Kia hōmiromiro ai te tirotiro ki tua

So that our senses may be alert

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

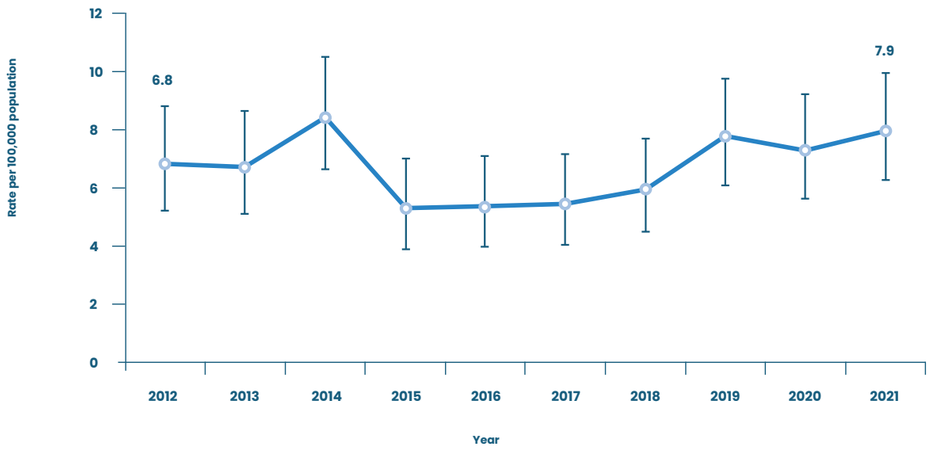
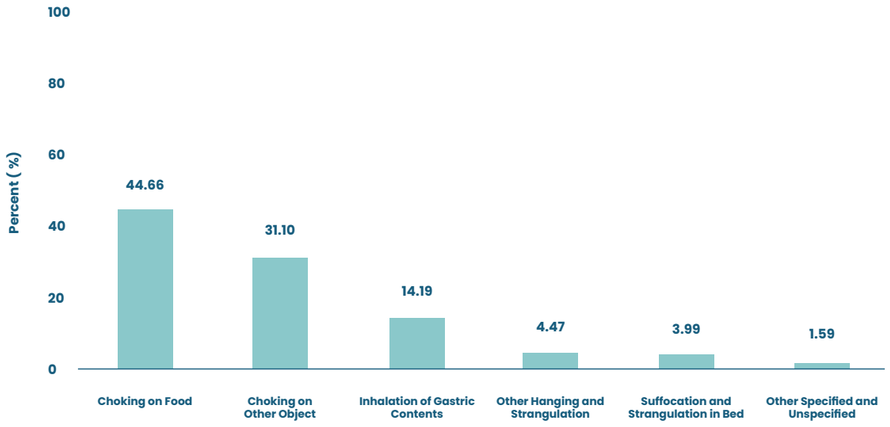


Figure 30: Tamariki Hospitalisations for injury from choking, suffocation, and strangulation, by leading cause, 2017–2021



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.

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

Age Group (Years)	No. of Hospitalisaions	%	Rate per 100,000	95% CIs	
0 - 4	296	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**

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.

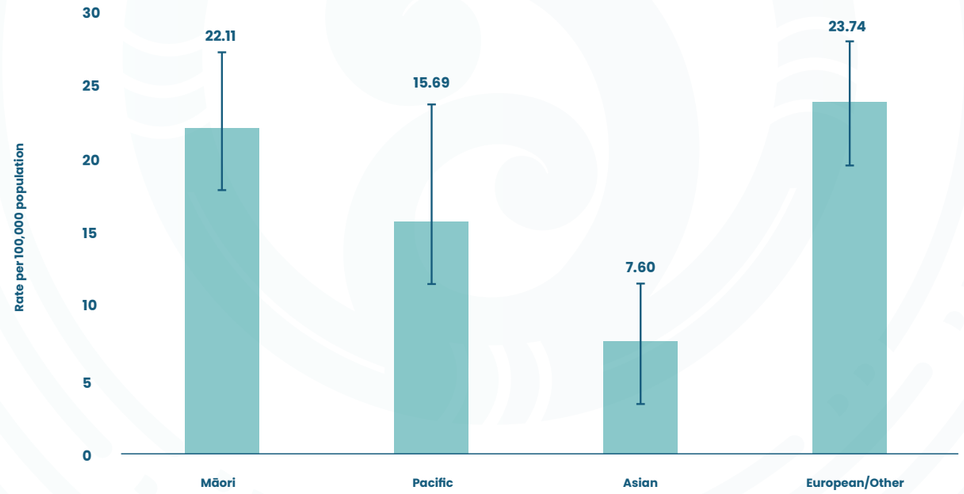
Ethnicity

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 analyse due to small numbers.*

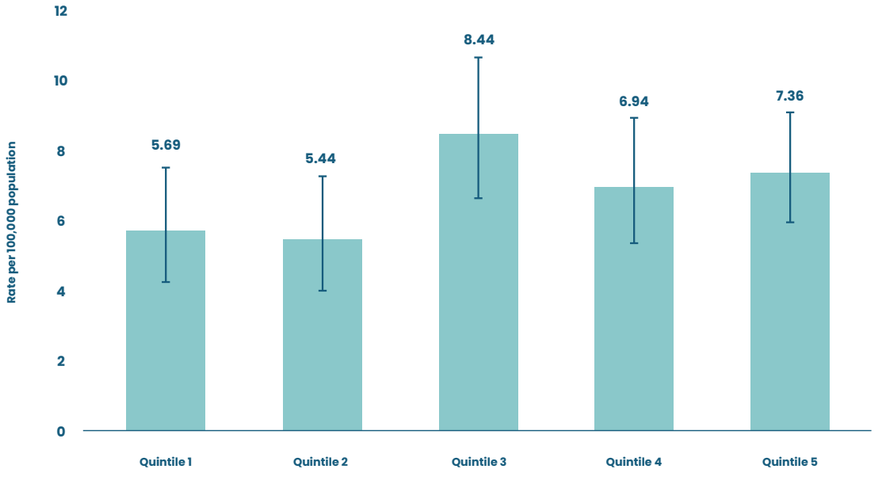
Socio-economic deprivation

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**



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

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

	Number	%	Rate per 100,000	95% CIs	
Female	133	40.5	5.73	4.80	6.79
Male	195	59.5	7.69	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.

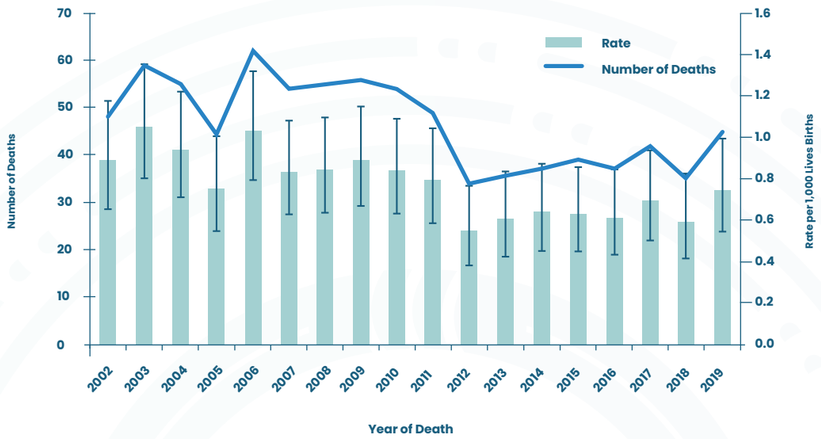
As the 15th data report from the Child and Youth Mortality Review Committee (CYMRC) includes the most authoritative current analyses on deaths occurring from SUDI, the following sections draw upon the data from that CYMRC report in relation to SUDI deaths in Aotearoa/New Zealand. The CYMRC reported:

- 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 - 19**
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]

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 in fants 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.

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

111. Ibid.

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]

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]

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
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