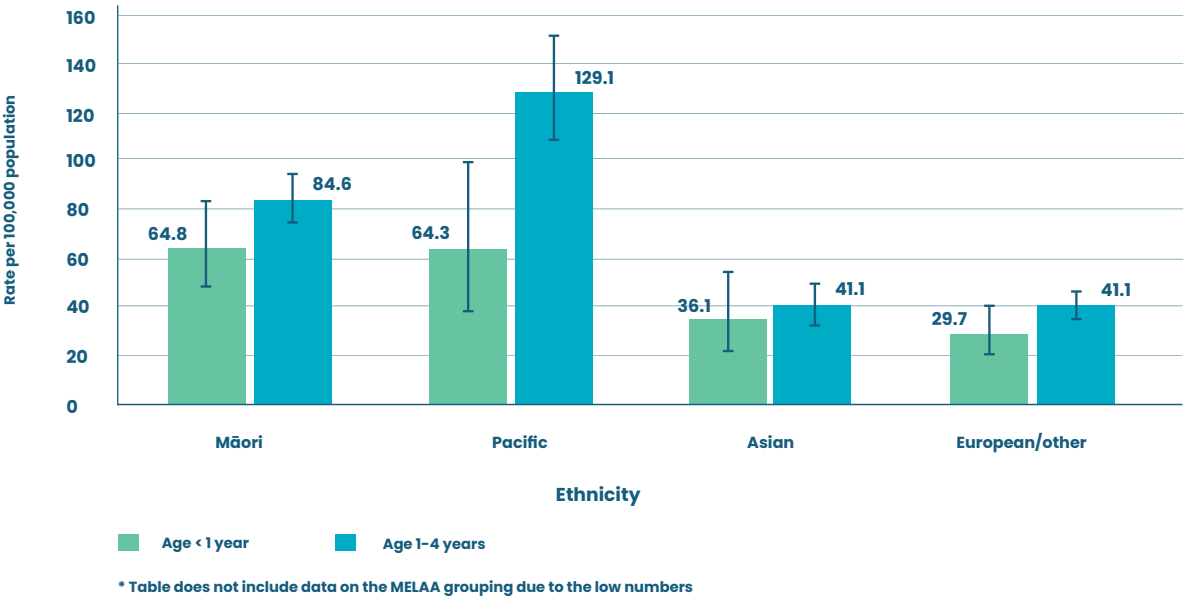
Figure 60: Rates of tamariki hospitalisation for injury from burns by prioritised ethnicity, 2017 - 2021



Additional points to note from **Figure 60:**

- The hospitalisation rate for Pacific children was significantly higher than that for tamariki Māori, Asian, and European/other children.

Figure 61: Rates of hospitalisations for injury from burns for tamariki aged less than 1 year and 1 – 4 years by prioritised ethnicity , 2017 – 2021 *



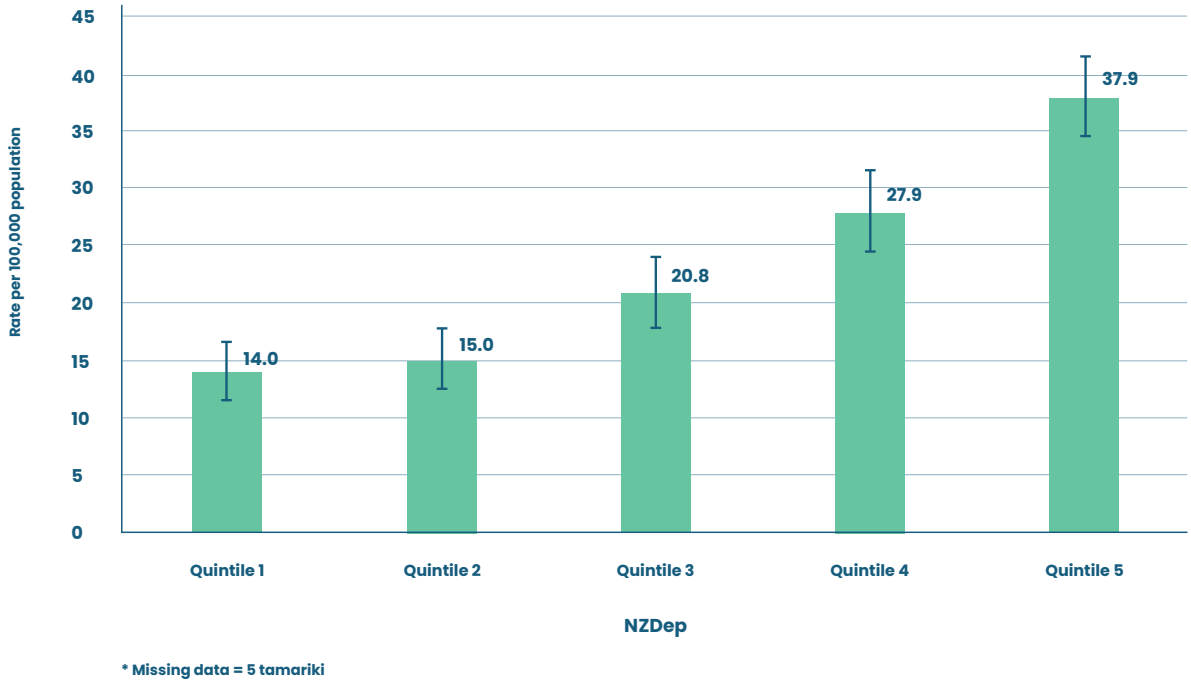
Socioeconomic deprivation

In the years 2017 to 2021, tamariki living in more relatively deprived areas of Aotearoa were more likely to be hospitalised for injury from burns than those living in the least relatively deprived areas.

Tamariki living in the most relatively deprived areas of Aotearoa (NZDep quintile 5) had the highest rate of hospitalisation for injury from burns (37.9 per 100,000), accounting for two-fifths (41%, n=469) of them.

Figure 62 shows the rates of tamariki hospitalisation for injury from burns, presented by NZDep quintile, for the years 2017 to 2021.

Figure 62: Rates of tamariki hospitalisation for injury from burns , by NZDep quintile, 2017 – 2021*



* Missing data = 5 tamariki

Gender

In the years 2017 to 2021, male tamariki made up a greater proportion of hospitalisations for injury from burns (around 58%, n=678) than female tamariki (around 42%, n=484).

Male tamariki also had significantly higher rates of hospitalisation (27.7 per 100,000) than female tamariki (20.9 per 100,000).

Table 26 shows tamariki hospitalisations for injury from burns, presented by gender, for the years 2017 to 2021.

Table 26: Tamariki hospitalisations for injury from burns, by gender, 2017–2021

Gender	Number	%	Rate per 100,000	95% CIs	
Females	484	41.7	20.9	19.0	22.8
Males	678	58.3	27.7	25.6	29.8
Total	**1,162**	**100**	**24.4**	**23.0**	**25.8**

Policy implications

The data in this chapter has shown that younger tamariki (those aged 0 to 4 years) are at higher risk of burn injuries leading to hospitalisation than older tamariki, and hospitalisations for injury from burns are more likely for tamariki Māori and Pacific children than for European/other children. Tamariki living in more relatively deprived areas are more likely to be hospitalised from burn-related injuries than those living in less relatively deprived areas. These patterns were also identified in our earlier publications on childhood burns. [178]

Social determinants of health

The social gradient associated with childhood burns injuries has been shown in other studies, both nationally [179] and internationally, [180] emphasising the need for a range of interventions that include those focused on addressing the social determinants of health. These interventions would include addressing household overcrowding, [181] improving the quality of rental housing, [182] and increasing levels of home ownership. [183]

Increased attention on measures to safeguard against tamariki burn injuries in the home

Previous investigations into childhood burns data in Aotearoa have shown that most burns injuries occur in the home (78%) and that the kitchen was the most common location for tamariki burn injuries (30%), [184] although we note that in many cases the scene of the burn injury is not confirmed, unknown, or not recorded. We recommend the following policy measures to make homes safer for tamariki:

- **Maintaining and monitoring the requirements for smoke alarms or detectors to be compulsory in all rental homes,** [185] as well as the requirements, when building or renovating, to have approved smoke alarms fitted in every escape route (hallway) and within three metres of every sleeping space door. This includes ensuring fire safety rules are appropriately enforced in transient, temporary, or emergency housing.

178. Additional data presented in our 2020 overview of childhood burns (Safekids, 2020) provides detail on the location and nature of burn injuries, by age and ethnicity, for the years 2009 to 2018. Although this data related to a different period than the material throughout this chapter, it has been helpful in confirming the patterns of burn injuries and therefore, in identifying these policy implications.
179. Mistry, R. M, et al;. 2010.
180. Khoo, K. H., et al., 2022.
181. Ibid
182. See for eg, Berry. et al., 2017.
183. Peden. et al., 2008.
184. Safekids Aotearoa 2020, p12.
185. The Residential Tenancies (Smoke Alarms and Insulation) Regulations 2016 require that there is at least one working smoke alarm in within three metres of each sleeping space, including in sleep outs and self contained caravans, and there must be at least one smoke alarm on each level of multi-storey or multi-level homes.

- **Extend the requirements for smoke alarms or detectors to include smoke alarms that are fitted with bed-shakers, strobe lights, pagers, or a combination of these, for people (both caregivers and tamariki) who are d/Deaf or hard of hearing.** There is currently some support for adults to have this assistive hearing and alert equipment funded through Whaikaha, the Ministry for Disabled People, [186] but the Whaikaha support does not extend to tamariki. Members of Deaf Children New Zealand (Tamariki Turi o Aotearoa) can, however, access a grant towards a smoke alarm for tamariki under the age of 16 years. [187]

- **Regulate for safe hot water temperatures.** [188] Serious burn injuries can occur for tamariki from hot tap water at 60°C. The Building Code [189] requires that hot water must be delivered at a temperature that "avoids the likelihood of scalding". [190] Non-mandatory guidance provided by the Ministry of Business, Innovation and Employment state that hot tap water should not exceed 45°C in settings such as schools, aged care, and health and disability facilities (including hospitals), and that it should not exceed 50°C in all other buildings. [191] Making this a mandatory requirement would provide more widespread protection from burn injury, especially if targeted to landlords as part of making homes healthy and safe for tenants. [192]

- **Further explore making furniture more fire-safe, such as under the Fair Trading Act.** In 2019 the Ministry of Business, Innovation and Employment commissioned a cost benefit analysis on introducing a product safety standard for fire retardant foam furniture. It found that the costs (especially to consumers) of such a standard would outweigh its benefits. [193] While that report showed some support for the current approach of a product safety policy statement (which is non-mandatory), this was in the context of the statement being a trial before further consideration of more stricter product safety regulation. In 2024 the policy statement will be five years old, and it would be worth revisiting the analysis especially considering the inequitable impacts of burns on tamariki Māori and Pacific children and those tamariki living in the most deprived areas of Aotearoa.

186. For more information on accessing deaf or hearing loss equipment for adults, see https://www.whaikaha.govt.nz/support-and-services/equipment-and-aids/deaf-or-hearing-loss-equipment-for-adults/ (accessed December 2023)
187. For more information on the Deaf Children New Zealand smoke alarm subsidy, see https://deafchildren.org.nz/get-funding/ (accessed December 2023)
188. Between 2009 and 2018, contact with hot tap water contributed to 11% of hospital admissions for children aged 0 to 14 years and particularly contributed to injury leading to hospital admission for Māori children aged 0 to 4 years (a rate of 14.4 per 100,000). Safekids (2020) Childhood Burns in Aotearoa: An Overview. Safekids, Aotearoa.
189. The Building Code, Clause G12 – Water supplies. Published in Schedule 1 of the Building Regulations 1992.
190. The Building Code, Clause G12.3.6
191. MBIE (2023) Acceptable Solutions G12/AS1 Water Supplies. Available online at: https://www.building.govt.nz/assets/Uploads/building-code-compliance/g-services-and-facilities/g12-water-supplies/asvm/g12-water-supplies-3rd-edition-amendment-13.pdf
192. Note that for licensing purposes, the Ministry of Education requires the temperature of tap water to not exceed 40°C in early childhood education and care centres. See Ministry of Education, 2022.
193. New Zealand Institute for Economic Research, 2019.

Enforcement of safety standards

All new and used children's nightwear should have a fire standard information label. This is regulated under the Product Safety Standard (Children's Nightwear and Limited Daywear Having Reduced Fire Hazard) Regulations 2016. Selling children's nightwear without the appropriate label is a breach of the Fair Trading Act 1986. Enforcement of this legislation falls with the Commerce Commission which proactively visits and inspects retail stores with a focus on finding those that are selling non-compliant children's toys and nightwear. [194] The data presented in this chapter emphasise the importance of proactive enforcement of this standard.

Relevant education and support for whānau and caregivers

The data in this chapter illustrate the harms caused by burns from cooking, hot fluids, and household appliances. There is a continued need for support for whānau to keep their homes safe and the provision of useful home safety tips in effective, culturally safe ways, such as through Ririki Haumaru | Safekids Aotearoa wānanga, the provision of safety checklists (such as Whare Kahikā), other online resources (e.g., those provided by Fire Emergency New Zealand and the Australian and New Zealand Burn Association), and through practical advice around the use of fire guards and safety gates in and around the home. We would also recommend highlighting burn first aid messaging for whānau and caregivers as a secondary prevention measure as this may reduce the need for hospitalisation and need for surgery.

Further research and analysis

There are new and emerging burn risks for tamariki, especially around the home. For example, we are aware of the increasing incidence of injury from lithium-ion batteries (used, for example, in e-scooters and vaping devices). We recommend further research to understand these burn risks and how to best support whānau to address these risks. We also encourage the continued use of relevant databases, such as the Burns Registry of Australia and New Zealand, to inform policy and legislation.

194. Commerce Commission, 2022.


I JUST
REALLY

References

Academic Expert Group for the 3rd Global Ministerial Conference on Road Safety. (2020). https://www.roadsafetysweden.com

Adams, J., Duncanson, M., Oben, G., et al. (2022). *Indicators of child and youth health status in Aotearoa 2021. University of Otago.*

Atkinson, J., Salmond, C., & Crampton, P. (2020). *NZDep2018 index of deprivation: Final research report, December 2020. University of Otago.*

Auckland Transport. (2021). *Vision zero for Tāmaki Makaurau: A transport safety strategy and action plan to 2030.* Author.

Berkman, L. F., & Macintyre, S. (1997). The measurement of social class in health studies: Old measures and new formulations. *IARC Scientific Publications, 138*, 51–64. https://publications.iarc.fr/_publications/media/download/3569/ef5ece16d22f088affabfbbacbfd496c923d141a.pdf

Berry, S., Carr, P. A., Kool, B., Mohal, J., Morton, S., & Grant, C. (2017). Housing tenure as a focus for reducing inequalities in the home safety environment: evidence from Growing Up in New Zealand. *Australian and New Zealand Journal of Public Health, 41*(5), 530–534.

Commerce Commission. (2022). *Annual report 2021/22.* Author.

Dhillon, J., et al. (2016). Finding pathways for bite prevention and decreasing dog populations: The process of animal control for indigenous communities in Canada. *J. Indig. Wellbeing, 2,* 82–92.

Duncan-Sutherland, N., et al. (2022a). Epidemiology of dog-related injuries in New Zealand. *The New Zealand Med. J.(online), 135(1554),* 111–128.

Duncan-Sutherland, N., et al. (2022b). *Caregivers' perspectives on the value of dogs and their impact on children* (Unpublished data).

Duncan-Sutherland, N., et al. (2022c). Systematic review of dog bite prevention strategies. *Inj. Prev. 2022, 28,* 288–297.

Duncan-Sutherland, N., et al. (2022d). An audit of dog-related injury notification practices in a New Zealand public hospital. *The New Zealand Med. J.,135*(1553), 99–106.

Duncan-Sutherland. N., et al. (2023). Study of dog control strategies. *Inj. Prev., 29, 219–226.*

Ghebreab, L., Kool, B., Lee, A., & Morton, S. (2021). Risk factors of unintentional injury among children in New Zealand: a systematic review. *Australian and New Zealand Journal of Public Health, 45*(4), 403–410.

Harvey, A., et al. (2009). Injury prevention and the attainment of child and adolescent health. *Bulletin of the World Health Organization, 87*(5), 390–394. doi: 10.2471/BLT.08.059808

Healthy Auckland Together. (August, 2023). *Safe speeds scorecard report: Analysis of Auckland Transport's Katoa, Ka Ora proposals by local board.* Available online at: https://www.healthyaucklandtogether.org.nz/reports/

Ingram, J. C., Deave, T., Towner, E., Errington, G., Kay, B., & Kendrick, D. (April, 2012). Identifying facilitators and barriers for home injury prevention interventions for pre-school children: A systematic review of the quantitative literature. *Health Educ. Res.,*27(2), 258–68. doi: 10.1093/her/cyr066

Jeffries, M., et al. (2023). Financial barriers to primary health care in Aotearoa. *Family Practice.* https://doi.org/10.1093/fampra/cmad096

Khoo, K. H., et al. (2022). What fuels the fire: A narrative review of the role social determinants of health play in burn injuries. *Eur. Burn J., 3*(2), 377–390.

King, P. T. (2019). *Māori with lived experience of disability: Part 1.* Waitangi Tribunal.

Malcolm, L., et al. (2022). *Getting people out of 1- and 2-star cars* (Research Report 705). Waka Kotahi NZ Transport Agency.

Mandic, S., Hewitt, J., Dodge, N., & Sharma, N. (2023). Approaches to managing speed in New Zealand's capital. *Journal of Road Safety, 34*(1).

Ministry of Business, Innovation and Employment. (2017). *F9 Building Code acceptable solution.* Available online at: https://www.building.govt.nz/assets/Uploads/building-code-compliance/f-safety-of-users/f9-restricting-access-residential-pools/asvm/f9-restricting-access-to-residential-pools.pdf

Ministry of Business, Innovation, and Employment. (2023). *Consultation document: Options to address safety risks of corded window coverings.* Available online at: https://www.mbie.govt.nz/dmsdocument/25929-consultation-document-options-to-address-safety-risks-of-corded-window-coverings-pdf

Ministry of Business, Innovation, and Employment. (2023b). *Acceptable solutions G12/AS1 Water Supplies.* Available online at: https://www.building.govt.nz/assets/Uploads/building-code-compliance/g-services-and-facilities/g12-water-supplies/asvm/g12-water-supplies-3rd-edition-amendment-13.pdf

Ministry of Health. (2017). *HISO 10001:2017 Ethnicity data protocols.* Ministry of Health.

Ministry of Transport. (2019). *Road safety strategy speed reference group: Outcomes report.* Available online at: https://www.transport.govt.nz/assets/Uploads/Report/Speed-outcomes-report.pdf

Ministry of Transport. (n.d.) *SORTED STUDY: Findings of the study of road trauma evidence and data 2017/18–2018/19*. Retrieved January 2024.

Mistry, R. M., Pasisi, L., Chong, S., Stewart, J., & She, R. W. (2010). Socioeconomic deprivation and burns. Burns, 36(3), 403-408.

Monash University Accident Research Centre. (2020). *Profile of hospital-treated child injury in primary schools, Victoria, 2009/10 to 2018/19.* Monash University Accident Research Centre.

Mullane, T., et al. (2022). Understanding the workforce that supports Māori and Pacific peoples with type 2 diabetes to achieve better health outcomes. *BMC Health Services Research.* https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-022-08057-4

Paine, S. J., Walker, R., Lee, A., Loring, B., & Signal, T. L. (2023). Associations between maternal stressful life events and child health outcomes in indigenous and non-indigenous groups in New Zealand. *Kōtuitui: New Zealand Journal of Social Sciences Online,* 1–14. https://doi.org/10.1080/1177083X.2023.2292262

New Zealand Institute for Economic Research. (2019). *Burning couches: A cost-benefit analysis on regulating for fire retardants in foam furniture.* Report to the Ministry of Business, Innovation, and Employment.

Office of the Chief Coroner of New Zealand. (2021). *Recommendations recap: A summary of coronial recommendations and comments made between 1 January and 31 March 2021.* Available online at: https://coronialservices.justice.govt.nz/assets/Issue-26-1-January-31-March-2021.pdf

Peden, M., Oyegbite, K., Ozanne-Smith, J., Hyder, A. A., Branche, C., Rahman, A. F., et al. (2008). *World report on child injury prevention.* World Health Organisation, UNICEF.

Radio New Zealand. (15 December 2023). *Quarter of pools checked by Auckland Council unsafe.* Available online https://www.rnz.co.nz/news/national/504850/quarter-of-all-pools-checked-by-auckland-council-unsafe

Recreation Aotearoa. (2023). *Poolsafe annual report*. Author. https://www.nzrecreation.org.nz/Site/aquatics/poolsafe.aspx

Safekids Aotearoa. (2012). *Child cycling injury prevention: Factsheet.* Author.

Safekids Aotearoa. (2013). *Safekids Aotearoa position paper: Booster seats.* Author.

Safekids Aotearoa. (2015). *Child unintentional deaths and injuries in New Zealand, and prevention strategies.* Author.

Safekids Aotearoa. (2020). *Childhood burns in Aotearoa: An overview.* Author.

Salmond, C., Crampton, P., Atkinson, J. (2007). *NZDep2006 Index of Deprivation*. Department of Public Health, University of Otago.

Sport New Zealand | IHI Aotearoa. (2022). *Kia Hīanga: Internal play workplan 2022–2025.* Sport New Zealand.

Stallman, R. K., Moran Dr, K., Quan, L., & Langendorfer, S. (2017). From swimming skill to water competence: Towards a more inclusive drowning prevention future. *International Journal of Aquatic Research and Education, 10*(2), 3. Available at: https://scholarworks.bgsu.edu/ijare/vol10/iss2/3

Te Karu, L. (2022). *Optimal medication therapy in Indigenous populations: A case study of gout in Māori* [Unpublished doctoral dissertation].

Te Rōpū Arotake Auau Mate o te Hunga Tamariki, Taiohi | Child and Youth Mortality Review Committee. (2021). *15th data report: 2015–19*. Health Quality & Safety Commission.

Tipene-Leach, D., & Fidow, J. F. (2022). *Sudden unexpected death in infancy prevention in New Zealand: The case for hauora – a wellbeing approach.* Ministry of Health.

Turner, B., Job, S., & Mitra, S. (2021). *Guide for road safety interventions: Evidence of what works and what does not work.* World Bank.

Underwood, L., Kool, B., Pillai, A., Kingi, T. K., Morton, S., & Ameratunga, S. (2023). Manifold child, family and social variables are associated with injury among New Zealand preschool children. *Injury prevention: Journal of the International Society for Child and Adolescent Injury Prevention*, ip-2023-044869.

Waitangi Tribunal. (2023). *Hauora: Report on Stage One of the Health Services and Outcomes Kaupapa Inquiry: New edition with final recommendations.* Legislation Direct.

Waka Kotahi | NZ Transport Agency. (2022). *Speed management guide (Road to Zero edition).* Author.

Whitehead, J., et al. (2023). *Moving for good? Patterns of early childhood residential mobility, unmet healthcare needs, and child health in Aotearoa.* University of Auckland, University of Waikato and Victoria University of Wellington for Minis try of Social Development.

Young, M., Love, T., Wilson, M., Alatini, M., & Shepherd, M. (2021). The societal cost of unintentional childhood injuries in Aotearoa. *The New Zealand Medical Journal, 134*(1540), 25–37.

Appendix 1: Methods

This section sets out the methods used for this data book. The section has been prepared by the New Zealand Child & Youth Epidemiology Service (University of Otago), who prepared the data used in this publication.

Mortality data

Mortality data are from the national Mortality Collection (MORT). They include deaths among children aged 0–14 years with a death registration date between 2009 and 2018 and unintentional injury (ICD-10 AM external cause of injury codes V01–X59, Y86) as the main underlying cause of death. SUDI external cause codes (W75, W78, and W79) were excluded. The 2019 mortality data was unfortunately delayed and not available at the time of developing this publication.

Hospitalisations

Non-fatal unintentional injury data are from the National Minimum Data Set (NMDS) and present non-fatal hospitalisations among children aged 0–14 with a discharge date between 2012 and 2021, a principal diagnosis of injury, and an unintentional external cause of injury code (V01–X59, Y86). The data include only the first hospitalisation for each injury event. Deaths in hospital and day-stay cases (i.e., those who do not stay in the hospital past midnight) were excluded. The use of unintentional injury codes meant that intentional self-harm, assault, complications of drugs/medical/surgical care, and injury events with undetermined intent were excluded.

Ethnicity

Prioritised ethnicity was used in the data analysis in this publication. This method assigned each individual to only one ethnic group, in the following order: Māori; Pacific; Asian; Middle Eastern, Latin American, and African (MELAA); and European/other. This meant that a child who, for example, identified both Māori and Asian ethnicity was assigned to the Māori prioritised ethnic group. [195]

Injury codes

Non-fatal hospitalisations for unintentional injury had a principal diagnosis of injury (ICD-10-AM S00-T98) and ICD 10 AM unintentional external cause of injury codes V01–X59, Y86. The ICD-10 codes for external causes of injury are shown below.

195. The use of prioritised ethnicity is a limitation of this publication. Compared with total response ethnicity, prioritised ethnicity is known for undercounting of Pacific data. This could partly explain why, in some instances, Pacific data was so suppressed that we couldn't report it in this data book. This may not have been the case if total response ethnicity had been used.

External cause of injury		ICD-10-AC codes
Fall		W00 - W19
Motor vehicle traffic	Occupant	V30–V39 (.4–.9), V40–V49(.4–.9), V50–V59(.4–.9), V60–V69(.4–.9), V70–V79(.4–.9), V83–V86(.0–.3)
	Pedestrian	V02–V04(.1, .9), V09.2
	Pedal cyclist	V12–V14(.3–.9), V19(.4–.6)
	Motorcyclist	V20–V28(.3–.9), V29(.4–.9)
	Other	V80(.3–.5), V81.1, V82.1
Pedestrian, other		V01, V02–V04(.0), V05, V06, V09(.0,.1,.3,.9)
Pedal cyclist, other		V10–V11, V12–V14(.0–.2), V15–V18, V19(.0, .8,.9)
Other land transport		V20–V28(.0–.2), V29(.0–.3), V30–V39(.0–.3), V40–V49(.0–.3), V50–V59(.0–.3), V60–V69(.0–.3), V70–V79(.0–.3), V80(.0,.6–.9), V81–V82(.0,.2–.9), V83–V86(.4–.9)V87.9, V88(.0–.9)V89(.0,.1,.3,.9)
Inanimate mechanical forces		W20–W49
Animate mechanical forces		W50–W64
Other natural/environmental		X21, X23, X25, X26, X28, X29, X30, X31, X32, X39, X51
Poisoning		X40–X49
Burns from fire/ hot object or substances		X01–X19
Suffocation		W74–W84
Drowning		W65–W74
Overexertion		X50
Other specified and unspecified		X58, X59, Y86

Confidence intervals

Some of the graphs and tables of rates of events in this report include 95% confidence intervals. Confidence intervals are a statistical tool used to indicate the range of variation that occurs in the number of randomly-occurring discrete events that occur per unit of measurement (such as per year). It is usual to use 95% confidence intervals, which indicate that there is a 95% probability that the number of random events that occur with a particular probability in a given time period will be within the range of the confidence limits. [196] The wider the confidence interval, the less precise the estimated rate is likely to be.

Where comparisons are made between two or more rates, non-overlapping confidence intervals indicate that the rates are significantly different from each other.

196. Adams et al., 2022.

Socioeconomic deprivation

The New Zealand Index of Deprivation (NZDep) was first created using information from the 1991 census, and it has been updated following each subsequent census (1996, 2001, 2006, 2013, 2018). It is a small-area index of deprivation, and it is used as a proxy for socioeconomic status. The main concept underpinning small-area indices of deprivation is that the socioeconomic environment in which a person lives can confer risks or benefits that may be independent of their own social position within a community. They are aggregate measures, providing information about the wider socioeconomic environment in which a person lives, rather than information about their individual socioeconomic status. [197]

As an example, the most recent index, NZDep2018, combines nine variables from the 2018 census to reflect eight dimensions of material and social deprivation. Each variable represents a standardised proportion of the people living in an area who lack a defined material or social resource. These are combined to give a score representing the average degree of deprivation experienced by people in that area. Individual area scores are ranked and placed on an ordinal scale from 1 to 10, with decile 1 reflecting the least deprived 10% of small areas and decile 10 reflecting the most deprived 10% of small areas. [198] The quintile measures used in this report combine pairs of deciles (e.g., NZDep quintile 1 combines deciles 1 and 2).

The census variables included in each iteration of the NZDep index have changed slightly over time, to reflect indicators of social and material deprivation at that time. For example, you can see in the tables below the variables included in NZDep2018 [199] and those in NZDep2006, [200] reflecting the changes in society over the timeframe of those reports. Consequently, in utilising the NZDep within a data set, it is recommended that the most recent version of the index is applied to the data for any given year. In this current report, the NZDep2006 has been used for 2006–2012 data, the NZDep2013 for 2013–2017 data, and the NZDep2018 for all data from 2018.

The advantage of the NZDep is its ability to assign measures of socioeconomic status to the older population, people who are not in employment, and children, to whom income and occupational measures often do not apply, as well as to provide proxy measures of socioeconomic status for large datasets when other demographic information is lacking. However, small-area indices have limitations, as not all individuals in a particular area are accurately represented by their area's aggregate score. While this may be less of a problem for very affluent or very deprived neighbourhoods, in average areas, aggregate measures may be much less predictive of individual socioeconomic status. Despite these limitations, the NZDep has been shown to be associated with rates of mortality and morbidity from a number of causes in Aotearoa.

197. Berkman & Macintyre, 1997.
198. Atkinson et al., 2020.
199. Ibid.
200. Salmond et al., 2007

Variables used in the New Zealand Index of Deprivation 2018 (NZDep2018)

Dimension	Variable in order of decreasing weight in the index
Communication	People with no access to the Internet at home
Income	People aged 18–64 receiving a means tested benefit
Income	People living in equivalised* households with income below an income threshold
Employment	People aged 18–64 who are unemployed
Qualifications	People aged 18–64 without any qualifications
Owned home	People not living in own home
Support	People aged <65 living in a single parent family
Living space	People living in equivalised* households below a bedroom occupancy threshold
Living condition	People living in dwellings that are always damp and/or always have mould greater than A4 size

** The setting of the household equivalised income threshold was based on two principles: 1) The proportion of the population identified as being socioeconomically deprived by the threshold should be broadly consistent with the other variables in the index, and 2) the threshold should be broadly consistent with other measures of income poverty.*

Variables used in the New Zealand Index of Deprivation 2006 (NZDep2006)3

Dimension of deprivation	Variable description (in order of decreasing weight)
Income	People aged 18-64 receiving a means tested benefit
Income	People living in equivalised* households with income below an income threshold
Owned home	People not living in own home
Support	People aged <65 living in a single parent family
Employment	People aged 18-64 unemployed
Qualifications	People aged 18-64 without any qualifications
Living space	People living in equivalised* households below a bedroom occupancy threshold
Communication	People with no access to a telephone (Landline)
Transport	People with no access to a car

**Equivalisation: methods used to control for household composition*

Appendix 2: Additional data tables

Additional data tables related to tamariki deaths from injury

Table 27: Tamariki deaths from injury, by age group, per year, 2009–2018

Year	Number	Rate per 100,000	95% CIs
Age group: 0 - 4 years			
2009	51	16.95	12.62 - 22.29
2010	57	18.72	14.18 - 24.25
2011	51	16.55	12.32 - 21.76
2012	34	10.9	7.55 - 15.23
2013	40	12.88	9.20 - 17.54
2014	52	16.82	12.56 - 22.06
2015	40	13	9.28 - 17.70
2016	36	11.75	8.23 - 16.27
2017	38	12.46	8.81 - 17.10
2018	23	7.54	4.78 - 11.31
Age group: 5 - 9 years			
2009	17	5.76	3.35 - 9.21
2010	<6	s	s
2011	<6	s	s
2012	11	3.68	1.83 - 6.59
2013	7	2.33	0.94 - 4.81
2014	11	3.6	1.79 - 6.44
2015	13	4.18	2.22 - 7.14
2016	8	2.53	1.09 - 4.98
2017	12	3.72	1.92 - 6.50
2018	<6	s	s

Year	Number	Rate per 100,000	95% CIs
Age group: 10 - 14 years			
2009	15	4.92	2.75 - 8.12
2010	16	5.29	3.02 - 8.59
2011	11	3.66	1.82 - 6.55
2012	15	5.02	2.81 - 8.28
2013	11	3.71	1.85 - 6.63
2014	8	2.67	1.15 - 5.25
2015	11	3.62	1.81 - 6.49
2016	11	3.59	1.79 - 6.42
2017	9	2.9	1.33 - 5.51
2018	13	4.15	2.21 - 7.09

Table 28: Tamariki deaths from injury, by prioritised ethnicity (Māori and European/ other), per year, 2009-2018 [201]

Year	Number	Rate per 100,000	95% CIs
Māori			
2009	20	8.97	5.48 - 13. 86
2010	22	9.76	6.11 - 14.78
2011	15	6.58	3.68 - 10.85
2012	21	9.11	5.46 - 13.93
2013	19	8.15	4.91 - 12.73
2014	18	7.58	4.49 -11.98
2015	6	2.48	0.91 - 5.39
2016	11	4.46	2.22 - 7.98
2017	18	7.17	4.25 - 11.33
2018	14	5.48	2.99 - 9.19
European/other			
2009	25	1.29	3.61 - 8.24
2010	16	0.86	2.02 - 5.74
2011	16	0.77	2.00 - 5.68
2012	17	0.68	2.14 - 5.88
2013	16	0.67	1.95 - 5.56
2014	18	0.7	2.31 - 6.17
2015	21	0.84	2.86 - 7.07
2016	17	0.7	2.21 - 6.08
2017	14	0.59	1.73 - 5.33
2018	10	0.42	1.10 - 4.24

201. Pacific, Asian and MELAA data suppressed due to low numbers per year.

Additional data tables related to tamariki hospitalisations for injury

Table 29: Tamariki hospitalisation for injury, per year, 2012–2021

Year	Number	Rate per 100,000	95% CIs
2012	7,373	813.93	795.46 - 832.73
2013	7,234	795.69	777.78 - 814.58
2014	7,288	795.25	777.21 - 813.84
2015	7,425	803.48	785.52 - 822.19
2016	7,384	792.68	774.81 - 811.08
2017	7,184	765.01	747.53 - 783.02
2018	6,561	693.20	676.53 - 710.18
2019	6,935	726.92	709.91 - 744.24
2020	6,288	653.73	637.87 - 670.30
2021	6,149	634.50	618.74 - 650.56

Table 30: Tamariki hospitalisations rates for injury, by top three causes, 2012–2021

Year	All hospitalisations	Falls	Inanimate mechanical forces	Land transport (excluding motor vehicle traffic)
2012	813.9	398.7	163.2	69.2
2013	795.7	403.8	152.8	61.1
2014	795.3	394.5	151.3	57.7
2015	803.5	388.8	167.3	61.7
2016	792.7	398.1	137.0	62.4
2017	765.0	380.6	140.7	70.7
2018	693.2	343.1	124.7	55.0
2019	726.9	359.9	128.3	67.3
2020	653.7	313.4	109.8	69.2
2021	634.5	304.3	110.5	67.0

Table 31: Tamariki hospitalisation for injury, by major cause, 2012–2021

Year	Number	Rate per 100,000	95% CIs
Falls			
2012	3,612	398.7	385.8 - 412.0
2013	3,670	403.8	390.9 - 417.1
2014	3,615	394.5	381.8 - 407.6
2015	3,592	388.8	376.2 - 401.7
2016	3,708	398.1	385.4 - 411.1
2017	3,574	380.6	368.3 - 393.3
2018	3,247	343.1	331.4 - 355.1
2019	3,434	359.9	385.8 - 412.0
2020	3,014	313.4	390.9 - 417.1
2021	2,949	304.3	381.8 - 407.6
Inanimate mechanical forces			
2012	1,478	163.16	154.95 - 171.7
2013	1,389	152.84	144.91 - 161.1
2014	1,386	151.26	143.4 - 159.44
2015	1,546	167.34	159.1 - 175.9
2016	1,276	137	129.58 - 144.73
2017	1,321	140.69	133.21 - 148.49
2018	1,180	124.67	117.66 - 131.99
2019	1,224	128.3	121.21 - 135.69
2020	1,056	109.82	103.3 - 116.65
2021	1,071	110.51	103.99 - 117.34
Land transport (excluding motor vehicle traffic)			
2012	627	69.2	63.9 - 74.9
2013	555	61.1	56.1 - 66.4
2014	529	57.7	52.9 - 62.9
2015	570	61.7	56.7 - 67
2016	581	62.4	57.4 - 67.7
2017	664	70.7	65.4 - 76.3
2018	521	55	50.4 - 60
2019	642	67.3	62.2 - 72.7
2020	665	69.2	64 - 74.6
2021	649	67	61.9 - 72.3

Table 32: Tamariki hospitalisations for injury, by age group and main cause, 2017–2021

Age	Main cause	Number	Rate per 100,000	95% CIs
<1 Years	Falls	808	272.2	253.74 - 291.62
	Inanimate forces	224	75.5	65.90 - 86.01
	Pedal cyclist, other	0		
	Other land transport	<6	0.7	0.08 - 2.43
	Motor vehicle traffic	25	8.4	5.45 - 12.43
1 -4 years	Falls	3,929	321.7	311.68 - 331.88
	Inanimate forces	2,215	181.3	173.87 - 189.05
	Pedal cyclist, other	161	13.2	11.22 - 15.38
	Other land transport	87	7.1	5.70 - 8.79
	Motor vehicle traffic	239	19.6	17.16 - 22.21
0 -4 years	Falls	4,737	312.0	303.16 - 320.99
	Inanimate forces	2,439	160.6	154.32 - 167.14
	Pedal cyclist, other	161	10.6	9.03 - 12.37
	Other land transport	89	5.9	4.71 - 7.21
	Motor vehicle traffic	264	17.4	15.35 - 19.62
5 -9 years	Falls	6,725	403.3	393.73 - 413.07
	Inanimate forces	1,825	109.4	104.48 - 114.59
	Pedal cyclist, other	483	29.0	26.44 - 31.67
	Other land transport	377	22.6	20.38 - 25.01
	Motor vehicle traffic	432	25.9	23.52 - 28.47
10 - 14 years	Falls	4,756	300.2	291.72 - 308.85
	Inanimate forces	1,588	100.2	95.36 - 105.29
	Pedal cyclist, other	925	58.4	54.68 - 62.27
	Other land transport	906	57.2	53.52 - 61.03
	Motor vehicle traffic	657	41.5	38.36 - 44.77

Table 33: Tamariki hospitalisations for injury, by prioritised ethnicity, 2012–2021

Year	Number	Rate per 100,000	95% CIs
Māori			
2012	2,130	924.21	885.37 – 964.31
2013	2,059	883.69	845.93 – 922.70
2014	2,127	895.44	857.79 – 934.32
2015	2,167	895.19	857.89 – 933.69
2016	2,112	856.42	820.28 – 893.74
2017	2,106	838.56	803.13 – 875.16
2018	1,989	777.93	744.11 – 812.88
2019	2,158	829.31	794.69 – 865.06
2020	1,945	734.65	702.36 – 768.04
2021	1,961	728.22	696.34 – 761.18
Pacific			
2012	986	1,132.85	1,063.23 – 1,205.83
2013	940	1,071.84	1,004.40 – 1,142.61
2014	916	1,034.14	968.25 – 1,103.34
2015	945	1056.43	990.14 – 1,125.99
2016	883	977.55	914.13 – 1,044.21
2017	818	896.89	836.47 – 960.52
2018	757	822.11	764.58 – 882.82
2019	739	795.00	738.71 – 854.45
2020	707	753.47	698.95 – 811.12
2021	662	698.99	646.75 – 754.33
Asian			
2012	397	416.69	376.70 – 459.76
2013	473	480.69	438.34 – 526.03
2014	468	437.32	398.59 – 478.79
2015	536	463.54	425.12 – 504.50
2016	558	449.10	412.61 – 487.96
2017	580	436.54	401.73 – 473.55
2018	561	396.52	364.38 – 430.74
2019	630	419.73	387.59 – 453.83
2020	594	374.26	344.77 – 405.61
2021	598	357.38	329.31 – 387.21

Year	Number	Rate per 100,000	95% CIs
MELAA			
2012	74	664.78	521.98 – 834.59
2013	96	836.97	677.93 – 1,022.09
2014	102	833.06	679.25 – 1,011.29
2015	107	821.94	673.58 – 993.24
2016	88	638.05	511.72 – 786.11
2017	101	693.40	564.77 – 842.55
2018	95	619.30	501.03 – 757.06
2019	109	676.43	555.41 – 815.98
2020	99	586.22	476.44 – 713.70
2021	108	611.48	501.60 – 738.27
European/other			
2012	3,763	780.88	756.13 – 806.24
2013	3,644	762.12	737.57 – 787.27
2014	3,651	775.34	750.39 – 800.91
2015	3,648	786.82	761.49 – 812.77
2016	3,725	816.19	790.19 – 842.83
2017	3,565	793.74	767.90 – 820.23
2018	3,151	713.07	688.39 –7 38.41
2019	3,295	758.10	732.43 – 784.43
2020	2,938	687.43	662.79 – 712.74
2021	2,812	669.30	644.79 – 694.51

Table 34: Tamariki hospitalisations for injury, by NZDep quintile, 2017–2021

Ethnicity	NZDep quintile	No. of Hospitalisations	Rate per 100,000	95% CIs
Māori	Quintile 1	677	635.32	588.36 – 685.04
	Quintile 2	905	641.84	600.70 – 685.06
	Quintile 3	1,421	774.98	735.20 – 816.35
	Quintile 4	2,346	837.95	804.38 – 872.56
	Quintile 5	4,793	812.28	789.44 – 835.60
	Missing NZDep data	18		
Pacific	Quintile 1	156	756.18	642.17 – 884.60
	Quintile 2	265	805.47	711.40 – 908.52
	Quintile 3	359	706.83	635.60 – 783.87
	Quintile 4	749	866.10	805.17 – 930.41
	Quintile 5	2,123	775.04	742.42 – 808.73
	Missing NZDep data	31		
Asian	Quintile 1	570	399.92	367.75 – 434.14
	Quintile 2	639	405.07	374.27 – 437.73
	Quintile 3	623	374.76	345.91 – 405.38
	Quintile 4	622	389.99	59.94 – 421.88
	Quintile 5	473	380.56	347.03 – 416.45
	Missing NZDep data	36		
MELAA	Quintile 1	82	653.91	520.06 – 811.68
	Quintile 2	110	678.59	557.71 – 817.90
	Quintile 3	85	526.32	420.39 – 650.81
	Quintile 4	120	755.67	626.51 – 903.60
	Quintile 5	114	579.56	478.06 – 696.24
	Missing NZDep data	1		
European/ other	Quintile 1	4,163	678.40	657.95 – 699.33
	Quintile 2	3,588	694.90	672.35 – 718.02
	Quintile 3	3,361	749.29	724.17 – 775.06
	Quintile 4	2,738	747.78	720.03 – 776.33
	Quintile 5	1,793	784.89	748.97 – 822.08
	Missing NZDep data	118		
Missing ethnicity data	Quintile 1	9		
	Quintile 2	7		
	Quintile 3	5		
	Quintile 4	12		
	Quintile 5	5		
	Total	38		

Table 35: Tamariki hospitalisations for injury, by geographic region, 2017–2021

DHB region	Number	Rate per 100,000	95% CIs
Northland	1,383	709.30	672.41 – 747.70
Waitematā	3,715	613.49	593.92 – 633.54
Auckland	2,785	692.79	667.29 – 719.00
Counties Manukau	4,409	680.15	660.22 – 700.53
Waikato	3,565	805.29	779.07 – 832.16
Bay of Plenty	1,835	719.49	686.95 – 753.19
Lakes	854	701.38	655.12 – 750.04
Hauora Tairāwhiti	575	996.02	916.26 – 1,080.86
Taranaki	1,055	833.00	783.49 – 884.83
Hawke's Bay	1,354	753.06	713.48 – 794.27
MidCentral	1,113	622.48	586.45 – 660.16
Whanganui	532	793.56	727.55 – 863.95
Hutt Valley	934	615.20	576.38 – 655.96
Capital & Coast	1,868	683.32	652.68 – 715.03
Wairarapa	421	956.38	867.20 – 1,052.25
Nelson Marlborough	852	624.59	583.35 – 667.97
South Canterbury	309	577.57	514.96 – 645.69
Canterbury	3,375	662.19	640.04 – 684.92
West Coast	173	626.36	536.49 – 726.97
Southern	1,814	620.89	592.65 – 650.14
Aotearoa	**33,117**	**694.26**	**686.80 – 701.78**

Table 36: Rates of hospitalisation for injury for tamariki, by ethnicity and geographic region, 2017–2021 [202]

DHB region	Māori	Pacific	Asian	European/other
Northland	757.2	639.0	289.5	686.5
Waitematā	713.2	676.5	395.0	699.9
Auckland	908.6	947.1	484.4	672.0
Counties Manukau	800.9	817.2	339.8	760.7
Waikato	857.1	742.3	384.5	861.0
Bay of Plenty	829.9	530.0	378.3	687.9
Lakes	703.1	510.8	386.8	784.0
Hauora Tairāwhiti	923.3	773.8	546.9	1,238.8
Taranaki	844.8	1,111.1	379.4	857.8
Hawke's Bay	846.1	802.7	380.7	705.0
MidCentral	615.6	634.0	263.2	687.4
Whanganui	900.1	630.9	310.3	765.0
Hutt	760.4	693.9	390.3	585.3
Capital & Coast	760.9	804.8	414.3	715.5
Wairarapa	958.4	709.7	604.4	1,001.9
Nelson Marlborough	638.6	620.8	317.1	653.1
South Canterbury	630.9	764.7	512.0	563.5
Canterbury	713.1	791.1	368.1	705.4
West Coast	637.6	0.0	508.5	641.3
Southern	619.2	567.4	352.5	654.6
Aotearoa	**780.9**	**792.4**	**394.8**	**725.2**

202. Data in this table should be interpreted with caution due to wide confidence intervals.

Table 37: Hospitalisations for injury for tamariki Māori, by geographic region, 2017–2021

DHB region	Number	Rate per 100,000	95% CIs	
Northland	825	757.2	706.43	810.71
Waitematā	707	713.2	661.59	767.77
Auckland	464	908.6	827.76	995.11
Counties Manukau	1,250	800.9	757.13	846.59
Waikato	1,424	857.1	813.11	902.76
Bay of Plenty	867	829.9	775.57	887.04
Lakes	464	703.1	640.60	770.12
Hauora Tairāwhiti	373	923.3	831.93	1,021.89
Taranaki	357	844.8	759.40	937.11
Hawke's Bay	659	846.1	782.6	913.20
MidCentral	388	615.6	555.84	679.99
Whanganui	263	900.1	794.56	1,015.69
Hutt	317	760.4	678.96	848.86
Capital & Coast	392	760.9	687.40	840.05
Wairarapa	136	958.4	804.11	1,133.72
Nelson Marlborough	179	638.6	548.47	739.32
South Canterbury	60	630.9	481.43	812.13
Canterbury	628	713.1	658.38	771.09
West Coast	38	637.6	451.13	875.16
Southern	355	619.2	556.47	687.11
Areas Outside DHB	14			
Aotearoa	**10,160**	**780.9**	**765.78**	**796.22**

Table 38: Hospitalisations for injury for Pacific children by geographic region, 2017–2021

DHB region	Number	Rate per 100,000	95% CIs	
Northland	37	639.0	449.88	880.85
Waitematā	421	676.5	613.43	744.34
Auckland	641	947.1	875.19	1,023.35
Counties Manukau	1,515	817.2	776.56	859.41
Waikato	138	742.3	623.64	877.04
Bay of Plenty	38	530.0	375.00	727.47
Lakes	19	510.8	307.36	797.65
Hauora Tairāwhiti	13	773.8	411.62	1,323.33
Taranaki	28	1,111.1	738.16	1,605.93
Hawke's Bay	83	802.7	639.33	995.09
Mid Central	57	634.0	480.18	821.49
Whanganui	20	630.9	385.21	974.45
Hutt	107	693.9	568.66	838.52
Capital & Coast	226	804.8	703.32	916.90
Wairarapa	11	709.7	353.78	1,269.90
Nelson Marlborough	28	620.8	412.45	897.33
South Canterbury	13	764.7	406.77	1,307.76
Canterbury	195	791.1	683.93	910.25
West Coast	0			
Southern	64	567.4	436.92	724.54
Areas Outside DHB	29			
Aotearoa	**3,683**	**792.4**	**767.03**	**818.43**

Table 39: Hospitalisations for injury for Asian children by geographic region, 2017–2021

DHB region	Number	Rate per 100,000	95% CIs	
Northland	22	289.5	181.35	438.29
Waitematā	646	395.0	365.13	426.68
Auckland	617	484.4	446.94	524.19
Counties Manukau	555	339.8	312.14	369.31
Waikato	187	384.5	331.39	443.78
Bay of Plenty	71	378.3	295.41	477.14
Lakes	34	386.8	267.83	540.54
Hauora Tairāwhiti	7	546.9	219.09	1,126.83
Taranaki	28	379.4	252.05	548.37
Hawke's Bay	34	380.7	263.63	532.06
MidCentral	40	263.2	187.98	358.36
Whanganui	9	310.3	141.61	589.17
Hutt	87	390.3	312.61	481.45
Capital & Coast	186	414.3	356.93	478.36
Wairarapa	11	604.4	301.30	1,081.51
Nelson Marlborough	28	317.1	210.66	458.32
South Canterbury	17	512.0	298.11	819.89
Canterbury	267	368.1	325.29	415.03
West Coast	6	508.5	185.67	1,106.77
Southern	76	352.5	277.72	441.22
Areas Outside DHB	35			
Aotearoa	**2,963**	**394.8**	**380.72**	**409.29**

Table 40: Hospitalisations for injury for European/other children by geographic region, 2017–2021

DHB region	Number	Rate per 100,000	95% CIs	
Northland	489	686.5	627.00	750.14
Waitemata	1,860	699.9	668.46	732.45
Auckland	960	672.0	630.14	715.88
Counties Manukau	1,021	760.7	714.74	808.82
Waikato	1,747	861.0	821.11	902.36
Bay of Plenty	844	687.9	642.28	735.93
Lakes	334	784.0	702.20	872.80
Hauora Tairāwhiti	179	1,238.8	1,063.91	1,434.13
Taranaki	632	857.8	792.18	927.33
Hawke's Bay	570	705.0	648.31	765.34
Mid Central	619	687.4	634.30	743.75
Whanganui	238	765.0	670.91	868.65
Hutt	405	585.3	529.64	645.13
Capital & Coast	1,004	715.5	671.93	761.17
Wairarapa	261	1,001.9	884.04	1,131.14
Nelson Marlborough	611	653.1	602.36	707.03
South Canterbury	218	563.5	491.13	643.43
Canterbury	2,233	705.4	676.46	735.30
West Coast	128	641.3	535.00	762.49
Southern	1,291	654.6	619.40	691.34
Areas Outside DHB	117			
Aotearoa	**15,761**	**725.2**	**713.96**	**736.66**

Additional data tables related to land transport injury for tamariki

Table 41: Tamariki fatalities, 2009-2018, and hospitalisations, 2012-2021, for injuries from 'motor vehicle traffic' incidents

Fatalities					Hospitalisations				
Year	Number	Rate per 100,000	95% CIs		Year	Number	Rate per 100,000	95% CIs	
2009	22	2.45	0.91	1.26					
2010	15	1.67	0.73	1.08					
2011	10	1.11	0.58	0.92					
2012	14	1.55	0.84	2.59	2012	224	24.7	21.60	28.19
2013	7	0.77	0.31	1.59	2013	250	27.5	24.20	31.14
2014	13	1.42	0.75	2.43	2014	256	27.9	24.62	31.58
2015	10	1.08	0.52	1.99	2015	250	27.1	23.81	30.63
2016	15	1.61	0.90	2.66	2016	259	27.8	24.52	31.41
2017	13	1.38	0.74	2.37	2017	249	26.5	23.33	30.03
2018	15	1.58	0.89	2.61	2018	263	27.8	24.53	31.36
					2019	281	29.5	26.11	33.11
					2020	288	30.0	26.59	33.62
					2021	264	27.2	24.05	30.73

Table 42: Tamariki hospitalisations for 'motor vehicle traffic' injury, by prioritised ethnicity, 2017–2021

Ethnicity	Number	Rate per 100,000	95% CIs	
Māori	585	45.0	41.39	48.76
Pacific	130	28.0	23.37	33.21
Asian	125	16.7	13.86	19.85
MELAA	20	24.8	15.16	38.34
European/other	487	22.4	20.46	24.49
Not Stated	6			
Total	**1,353**	**28.4**	**26.87**	**29.92**

Table 43: Tamariki hospitalisations for 'motor vehicle traffic' injury, by NZDep quintile and crash type, 2017–2021 [203]

Occupant				
NZDep	**Number**	**Rate per 100,000**	**95% CIs**	
Quintile 1	58	6.5	4.91	8.37
Quintile 2	79	9.1	7.24	11.39
Quintile 3	130	15.0	12.55	17.84
Quintile 4	183	20.2	17.34	23.30
Quintile 5	276	22.3	19.77	25.12
Total	**742**	**15.6**	**14.46**	**16.72**
Pedestrian				
NZDep	**Number**	**Rate per 100,000**	**95% CIs**	
Quintile 1	33	3.7	2.53	5.17
Quintile 2	47	5.4	4.00	7.23
Quintile 3	40	4.6	3.30	6.30
Quintile 4	79	8.7	6.89	10.85
Quintile 5	135	10.9	9.15	12.92
Total	**338**	**7.1**	**6.35**	**7.88**
Pedal cyclist				
NZDep	**Number**	**Rate per 100,000**	**95% CI**	
Quintile 1	15	1.7	0.94	2.76
Quintile 2	19	2.2	1.32	3.43
Quintile 3	17	2.0	1.14	3.15
Quintile 4	20	2.2	1.35	3.40
Quintile 5	29	2.3	1.57	3.37
Total	**100**	**2.1**	**1.71**	**2.55**
Motor cyclist				
NZDep	**Number**	**Rate per 100,000**	**95% CIs**	
Quintile 1	30	3.3	2.26	4.78
Quintile 2	30	3.5	2.34	4.96
Quintile 3	27	3.1	2.06	4.54
Quintile 4	25	2.8	1.78	4.07
Quintile 5	52	4.2	3.14	5.52
Total	**165**	**3.5**	**2.95**	**4.03**

203. Totals include data with NZDep quintile data not stated. Missing data for occupant injury = 16; missing data for each of the other motor vehicle crash types under 6 per category.

Table 44: Tamariki hospitalisations for 'non-motor vehicle/non-traffic' injury, by age group and crash type, 2017–2021

Other pedal cyclist				
Age group (years)	**Number**	**Rate per 100,000**	**95% CIs**	
0 - 4	161	10.6	9.03	12.37
5 - 9	483	29.0	26.44	31.67
10 - 14	925	58.4	54.68	62.27
Total	**1,569**	**32.9**	**31.28**	**34.56**
Other pedestrian				
Age group (years)	**Number**	**Rate per 100,000**	**95% CIs**	
0 - 4	94	6.2	5.00	7.58
5 - 9	70	4.2	3.27	5.30
10 - 14	36	2.3	1.59	3.15
Total	**200**	**4.2**	**3.63**	**4.82**
Other land transport				
Age group (years)	**Number**	**Rate per 100,000**	**95% CIs**	
0 - 4	89	5.9	4.71	7.21
5 - 9	377	22.6	20.38	25.01
10 - 14	906	57.2	53.52	61.03
Total	**1,372**	**28.8**	**27.26**	**30.33**
All crash types				
Age group (years)	**Number**	**Rate per 100,000**	**95% CIs**	
0 - 4	344	22.7	20.32	25.18
5 - 9	930	55.7	52.25	59.48
10 - 14	1,867	117.8	112.56	123.31
Total	**3,141**	**65.8**	**63.56**	**68.19**

Table 45: Tamariki hospitalisations for 'non-motor vehicle/non-traffic' injury, by prioritised ethnicity, 2017–2021

Other pedal cyclist				
Ethnicity	**Number**	**Rate per 100,000**	**95% CIs**	
Māori	399	30.7	27.73	33.83
Pacific	92	19.8	15.96	24.28
Asian	109	14.5	11.93	17.52
MELAA	21	59.5	36.83	90.99
European/Other	948	45.3	41.56	47.26
Total	**1,569**	**32.9**	**31.28**	**34.56**
Other pedestrian				
Ethnicity	**Number**	**Rate per 100,000**	**95% CIs**	
Māori	94	7.2	5.84	8.84
Pacific	19	4.1	16.34	6.38
Asian	10	1.3	10.12	2.45
MELAA	<6			
European/other	77	3.6	3.55	4.50
Total	**200**	**4.2**	**3.63**	**4.82**
Other land transport				
Ethnicity	**Number**	**Rate per 100,000**	**95% CIs**	
Māori	343	26.4	23.65	29.31
Pacific	16	3.4	1.97	5.59
Asian	16	2.1	1.22	3.46
MELAA	7	19.8	7.95	40.88
European/other	988	46.5	43.38	49.19
Total	**1,372**	**28.8**	**27.26**	**30.33**
Total				
Ethnicity	**Number**	**Rate per 100,000**	**95% CIs**	
Māori	836	64.3	59.97	68.76
Pacific	127	27.3	22.78	32.51
Asian	135	18.0	15.08	21.29
MELAA	28	79.4	52.73	114.71
European/other	2,013	94.2	90.09	98.36
Not Stated	<6	-	-	-
Total	**3,141**	**65.8**	**63.56**	**68.19**

Table 46: Tamariki hospitalisations for 'non-motor vehicle/non-traffic' injury, by NZDep quintile, 2017–2021

Other pedal cyclist				
NZDep	**Number**	**Rate per 100,000**	**95% CIs**	
Quintile 1	368	41.1	36.98	45.49
Quintile 2	324	37.5	33.52	41.81
Quintile 3	275	31.8	28.14	35.78
Quintile 4	266	29.3	25.89	33.05
Quintile 5	327	26.4	23.66	29.47
Other pedestrian				
NZDep	**Number**	**Rate per 100,000**	**95% CIs**	
Quintile 1	37	4.1	2.91	5.69
Quintile 2	21	2.4	1.50	3.71
Quintile 3	29	3.4	2.24	4.81
Quintile 4	41	4.5	3.24	6.13
Quintile 5	68	5.5	4.27	6.97
Other land transport				
NZDep	**Number**	**Rate per 100,000**	**95% CIs**	
Quintile 1	313	34.9	31.17	39.02
Quintile 2	295	34.1	30.35	38.26
Quintile 3	277	32.0	28.36	36.02
Quintile 4	228	25.1	21.96	28.60
Quintile 5	256	20.7	18.24	23.40
Total				
NZDep	**Number**	**Rate per 100,000**	**95% CIs**	
Quintile 1	718	80.1	74.38	86.21
Quintile 2	640	74.1	68.43	80.03
Quintile 3	581	67.2	61.81	72.85
Quintile 4	535	58.9	54.05	64.15
Quintile 5	651	52.6	48.68	56.85
Not Stated	16	-	-	-
Total	**3,141**	**65.8**	**63.56**	**68.19**

Table 47: Tamariki hospitalisations for 'non-motor vehicle/non-traffic' injury, by gender, 2017–2021

All crash types				
Gender	**Number**	**Rate per 100,000**	**95% CIs**	
Female	936	40.3	37.80	43.01
Male	2,205	90.0	86.29	93.84
Total	**3,141**	**65.8**	**63.56**	**68.19**
Other pedal cyclist				
Gender	**Number**	**Rate per 100,000**	**95% CIs**	
Female	348	15.0	13.46	16.66
Male	1,221	49.8	47.08	52.72
Total	**1,569**	**32.9**	**31.28**	**34.56**
Other pedestrian				
Gender	**Number**	**Rate per 100,000**	**95% CIs**	
Female	75	3.2	2.54	4.05
Male	125	5.1	4.25	6.08
Total	**200**	**4.2**	**3.63**	**4.82**
Other land transport				
Gender	**Number**	**Rate per 100,000**	**95% CIs**	
Female	513	22.1	20.24	24.11
Male	859	35.1	32.76	37.49
Total	**1,372**	**28.8**	**27.26**	**30.33**

Additional data tables related to tamariki injury from falls

Table 48: Tamariki hospitalisations for injury from falls, by leading cause and age group, 2017–2021

Age group: 0 - 4 years					
	Number	**%**	**Rate per 100,000**	**95% CIs**	
Fall on same level from slipping, tripping or stumbling	464	9.80	30.56	27.84	33.47
Fall involving ice skates, skis, roller skates, or skateboards	166	3.50	10.93	9.33	12.73
Fall involving playground equipment	1,014	21.41	66.78	62.73	71.02
All fall types	**4,737**	**100.00**	**311.98**	**303.16**	**320.99**
Age group: 5 - 9 years					
	Number	**%**	**Rate per 100,000**	**95% CIs**	
Fall on same level from slipping, tripping or stumbling	639	9.50	38.32	35.41	41.41
Fall involving ice skates, skis, roller skates, or skateboards	524	7.79	31.43	28.79	34.23
Fall involving playground equipment	3,202	47.61	192.0	185.44	198.80
All fall types	**6,725**	**100**	**403.31**	**393.73**	**413.07**
Age group: 10 - 14 years					
	Number	**%**	**Rate per 100,000**	**95% CIs**	
Fall on same level from slipping, tripping or stumbling	755	15.87	47.66	44.32	51.18
Fall involving ice skates, skis, roller skates, or skateboards	890	18.71	56.18	52.55	59.99
Fall involving playground equipment	903	18.99	57.00	53.34	60.84
All fall types	**4,756**	**100**	**300.20**	**291.72**	**308.85**

Table 49: Tamariki hospitalisations (numbers and rates) for injury from falls, by prioritised ethnicity, 2017–2021

Age group: 0 - 4 years					
Ethnicity	**Number**	**%**	**Rate per 100,000**	**95% CIs**	
European/other	2,029	42.9	321.1	307.3	335.4
Māori	1,577	33.3	374.9	356.6	393.9
Pacific	537	11.3	366.4	336.1	398.8
Asian	521	11.0	179.9	164.8	196.1
MELAA	68	1.4	228.4	177.4	289.6
Total	**4,732**	**100.0**	**311.7**	**302.8**	**320.7**
Not stated/ Unknown	< 6	-	-	-	-
Age group: 5 - 9 years					
Ethnicity	**Number**	**%**	**Rate per 100,000**	**95% CIs**	
European/other	3,286	48.9	431.8	417.1	446.8
Māori	1,894	28.2	414.4	395.9	433.5
Pacific	687	10.2	415.2	384.7	447.5
Asian	769	11.4	300.7	279.8	322.7
MELAA	84	1.3	298.7	238.3	369.8
Total	**6,720**	**100.0**	**403.0**	**393.4**	**412.8**
Not stated/ Unknown	< 6	-	-	-	-
Age group: 10 - 14 years					
Ethnicity	**Number**	**%**	**Rate per 100,000**	**95% CIs**	
European/other	2,469	52.0	316.4	304.0	329.1
Māori	1,288	27.1	304.2	287.8	321.3
Pacific	573	12.1	375.1	345.0	407.1
Asian	355	7.5	173.0	155.5	192.0
MELAA	64	1.3	282.2	217.3	360.4
Total	**4,749**	**100.0**	**299.7**	**291.3**	**308.4**
Not stated/ Unknown	7	-	-	-	-

Additional data tables related to drowning-related injury for tamariki

Table 50: Tamariki hospitalisations for drowning-related injury, per year, 2012–2021

Year	Number	Rate per 100,000	95% CIs
2012	30	3.31	2.23 - 4.73
2013	21	2.31	1.43 - 3.53
2014	33	3.60	2.48 - 5.06
2015	22	2.38	1.49 - 3.61
2016	29	3.11	2.08 - 4.47
2017	27	2.88	1.89 - 4.18
2018	40	4.23	3.02 - 5.76
2019	29	3.04	2.04 - 4.37
2020	37	3.85	2.71 - 5.30
2021	27	2.79	1.84 - 4.05

Additional data tables related to tamariki injury from inanimate mechanical forces

Table 51: Tamariki hospitalisations for injury from inanimate mechanical forces, per year, 2012–2021

Year	Number	Rate per 100,000	95% CIs	
2012	1,478	163.16	154.95	171.70
2013	1,389	152.84	144.91	161.10
2014	1,386	151.26	143.40	159.44
2015	1,546	167.34	159.10	175.90
2016	1,276	137.00	129.58	144.73
2017	1,321	140.69	133.21	148.49
2018	1,180	124.67	117.66	131.99
2019	1,224	128.30	121.21	135.69
2020	1,056	109.82	103.30	116.65
2021	1,071	110.51	103.99	117.34

Table 52: Tamariki hospitalisations for injury from inanimate mechanical forces, by prioritised ethnicity and age group, 2017–2021

Age group: 0 - 4 years					
Ethnicity	**Number**	**%**	**Rate per 100,000**	**95% CIs**	
Māori	781	32.1	185.68	172.88	199.17
Pacific	317	13.0	216.31	193.15	241.48
Asian	270	11.1	93.24	82.45	105.06
MELAA	55	2.3	184.75	139.17	240.48
European/other	1,013	41.6	160.33	150.61	170.52
Total	**2,436**	**100.0**	**160.44**	**154.13**	**166.94**
Not stated/ Unknown	< 6	-	-	-	-
Age group: 5 - 9 years					
Ethnicity	**Number**	**%**	**Rate per 100,000**	**95% CIs**	
Māori	528	28.9	115.52	105.87	125.81
Pacific	242	13.3	146.26	128.41	165.90
Asian	144	7.9	56.31	47.49	66.30
MELAA	28	1.5	99.57	66.15	143.92
European/other	883	48.4	116.02	108.50	123.94
Total	**1,825**	**100.0**	**109.45**	**104.49**	**114.59**
Not stated/ Unknown	-	-	-	-	-
Age group: 10 - 14 years					
Ethnicity	**Number**	**%**	**Rate per 100,000**	**95% CIs**	
Māori	466	29.4	110.06	100.30	120.53
Pacific	208	13.1	136.15	118.28	155.97
Asian	111	7.0	54.09	44.50	65.14
MELAA	30	1.9	132.28	89.23	188.84
European/other	771	48.6	98.80	91.95	106.03
Total	**1,586**	**100.0**	**100.10**	**95.24**	**105.15**
Not stated/ Unknown	< 6	-	-	-	-

Additional data tables related to animate mechanical forces

Table 53: Tamariki hospitalisations for injury from animate mechanical forces, per year, 2012–2021

Hospitalisation from animate mechanical forces				
Year	**Number**	**Rate per 100,000**	**95% CIs**	
2012	414	45.70	41.41	50.32
2013	436	47.98	43.58	52.70
2014	475	51.84	47.28	56.72
2015	411	44.49	40.29	49.00
2016	465	49.93	45.49	54.68
2017	411	43.77	39.64	48.22
2018	417	44.06	39.93	48.50
2019	403	42.24	38.22	46.57
2020	328	34.11	30.52	38.01
2021	358	36.94	33.21	40.97

Table 54: Tamariki hospitalisations for injury from animate mechanical forces, by age group and top three causes, 2017–2021 [204]

Age group: 0 - 4 years				
	Number	**Rate per 100,000**	**95% CIs**	
Accidental hit, strike, kick, twist, bite, scratch or trample by another person	154	10.14	8.60	11.88
Contact with dog	278	18.31	16.22	20.59
Bitten or stung by nonvenomous insect and other nonvenomous arthropods	84	5.53	4.41	6.85
All animate mechanical injury	**554**	**36.49**	**33.51**	**39.66**
Age group: 5 - 9 years				
	Number	**Rate per 100,000**	**95% CIs**	
Accidental hit, strike, kick, twist, bite, scratch or trample by another person	258	15.47	13.64	17.48
Contact with dog	267	16.01	14.15	18.05
Bitten or stung by nonvenomous insect and other nonvenomous arthropods	54	3.24	2.43	4.23
All animate mechanical injury	**625**	**37.48**	**34.60**	**40.54**
Age group: 10 - 14 years				
	Number	**Rate per 100,000**	**95% CIs**	
Accidental hit, strike, kick, twist, bite, scratch or trample by another person	510	32.19	29.46	35.11
Contact with dog	151	9.53	8.07	11.18
Bitten or stung by nonvenomous insect and other nonvenomous arthropods	20	1.26	0.77	1.95
All animate mechanical injury	**738**	**46.58**	**43.28**	**50.07**

204. As only the top three causes are presented, the numbers will not add up to the total numbers (represented in the 'All animate mechanical injury' row).

Additional data tables related to tamariki injury from poisoning

Table 55: Tamariki hospitalisations for injury from poisoning, per year, 2012–2021

Year	Number	Rate per 100,000	95% CIs	
2012	278	30.69	27.19	34.52
2013	243	26.74	23.48	30.32
2014	264	28.81	25.44	32.50
2015	272	29.44	26.05	33.16
2016	276	29.63	26.24	33.34
2017	247	26.31	23.13	29.80
2018	217	22.93	19.98	26.19
2019	205	21.49	18.65	24.64
2020	220	22.88	19.96	26.11
2021	223	23.01	20.09	26.24

Table 56: Tamariki hospitalisations for injury from poisoning, by cause, 2017–2021

Cause	Number	%
Accidental poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics	191	17.2
Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified	220	19.8
Accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified	105	9.4
Accidental poisoning by and exposure to other drugs acting on the autonomic nervous system	57	5.1
Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances	317	28.5
Accidental poisoning by and exposure to alcohol	10	0.9
Accidental poisoning by and exposure to organic solvents and halogenated hydrocarbons and their vapours	38	3.4
Accidental poisoning by and exposure to other gases and vapours	9	0.8
Accidental poisoning by and exposure to pesticides	20	1.8
Accidental poisoning by and exposure to other and unspecified chemicals and noxious substances	145	13.0
Total:	**1,112**	**100.0**

Table 57: Tamariki hospitalisations for injury from poisoning, by age group and top three causes, 2017–2021

Age group: 0 - 4 years				
	Number	**Rate per 100,000**	**95% CIs**	
Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances	258	16.99	14.98	19.20
Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified	175	11.53	9.88	13.37
Accidental poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics	169	11.13	9.52	12.94
All unintentional poisoning	**911**	**60.00**	**56.17**	**64.03**
Age group: 5 - 9 years				
	Number	**Rate per 100,000**	**95% CIs**	
Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances	31	1.86	1.26	2.64
Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified	21	1.26	0.78	1.93
Accidental poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics	10	0.60	0.29	1.10
All unintentional poisoning	**100**	**6.00**	**4.88**	**7.29**
Age group: 10 - 14 years				
	Number	**Rate per 100,000**	**95% CIs**	
Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances	28	1.77	1.17	2.55
Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified	24	1.51	0.97	2.25
Accidental poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics	12	0.76	0.39	1.32
All unintentional poisoning	**101**	**6.38**	**5.19**	**7.75**

Additional tables related to tamariki injury from burns

Table 58: Tamariki hospitalisations for injury from burns, per year, 2012–2021

Year	Number	Rate per 100,000	95% CIs	
2012	287	31.68	28.12	35.57
2013	250	27.51	24.20	31.14
2014	232	25.32	22.17	28.80
2015	269	29.12	25.74	32.81
2016	275	29.53	26.14	33.23
2017	231	24.60	21.53	27.99
2018	225	23.77	20.77	27.09
2019	232	24.32	21.29	27.66
2020	255	26.52	23.36	29.98
2021	219	22.60	19.70	25.80

Table 59: Tamariki hospitalisations for injury from burns, by age group and top four causes, 2017–2021

Age group: 0 - 4 years				
	Number	**Rate per 100,000**	**95% CIs**	
Contact with hot drinks, food, fats, and cooking oils	366	24.10	21.70	26.71
Contact with other hot fluids	213	14.03	12.21	16.04
Contact with hot household appliances	110	7.24	5.95	8.73
Fire/flame related	51	3.36	2.50	4.42
Age group: 5 - 9 years				
	Number	**Rate per 100,000**	**95% CIs**	
Contact with hot drinks, food, fats, and cooking oils	40	2.40	1.71	3.27
Contact with other hot fluids	43	2.58	1.87	3.47
Contact with hot household appliances	9	0.54	0.25	1.02
Fire/flame related	36	2.16	1.51	2.99
Age group: 10 - 14 years				
	Number	**Rate per 100,000**	**95% CIs**	
Contact with hot drinks, food, fats, and cooking oils	20	1.26	0.77	1.95
Contact with other hot fluids	18	1.14	0.67	1.80
Contact with hot household appliances	<6	0.13	0.01	0.46
Fire/flame related	30	1.89	1.28	2.70

Appendix 3: Glossary

Te Reo Māori Glossary

Āhuru mōwai - Safe haven

Ao tūroa - Day of light

Aroha - Love/reciprocity

Atua Māori - Environmental guardians

He Kawa Ahuru - Clearing process (creating safe space)

He Kawa Whakairihia - Purification process (return to safe place)

Hōmiromiro - Alert

Hononga - Connection

Kahikatea - Whitepine

Kaho paetara - Panel on the side of the wall

Kaupapa - Matter, subject, initiative

Kaupapa (Inquiry) - Waitangi Tribunal Thematic Inquiry

Kaupapa Māori - Māori methodology and engagement

Kete - Basket

Kōrero tuku iho - Place-based knowledge/intergenerational knowledge

Kura kaupapa Māori - Total Māori immersion school

Mātauranga Māori - Māori knowledge, wisdom, understanding, skill

Moana - Sea

Mōkai - Pets

Mokopuna - Grandchildren/descendants

Mokoroa - Grub

Papatūānuku - Earth Mother

Pēpi - Baby, infant

Pōhiri - Cultural welcome

Pure - Clearing and setting of intentions

Ranginui - Sky Father

Rongo - Guardian of peace

Taimaha hārukiruki - Distressing

Tamaiti - Child

Tamariki - Children; for the purposes of this report, all children 0-14 years old

Tamariki Māori - Māori children

Tangata - People

Tāngata Whaikaha Māori - Māori with lived experience of disability. We recognise as equally valid the other terms that Māori with lived experience of disability use, such as Whānau Haua.

Tapu - Sacredness

Te ao Māori - Māoridom

Toa - Warrior exponent

Toitū - Endure

Tuia - Weave

Wairua - Spirit/spiritual

Wero - Challenge

Whakapapa - Genealogy

Whakataukī - Proverbial saying

Whānau - Extended family, family group

Whenua -Land

Glossary

Animate Mechanical Forces injury - Injury to a person through being struck, bitten, or otherwise injured by a human or animal, such as a dog, or insect.

Assault - Injury purposely inflicted by other persons.

Cut/Pierce - Injuries caused by cutting and piercing instruments or objects.

CYMRC - Child and Youth Mortality Review Committee.

DHB - District Health Board, entity responsible for hospital-level health services for the period that this data relates to (replaced in 2022 by Health New Zealand | Te Whatu Ora).

Drowning-related injury - Injury from submersion in water/liquid e.g., while swimming, in a bathtub or bucket, or following a water transport crash.

Equity - In Aotearoa, people have differences in health that are not only avoidable but unfair and unjust. Equity recognises that people with different levels of advantage require different approaches and resources to get equitable health outcomes.

Fall - Injury resulting from a fall, e.g., from stairs, tripping, slipping, or from playground equipment.

Fire/Flame - Injury caused by fire and flames e.g., conflagration in a private dwelling, conflagration in other building or structure, ignition of clothing, ignition of highly flammable material.

Hospitalisation - When a tamaiti stays overnight at a hospital. It excludes day stay cases (those who do not stay in the hospital past midnight).

Hospitalisation rates - Rate of hospitalisation per 100,000 of the age-specific population.

Hot object/Substance - Injuries caused by a hot substance or object, caustic or corrosive material and steam.

Inanimate Mechanical Forces - Injury to a person struck by, cut, or otherwise injured by an object. This includes being caught, crushed, jammed, or pinched between objects. It can include sports injuries, jammed fingers, and injuries from sharp objects such as knives, scissors, or glass.

Injury - Unintentional injury, caused by an unintended event (for the purposes of this report).

MELAA - Middle Eastern, Latin American or African ethnicity.

Motor Vehicle Traffic Crash - Injury sustained in a land transport incident involving a motor vehicle on a street or highway including footpaths and cycleways (on-road). The injured tamariki may be a vehicle occupant, pedestrian, pedal cyclist or motorcyclist.

Motorcyclist - Rider or passenger on a motorcycle involved in a crash on a public road.

Natural/Environmental - Injuries from natural and environmental factors, e.g., excessive heat, excessive cold, hunger, neglect, venomous animals and plants, other injury caused by animals, lightning, cataclysmic storms, floods, earth surface movements, or other and unspecified environmental cause.

Non-motor vehicle/non-traffic - The combined injuries from the 'other pedal cyclist', 'other pedestrian' and 'other land transport' categories.

NZDep - The New Zealand Index of Deprivation (NZDep) is used as a proxy for socioeconomic status in this data book. NZDep measures the level of deprivation of people in small areas, using a set of variables such as income, employment, and living space. The NZDep quintiles range from the least relatively deprived areas in Aotearoa (NZDep quintile 1) to the most relatively deprived areas (NZDep quintile 5).

Occupant - Driver or passenger of a motorised transport vehicle, including car, van, truck, bus etc. involved in a crash on a public road.

Other Land Transport - Injury sustained in other land transport incidents, including off-road motor vehicle incidents, animal riders, all-terrain vehicles (ATVs) or 'other land transport' incidents.

Other Pedal Cyclist - Injury sustained by a pedal cyclist in an incident that did not involve a motor vehicle (e.g., non-collision pedal cycle incident, collision with stationary object) or in an off-road incident.

Other Pedestrian - Injury sustained by a pedestrian in an off-road incident (e.g., motor vehicle in driveway) or an incident that did not involve a motor vehicle (e.g., collision with pedal cyclist).

Other specified - All other specified causes of unintentional injury e.g., Caught, crushed, jammed or pinched in or between objects; Explosion and rupture of boiler; Foreign body entering Into or through eye or natural orifice; Exposure to other and unspecified inanimate mechanical forces; Exposure to electric transmission lines; Contact with explosive material, undetermined intent; Falling, lying or running before or into moving object, undetermined intent etc.

Other Transport - Injury from a transport crash excluding a motor vehicle on a public road, e.g., water transport, air and space transport.

Overexertion - Injury from overexertion and strenuous movement e.g., lifting, pulling, pushing, excessive physical exercise.

Pedal Cyclist - Rider or passenger on a pedal cycle involved in a crash on a public road.

Pedestrian - Any person involved in a crash on a public road who was not at the time of the accident riding in or on a motor vehicle, railway train, tram, animal-drawn or other vehicle, or on a pedal cycle or animal.

Poisoning - Unintentional poisoning by drugs, medicinal substances, biological, other solid and liquid substances, gases or vapours.

Prioritised ethnicity - a method of categorising ethnicity information where individuals are classified into one ethnic group, in a prioritised order as follows: Māori, Pacific, Asian, MELAA, Other, European.

Rate - Rate of hospitalisations or deaths per 100,000 of the age-specific population.

Self-Inflicted - Injury resulting from intentional self-harm.

Struck by or against - Injury from being struck by a falling object, or striking against, or being struck by objects or persons.

SUDI - Sudden unexpected death in infancy.

Suffocation – Injury caused by unintentional threats to breathing e.g. unintentional suffocation and strangulation in bed, inhalation of gastric contents or inhalation and ingestion of food causing obstruction of respiratory tract, other accidental hanging and strangulation.

Undetermined Intent - Where the intent of the injury has not been determined.

Unintentional injuries - Injuries caused by unintended events e.g. injuries from falls, motor vehicle crashes, drowning, burns, poisonings etc.

Unspecified - Where the cause of unintentional injury has not been specified in the coding.

He Kawa Whakairihia

Releasing of energy and apprehension

He Kawa whakairihia is a process that uses different metaphors relating to the inside of a carved meeting house to cleanse the negative energy and create a safe place for those present.

The first line "E rongo whakairihia ake ki runga" refers to the clearing of one's mind and spirit from any heavy burden that may be weighing on the individual and family. In days of old, once a vigorous task was completed, a Māori chief would suspend their kete (baskets of knowledge) on the kaho paetara (panel on the side of the wall), symbolising the removal of tapu (sacredness) and a return to te ao tūroa (the world of light). This act marked a moment of spiritual renewal, allowing one to reconnect with clarity and balance.

This kōrero tuku iho reminds us of the importance of clearing oneself and returning to your Āhuru Mōwai (safe place), a space of peace and renewal.

Whakairihia a roto, whakahouhia a waho	Renew my spirit, heart and mind that I may be enlightened
E Rongo e	Rongo (Guardian of Peace)
Ko tēnei ka whakairihia ake ki te kaho paetara o te whare	I suspend my basket of knowledge up above
Kia mahea ngā taumahatanga	So that I may be clear of any restraint
Kia mahea nga manukanuka	And that my mind and heart is at ease
Kia wātea a runga	Clear of burden
Kia wātea a raro	Clear of anxiety
Kia wātea a roto	Clear of obstacles
Kia wātea a waho	Clear of pain
E Rongo whakairihia ake ki runga	Renewed with clarity and purpose
Kia tina! (Tina)	We concur
Haumi e	United we stand in purpose ready to proceed
Hui e	Together
Taiki e!	Affirmative! It will be done

Unintentional Deaths and Injuries of Tamariki in Aotearoa

Databook and Policy Recommendations 2024