Growing Up in New Zealand Policy Brief

Keeping our children injury-free: household safety evidence from Growing Up in New Zealand

Introduction

Unintentional injury is a leading cause of death for New Zealand children, and an important public health concern. In 2007, New Zealand was ranked worst out of 24 OECD nations for rates of death from injury for those under 20 years of age. In addition, a great many more non-fatal injuries occur which require costly hospitalisation or other forms of medical attention, and which cause an important (and sometimes long-lasting) burden on children and their families. This burden is also known to be greatest amongst the most deprived, and therefore injuries contribute to the unequitable outcomes experienced by some children.[1-3]

Previous work has suggested that the proper implementation of evidence-based safety measures in New Zealand could prevent a majority of injuries where young children are particularly susceptible to harm. However, a recent systematic analysis of child and adolescent safety within New Zealand showed that there remain significant gaps in both policy development and implementation of safety measures for a range of injury types to which young children are particularly susceptible.[3] These include falls, poisoning, burns/scalds, and choking/strangulation. Home is the most common location where injuries to children under five years of age occur.[4] Currently in New Zealand there is research, policy and programme attention on improving the compliance of all housing towards minimum health and safety standards.[5,6] Standards proposed include: working smoke alarms, driveway and boundary fencing, safe power outlets, water heating set to safe temperature, secure storage for potential poisons, and pool fencing.[5] All of these measures have the potential to reduce home injuries among children. However, little is known regarding the current and potential impact of housing safety on the wellbeing of young children in New Zealand, nor of the most immediate and important targets for home safety improvement for this particularly injury-vulnerable population group.

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[1]Injury Prevention Research Unit Fact Sheet 38 (2007). Injury as a Leading Cause of Death and Hospitalisation. University of Otago. http://ipru3.otago.ac.nz/ipru/FactSheets/FactSheet38.pdf

[2]UNICEF (2007) Child poverty in perspective: An overview of child well-being in rich countries, *Innocenti Report Card* 7. UNICEF Innocenti Research Centre, Florence.

[3] Bland, V., et al. (2011). Child and adolescent injury report card: New Zealand 2009. *Journal of Paediatrics and Child Health*, 47(11), 783-787.

[4]Injury Prevention Research Unit Fact Sheet 27 (2002). Injuries in the Home to Children aged 0-4 years. University of Otago. http://ipru3.otago.ac.nz/ipru/FactSheets/FactSheet27.pdf

[5]Shepherd M., et al. (2012). Preventing child unintentional injury deaths: prioritizing the response to the New Zealand Child and Adolescent Injury Report Card. *Australian New Zealand Journal of Public Health*. 37(5):470-4.

[6]Gillespie-Bennett, J., et al. (2012). Improving health, safety and energy efficiency in New Zealand through measuring and applying basic housing standards. *The New Zealand Medical Journal*, 126(1379), 74-85.

Growing Up in New Zealand

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What is the *Growing Up in New Zealand* evidence?

Injuries in the first 1000 days of life

By the age of two years, 28% of the *Growing Up in New Zealand* children had sustained an injury that required a doctor, health centre or hospital visit. Although most of these children had sustained only one such injury, there were 307 children who had sustained two injuries, and 142 children who had sustained three or more injuries that needed medical attention by the time they were two years old. Of the children that had sustained at least one significant injury in their first two years of life, 7% had required hospitalisation for their most severe injury. The most common place for an injury to occur before the age of two years (in 69% of cases) was the children's own home (Figure 1).

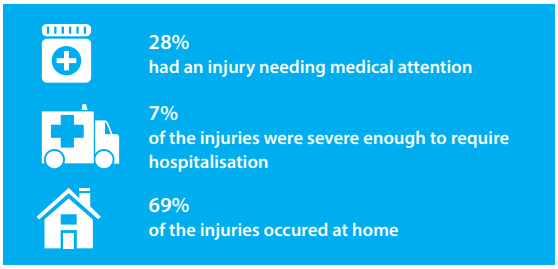

Figure 01: Key injury statistics for children up to two years of age

Of the injuries that occurred at home, the most common injury type was a knock to the head (without resulting in loss of consciousness). Broken or fractured bones, an injury to the mouth or tooth, and burns or scalds were also important contributors to home injuries within the *Growing Up in New Zealand* cohort (Figure 2). Swallowing objects or a poisonous substance occurred less frequently but still affected an important number of children.

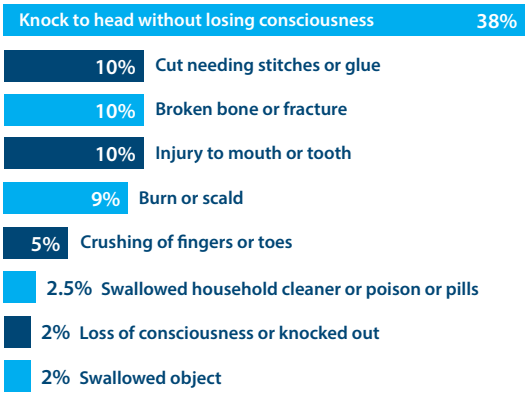

Figure 02: Most common type of injury that children under two years of age experienced at home

Household safety in families with two year old children

To explore the presence or absence of safety features in the homes of New Zealand families, information on specific measures of household safety was collected when the *Growing Up in New Zealand* children were two years old. Significant variation in the use of safety features was observed. Encouragingly, nearly all families reported using a car seat for their two year old all the time, the majority (85%) knew what to do if their child ate or drank something poisonous, around 80% kept matches out of reach and had working smoke alarms, and just over three quarters of two year olds had play areas fenced (Figure 3). Of concern, less than half of families reported having their hot-water adjusted to a safe temperature, 32% had doors or gates on stairs to prevent falls, and only 22% use electrical socket covers.

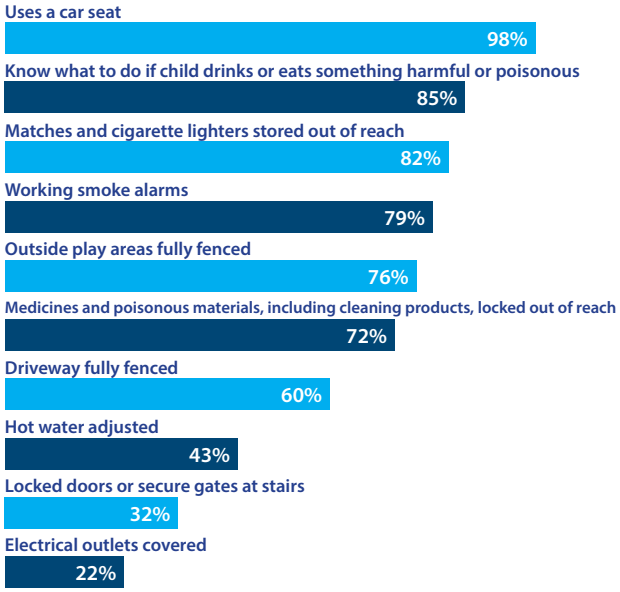

Figure 03: Proportion of *Growing Up in New Zealand* families that answered 'Yes' or 'Always' to questions about home safety measures.

Further exploration of three aspects of household safety are discussed in this briefing.

Working Smoke Alarms

The absence of smoke alarms in 21% of the *Growing Up in New Zealand* cohort is of concern. The New Zealand Fire Service acknowledge the absence of a functioning smoke alarm is a contributing factor to house fire injuries and fatalities in New Zealand, and this safety measure is therefore a focus of a current awareness campaign. Internationally, the targeted provision of smoke alarms through a multi-strategy community campaign has successfully increased the proportion of homes with working smoke detectors.[7]

Within *Growing Up in New Zealand,* the likelihood of having a working smoke alarm at home was significantly affected by housing tenure type as well as whether families were living in areas of socioeconomic deprivation (Figure 4).[8] Families that lived in private rental homes were less likely to have a working smoke alarm than those who lived in their own

[7]MacKay M et al. (2006). Child Safety Good Practice Guide: Good investments in unintentional child injury prevention and safety promotion. Eurosafe: European Child Safety Alliance, Amsterdam

[8] The effects of housing tenure and area level deprivation on the presence of working smoke alarms remained significant when self-prioritised maternal ethnicity and maternal age were adjusted for.

home, or in public (or social) rental accommodation (such as that provided by Housing New Zealand Corporation). In addition, families that lived in the most deprived areas (NZDep deciles 8-10) were less likely to have a working smoke alarm than those who lived in the least deprived areas (NZDep deciles 1-3).

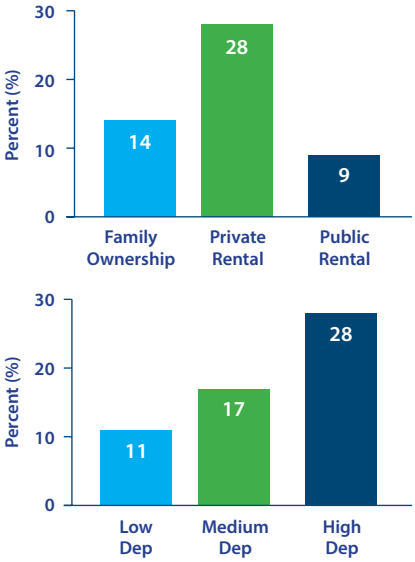

Figure 04: The percentage of homes without working smoke alarms by housing tenure (family ownership, private rental, public rental) and area level socioeconomic status (Low, medium or high deprivation). Low deprivation: NZDep deciles 1-3; Medium deprivation: NZDep deciles 4-7; High deprivation: NZDep deciles 8-10.

Fenced outdoor play areas and fenced driveways

Almost one quarter of *Growing Up in New Zealand* children did not have a fenced outdoor play area at home at age two years, and 40% did not have a fully fenced driveway. Serious injuries to toddlers from a vehicle driving on a private driveway in New Zealand are unfortunately common with devastating impacts on children and their families, and this area of home safety is a target for current policy and advocacy work.[9,10,11] Evidence from previous research suggests that physical separation of driveways from areas where children may play can reduce the rate of driveway injuries.[12]

The likelihood of *Growing Up in New Zealand* children having a fenced outdoor play areas or a fenced driveway was also influenced by housing tenure type.[13] Private rental properties were the least likely to have these areas fully fenced (Figure 5).

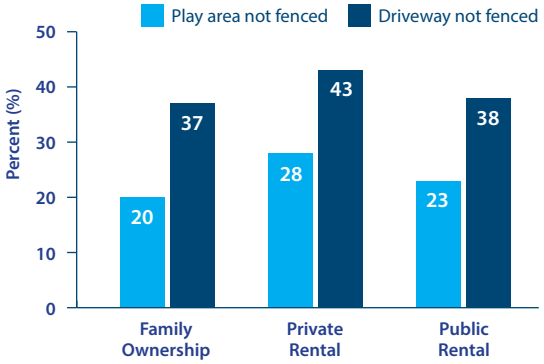

Figure 05: The proportion of homes without fenced outdoor play areas and without fully fenced driveways by housing tenure.

Hot water temperature

In New Zealand it is recommended that household hot water is adjusted to between 50 and 55 degrees Celsius, to reduce the risk of hot water scalds. This is because hot water burns or scalds can occur almost instantly (within 1 to 3 seconds) when the water temperature is 60°C, but it takes much longer (more than ten seconds) to cause a burn or scald when the hot water is at 54°C or below. Scalds or burns from hot liquids are a common cause of burn related injuries requiring medical attention (including hospitalisation) in New Zealand. Exposure to hot tap water not adjusted to the correct temperature is the second most frequent cause of hot liquid burn injuries, after hot drinks.

One quarter of *Growing Up in New Zealand* families did not have their hot water temperature adjusted to the recommended temperature. An additional one third of families did not know whether or not their hot water was set at the recommended temperature, or did not know what the recommended temperature was (Figure 6).[14-16]

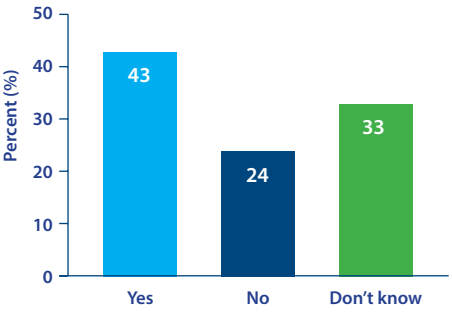

Figure 06: Whether hot water is adjusted to the recommended safe temperature in the homes of New Zealand two year olds.

The likelihood of having hot water adjusted to the recommended temperature was influenced by housing tenure, with 40% of families living in private rental homes knowing that their hot water was adjusted to a

[9]Murphy F, White S, & Morreau, P. (2002). Driveway-related motor vehicle injuries in the paediatric population: a preventable tragedy. *New Zealand Medical Journal,* 115(1160): U148
[10]Chambers, J. (2007). Understanding and acting to prevent driveway injuries to children. Safekids: Auckland, New Zealand
[11]Safekids New Zealand (2011) Safekids New Zealand position paper: Child driveway run over injuries. Safekids: Auckland, New Zealand.
[12]Roberts I, Norton R, & Jackson R (1995). Driveway-related child pedestrian injuries: a case-control study. *Pediatrics*. 95(3):405-8
[13]The effects of housing tenure on the presence of fenced driveways and fenced outdoor play areas remained significant when self-prioritised maternal ethnicity and maternal age were adjusted for.

[14]Feldman, K. W. et al. (1998). Tap water scald burns in children. *Injury Prevention*, 4(3), 238-242.
[15]Safekids New Zealand (2010). Fact sheet: Childhood Burn Injury. Safekids: Auckland, New Zealand.
[16]Barker R. et al.(2005). Queensland Injury Surveillance Unit. Burns and scalds in Queensland toddlers. Injury Bulletin. No. 89

recommended temperature, compared to 45% of those living in their own home or public (social) housing.

Sources of safety information

Evidence regarding the most common source of information about home safety is important to consider when designing health and safety promotion policy and programmes and a variety of safety information sources had been accessed by the *Growing Up in New Zealand* families by the time their children were two years of age (Figure 7). The most common sources of safety-related information were healthcare resources (38%) and family or friends (35%). The source of information accessed differed according to key characteristics of the families, such as parental ethnicity and education.

Those parents who identified as Māori were most likely to access safety information from family or friends. Those that identified as European, Pacific, and Asian were most likely to access safety information from healthcare providers. There was also variation of information source accessed within the healthcare provider category of safety resources. Pacific families were less likely to use the Well Child book than those that identified within other ethnic groups, but more likely to use information provided by their General Practitioner (family doctor).

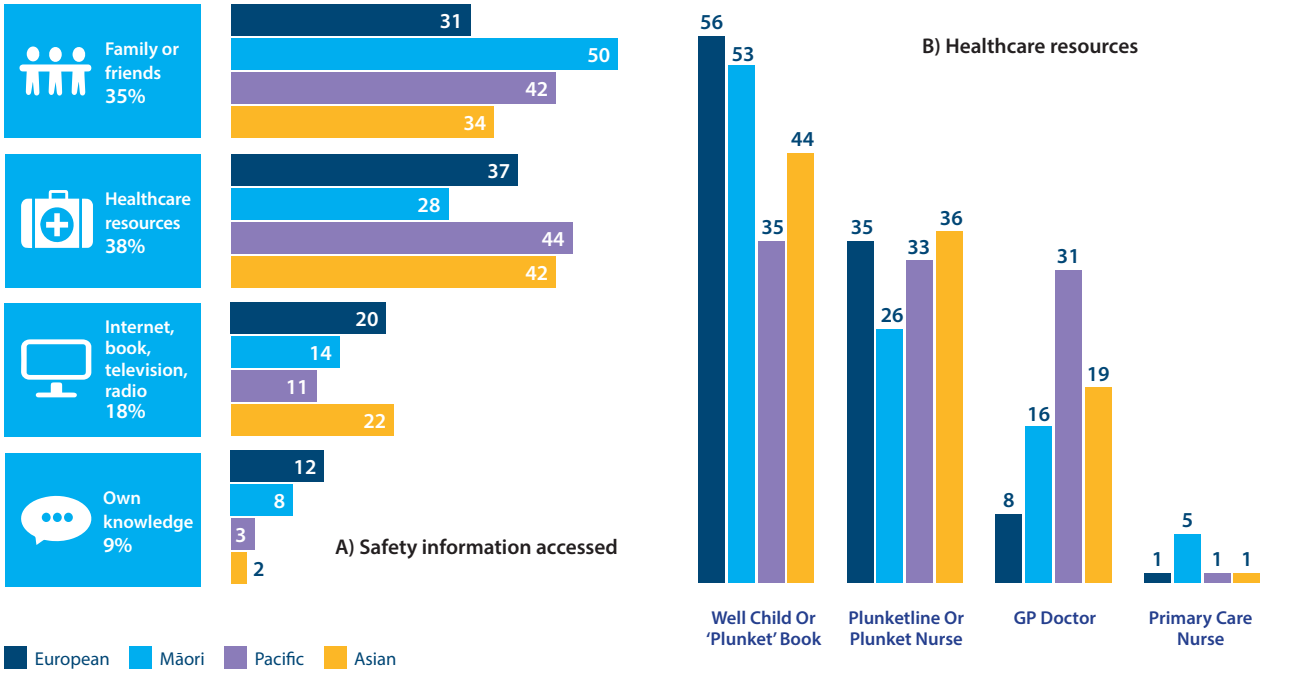

Figure 07: Most common source of safety information accessed by *Growing Up in New Zealand* families.
A) Proportion of mothers that accessed the four main safety information sources, by maternal ethnicity B) Specific 'Healthcare resources' safety information sources, by maternal ethnicity

What does this evidence mean for household safety policy and programmes in New Zealand?

- Unintentional injuries are common for children up to the age of two years in New Zealand, and they most commonly occur in the home
- Unintentional injuries to children cause significant burden to the children themselves, their families and New Zealand society
- Focusing on the home safety environment is important for reducing the cost of injuries to young children in New Zealand and there remains significant room for improvement in the home safety environment for all children
- Important home safety targets for improving outcomes for young children in New Zealand include: electrical outlet covers; fall prevention (including doors and gates on stairs); hot water temperature adjustment; fencing of driveway and play areas and working smoke or fire alarms
- Private rental accommodation is a particularly important target in order to improve the home safety environment for young children in New Zealand. This tenure type was the least likely to have: working smoke alarms; adjusted hot water temperature; a fenced play area; and a fully fenced or separated driveway
- The presence or absence of home safety measures differs by family socioeconomic status
- Families with young children are accessing information about home safety from a wide variety of sources
- Many families may be unable to improve aspects of their home safety environment, even if they are aware of safety related information, because of a combination of tenure (not their own home) and socioeconomic circumstances. This highlights the potential relevance of policy, programme, research and societal support for improvements to housing health and safety

About *Growing Up in New Zealand*

Growing Up in New Zealand is New Zealand's contemporary longitudinal study of child development, tracking the development of nearly 7000 children in the context of their diverse families and environments from before their birth until they are young adults.

Multidisciplinary longitudinal information has been collected from the *Growing Up in New Zealand* children, who were born in 2009 and 2010, and their families.[17] Each data collection of *Growing Up in New Zealand* seeks age-appropriate information across six inter-connected domains: family and whānau, societal context and neighbourhood, education, health and wellbeing, psychosocial and cognitive development, and culture and identity.[18] A number of face-to-face data collection waves have been conducted with the mothers, fathers and children of *Growing Up in New Zealand* from before birth and through the first 1000 days of life. It is intended for data collection waves to occur with the cohort every 2-3 years until they reach adulthood.

The *Growing Up in New Zealand* children are broadly generalisable to current New Zealand births,[19] and importantly the study collects evidence from families across the spectrum of socioeconomic status as well as ethnic diversity. The study includes significant numbers of tamariki Māori (1 in 4 of the cohort), Pacific children (1 in 5) and Asian children (1 in 6). Almost half of the cohort children are expected to identify with multiple ethnicities. This diversity of the families involved, as well as their ongoing commitment, helps to future-proof the information that can be provided from *Growing Up in New Zealand*. Retention rates are very high (over 92%) through to the preschool data collection wave which is in the field in 2014.

The unique information collected within *Growing Up in New Zealand* is designed to contribute evidence to inform

- a better understanding of the causal pathways that lead to particular developmental outcomes in contemporary New Zealand, and
- the effective evaluation, development and implementation of programmes and policy to optimise: support for families; health and development of children; and equity of outcomes across and within the New Zealand population.

The study is run by as a multi-disciplinary team of experts at the University of Auckland, who work in partnership with experts at other academic institutions as well as a large number of government agencies including the Families Commission and the Ministries of Social Development, Education, Health and others to ensure that up-to-date and appropriate evidence is provided for policy translation. A number of key reports and publications have already been produced from *Growing Up in New Zealand* and the resource provided is being increasingly utilised. Data from the *Growing Up in New Zealand* study is available for access. For further information on data access arrangements, copies of existing study publications, and contact details for our team please view www.growingup.co.nz

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[17]Morton SMB., et al. (2012). How Do You Recruit and Retain a Pre-Birth Cohort? Lessons Learnt From Growing Up in New Zealand. *Evaluation & the Health Professions*; DOI: 10.1177/0163278712462717.
[18]Morton SM., et al. (2013). Cohort profile: Growing Up in New Zealand. *International Journal of Epidemiology* 42:65-75.
[19]Morton SMB., et al. (2014). Growing Up in New Zealand cohort alignment with all New Zealand births. *Australian and New Zealand Journal of Public Health*. In press.

A *Growing Up in New Zealand* Policy Brief prepared by: Atatoa Carr P., Berry S., and Morton S., August 2014

Suggested citation: Growing Up in New Zealand (2014). Growing Up in New Zealand Policy Brief. Keeping our children injury-free: household safety evidence from Growing Up in New Zealand. Auckland: Growing Up in New Zealand.

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