FACTSHEET: CHILDHOOD FALL INJURY 2012

Childhood Fall Injury

On a global scale fall related injuries are one of the main causes of injury related child disabilities.[1] In New Zealand, fall related injuries are the leading cause of unintentional child injury resulting in hospital admission, for children aged 0 –14 years.[2,3]

Deaths:

- Each year in New Zealand, on average two children die from a fall-related injury (2003 – 2007). Children aged 0 to 4 years accounted for half of all child fall related injury deaths.
- Causes of these deaths included falling from a wheelchair, playground equipment, on and from a ladder, out of or through a building or structure, tree, cliff and from one level to another.
- Boys accounted for 75 percent of all child fall-related deaths.[4]

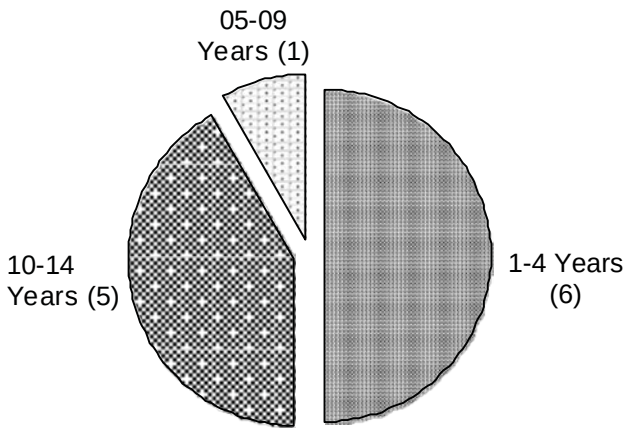
Hospitalisations:

(Note: This data is for primary admissions only and have been admitted to hospital for 24 hours or more)

- Fall related injuries (2005-2009) account for almost half (48%; 19,503) of all child unintentional Injury hospital admissions in New Zealand.[2,3]
- On average, 3,901 children (2005-2009) are hospitalised with fall-related injuries each year in New Zealand. This equates to an average of 11 hospital admissions each day.
- More boys (60%) than girls (40%) are hospitalised with fall related injuries.[4]
- Falls from *playground equipment* (37%) are the leading cause of fall related injury hospital admissions among children.4 Of all the falls from *playground equipment* where the scene of the injury was identified, 21 percent involved *playground equipment* used in and around the home.
- In New Zealand, hospital admissions for a fall related injury were *significantly higher* for children of Māori ethnicity (667.3 per 100,000), than for any other ethnic group. Fall related injury admissions were also *significantly higher* for male children (700.9 per 100,000) than females (504.2 per 100,000), and children in urban areas (628.7 per 100,000) than rural areas (468.4 per 100,000).
- Analysis of hospital admission statistics for fall related injuries has also been shown to exhibit a socio-economic gradient - where fall related injuries are *significantly higher* for children living in more deprived areas (High Dep. 9-10: 766.7 per 100,000; Low Dep. 1-2: 458.5 per 100,000).[3]

Figure One

Fall Related Injury Fatality by Age Group, New Zealand Child Aged 0-14 Years, 2003-2007. (n=12)



Source: Data provided by the Injury Prevention Research Unit (IPRU), University of Otago. July 2011

Age

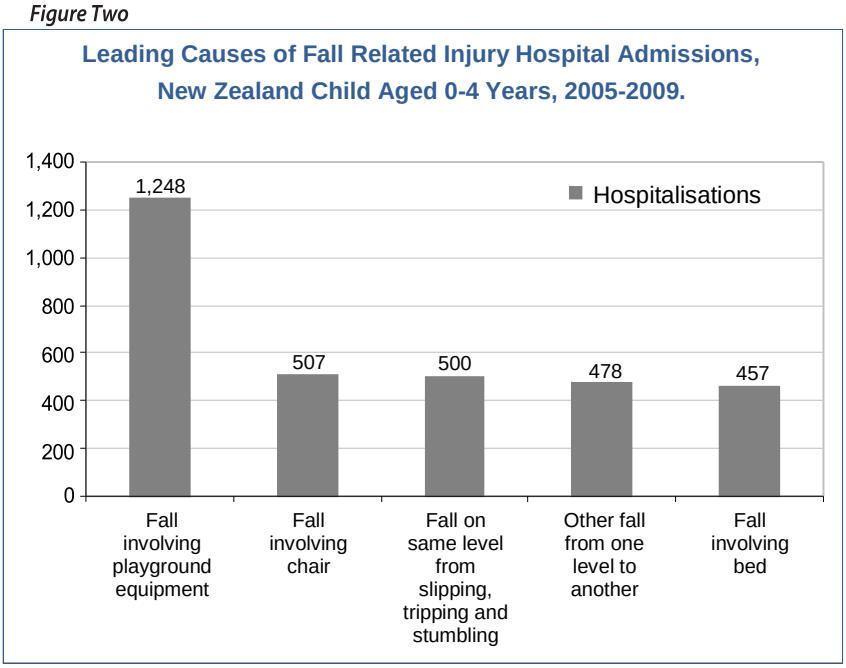
Child Hospitalisation for Unintentional Fall Related Injury by Age Group, New Zealand Child Aged 0-14 Years, 2005-2009.

Age Group	Number of Discharges	Annual Average	Crude Rate (per 100,000 persons)
0-4 Years	5,178	1,036	352.7
5-9 Years	8,669	1,734	597.8
10-14 Years	5,655	1,131	369.8
Total	**19,502**	**3,900**	**438.5**

Children Aged 0 to 4 years

- On average (2005-2009), 1,036 pre-schoolers each year were injured severely enough to be admitted to hospital with a fall related injury.
- Different age groups experience fall-related injuries in different settings. Children under five years are predominantly injured from a fall *in and around the home* (72%).
- Falls from *playground equipment* were the most common cause of injury, accounting for a quarter (25%) of hospitalisations, followed by pre-schoolers *falling off a chair* (10%) and fall from *slipping, tripping and stumbling on same level ground or surface and fall from one level to another* (10%).[2,4]
- Of all the falls from *playground equipment* where the scene of the injury was identified, 40 percent involved *playground equipment* used in and around the home.[4]

Figure Two

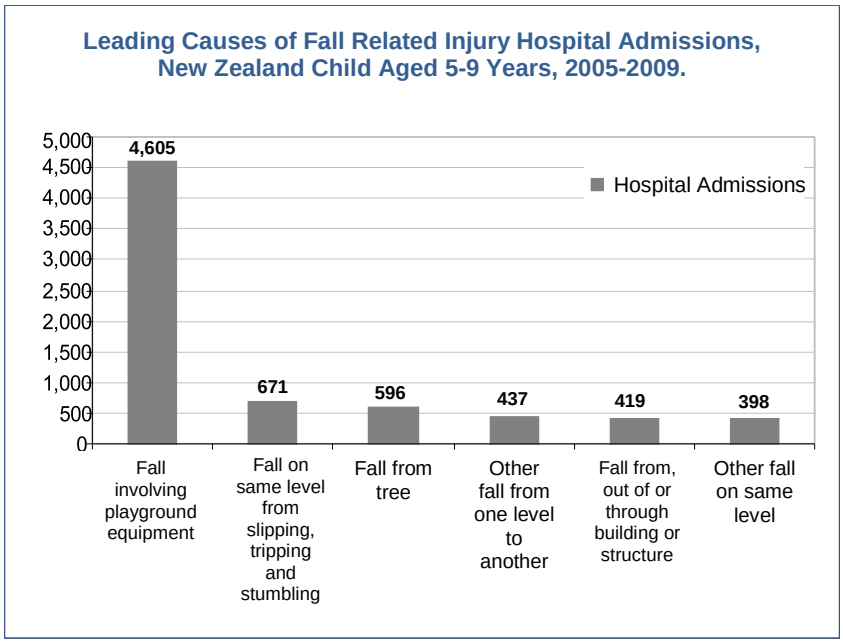


Source: Data provided by the Injury Prevention Research Unit (IPRU), University of Otago. July 2011

Playground Equipment – Fall Height

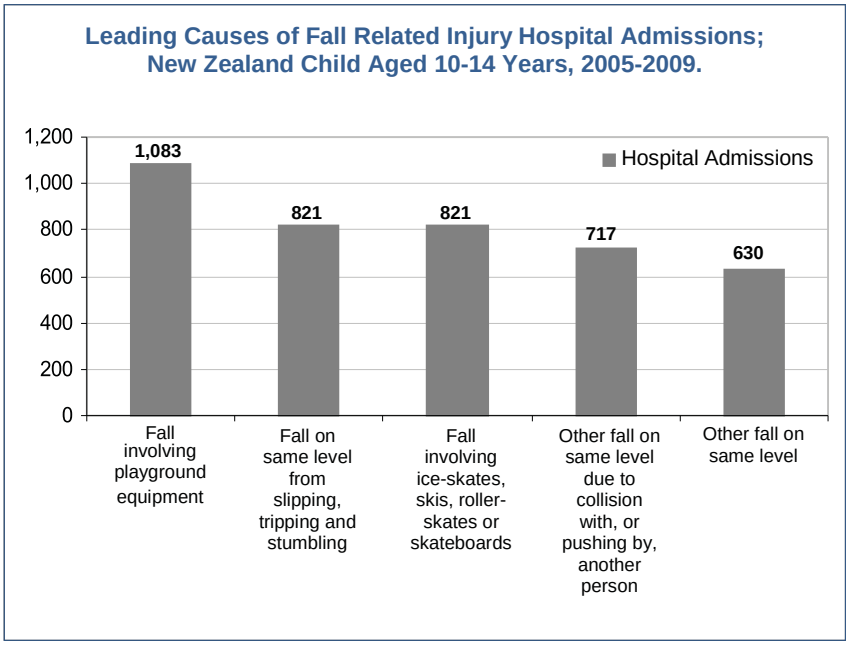
Studies have shown that short vertical falls of less than 1.5 metres do not commonly cause multiple or visceral injuries in young children.[5] Falls from heights greater than 1.5 metres increase the risk of injury to 4.1 times that of falls from 1.5 metre heights or lower. It has been estimated that if the fall height of play equipment was lowered to 1.5 metres, a 45 percent reduction in children attending emergency departments following falls from playground equipment could be achieved.[6]

Figure Three:



Source: Data provided by the Injury Prevention Research Unit (IPRU), University of Otago. July 2011

Figure Four:



Source: Data provided by the Injury Prevention Research Unit (IPRU), University of Otago. July 2011

Children Aged 5 to 9 Years

- On average (2005-2009), 1,734 children in this age group were admitted to hospital with a fall related injury annually.
- Between 2005 and 2009 the 5 to 9 year age group (44%) had the highest percentage of children hospitalised with a fall related injury.[4]
- Children aged 5 to 9 years are predominantly injured from a fall at *school, other institution or a public administrative area** (47%).
- Falls from *playground equipment* were the most common cause of injury, accounting for more than half (54%) of hospitalisations.
- Children aged 5 to 9 were also injured severely enough to be admitted to hospital from falls caused by *slipping, tripping and stumbling on same level ground or surface* (8%), and falling *out of trees* (7%)
- Of all the falls from *playground equipment* where the scene of the injury was identified, almost two-thirds (64%) involved *playground equipment* located in a *school, other institution or a public administrative area*.

Children Aged 10 to 14 Years

- On average (2005-2009), 1,131 children aged 10 to 14 years were admitted to hospitals following a fall related injury each year.
- The majority of fall related injuries occurred at a *school, other institution or a public administrative area**(31%), *sports or athletics area* (29%) and *at* ***home*** **(21%).**
- Falls from *playground equipment* were the most common cause of injury, accounting for 20 percent of hospitalisations.
- Children aged 10 to 14 were also injured severely enough to be admitted to hospital from falls caused by *slipping, tripping and stumbling on same level ground or surfaces* (15%), falls involving *ice-skates, skis, roller-skates or skateboards* (15%), and falls on *same level ground or surface due to collision with, or pushing by, another person* (13%).
- Of all the falls from *playground equipment* where the scene of the injury was identified, almost half (49%) involved *playground equipment* located in a *school, other institution or a public administrative area*.[4]

Some Effective Interventions [7,8] **		
	Evidence statement	**Transfer and Implementation points**
Engineering	Window safety mechanisms to prevent children from opening windows, such as bars and position locking devices, are an effective strategy to prevent falls.	- Window bars have been shown to reduce deaths from window falls by 35%. - Regulations requiring window safety mechanisms on rental housing appear to be the most effective approach when working in areas of social deprivation. - Parental knowledge and availability, accessibility, cost and ease of use of window safety mechanisms will impact their uptake.
	Stair gates have shown to assist in the reduction of falls down stairs to young children when used at the top of stairs in households.	- Parental knowledge and stair gate availability, accessibility, cost and ease of use will impact their uptake. - Pressure gates should not be used at the top of stairs.
	Surfacing materials such as sand or wood chips to a depth of 23-31 cm can be recommended as effective injury prevention strategies in preventing playground equipment related injuries. Optimal equipment height to reduce risk of head injury is 1.5 m.	- Level of enforcement will impact effectiveness. - Regular maintenance of surfacing materials is necessary to retain protective effect. - Standards are most effective when supported by educational activities.
Enforcement	Legislation banning baby walkers OR requiring product modification to remove the mobility issue permanently removes a larger portion of existing risk than parental supervision.	- Level of enforcement will impact effectiveness. - Legislation is most effective when supported by educational activities.
	Enforcement of standards requiring safe depth of specified types of surfacing materials and regular maintenance of those materials is more effective than standards alone in reducing playground equipment related injuries.	- Level of enforcement impacts effectiveness. - Standards are most effective when supported by educational activities. - Surfacing standards address risk of head injury, not injuries to arms and legs.
Education	Educational programmes encouraging use of fall prevention safety devices such as window safety mechanisms to prevent children from opening windows and down stairs increase use of equipment.	- Parental knowledge and availability, accessibility, cost and ease of use of safety measures will impact their uptake. - Provision and instalment of free equipment is more likely to increase use, particularly in lower income settings.

Conclusion:

While childhood falls are often viewed as 'part' of growing up, they can cause serious injury and, in some cases can be fatal. When it comes to undertaking prevention strategies to reduce child fall related injuries; children's age and the setting in which they live and play must be considered.

References:

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2. Coggan Carolyn et al, *Falls in New Zealand: A study of mortality & morbidity data for all age groups.* Auckland, Injury Prevention Research Centre (IPRC) Te Puu Taki Aukati Whara: 2003. Report Series No 78.
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5. Khambalia, Amina et al. "Risk factors for unintentional injuries due to falls in children aged 0–6 years: a systematic review". *Injury Prevention*. 2006, Vol. 12: 378–385. doi:10.1136/ip.2006.012161
6. Chalmers David et al. "Height and surfacing as risk factors for injury in falls from playground equipment: a case-control study". *Injury Prevention*, 1996. Vol. 2 (2): 98-104.
7. MacKay, Morag et al. *Child Safety Good Practice Guide: Good investments in unintentional child injury prevention and safety promotion*. Amsterdam: European Child Safety Alliance, EuroSafe, 2006. p. 15. http://www.childsafetyeurope.org/publications/goodpracticeguide/info/good-practice-guide.pdf
8. Craig, Elizabeth, et al. (2010). *Preventing Home Based Injuries' in Preschool Aged Children: An Overview of the Evidence.* Dunedin, New Zealand Child and Youth Epidemiology Service: 2010. pp.10-11

* "Public Administrative areas" include places such as a church, court-house, post-office, gallery, etc. http://apps.who.int/classifications/apps/icd/icd10online/

** **Caution:** For assessing the effectiveness of interventions, randomised controlled trials (RCTs) are considered the gold standard however due to the complex nature of injury prevention it is often difficult to control for all the confounding factors associated with unintentional injuries such as fall related injuries. Changing the environment, for example, is unlikely to address the circumstances of most fall events that result in injury.

Further, the precautionary principle is applicable to injury prevention. Thus if the body of evidence suggests an intervention may be effective, but no high quality RCTs are available, consideration must be given to the possible harm of not acting to protect the child despite the scientific uncertainty.[8]

This factsheet was produced by Safekids NZ, March 2012

A Service Of Starship Children's Health

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