

INJURIES ARISING FROM THE ASSAULT, NEGLIGENCE OR MALTREATMENT OF CHILDREN

Introduction

Longitudinal studies suggest that 4-10% of New Zealand children experience physical abuse and 11-20% experience sexual abuse during childhood and that the long term consequences for these children are significant [1]. During the 1990s, New Zealand ranked 3rd highest amongst rich nations for its child maltreatment death rates [2], with 49 children <15 years dying as a result of maltreatment between 1996 and 2000. This situation does not appear to have improved over time, with mortality rates almost doubling during the late 1980s and changing very little since then [3]. Mortality represents the tip of the iceberg however, with the number of notifications to Child Youth and Family (CYF) for possible abuse or neglect increasing each year. In 2008, a total of 104,181 notifications were recorded by CYF and of these, 48,957 were deemed to require further action. This is of concern, as in addition to the physical effects, research has shown that survivors of childhood abuse often suffer long term psychological sequelae including depression, post-traumatic stress disorder, substance abuse, suicide / suicide attempts and high risk sexual behaviour [4].

This indicator explores hospital admissions and mortality from injuries arising from the assault, neglect or maltreatment of children aged 0-14 years using information from the National Minimum Dataset and Mortality Collection.

Data Source and Methods

Definition

1. Hospitalisations for Injuries Arising From the Assault / Neglect / Maltreatment of Children Aged 0-14 Years
2. Deaths from Injuries Arising from the Assault / Neglect / Maltreatment of Children Aged 0-14 Years

Data Source

1. Hospital Admissions

Numerator: National Minimum Dataset: Hospital admissions of children (0-14 years) with a primary diagnosis of injury (ICD9 800-995; ICD 10 S00-T79) and an external cause code of intentional injury (ICD-9 E960-968; ICD-10 X85-Y09) in any of the first 10 External Cause codes. As outlined in Appendix 4, in order to ensure comparability over time, all cases with an Emergency Department Specialty Code (M05-M08) on discharge were excluded

2. Mortality

Numerator: National Mortality Collection: Deaths in children (0-14 years) with a clinical code (cause of death) of Intentional Injury (ICD-9 E960-968; ICD-10 X85-Y09).

Denominator: NZ Census

Interpretation

The limitations of the National Minimum Dataset are discussed at length in Appendix 4. The reader is urged to review this Appendix before interpreting any trends based on hospital admission data.

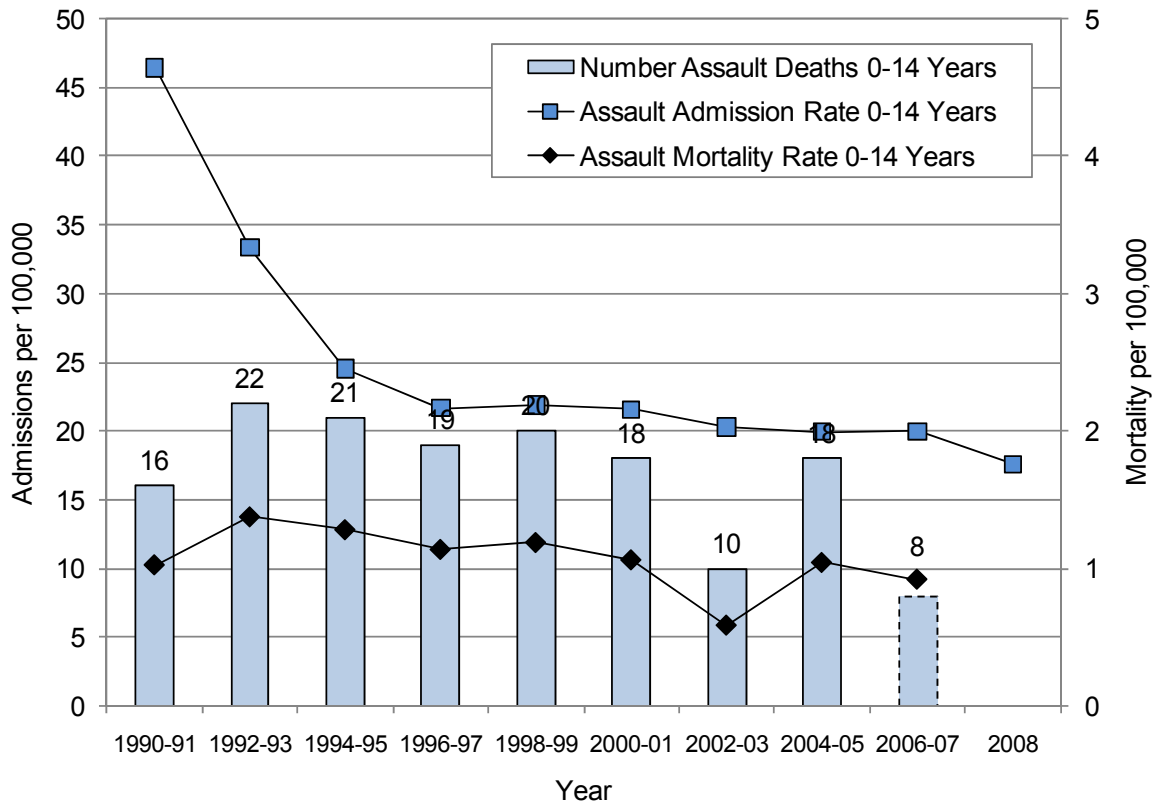
New Zealand Distribution and Trends

Hospital Admissions and Mortality: New Zealand Trends

In New Zealand, hospital admissions for injuries sustained as the result of the assault, neglect or maltreatment of children declined rapidly during the early 1990s, but since then the rate of decline has slowed markedly. Similarly, declines in mortality from injuries arising from the assault, neglect or maltreatment of children during 1990-2009 were not marked, with deaths averaging 9 per year during this period (**Figure 1**).

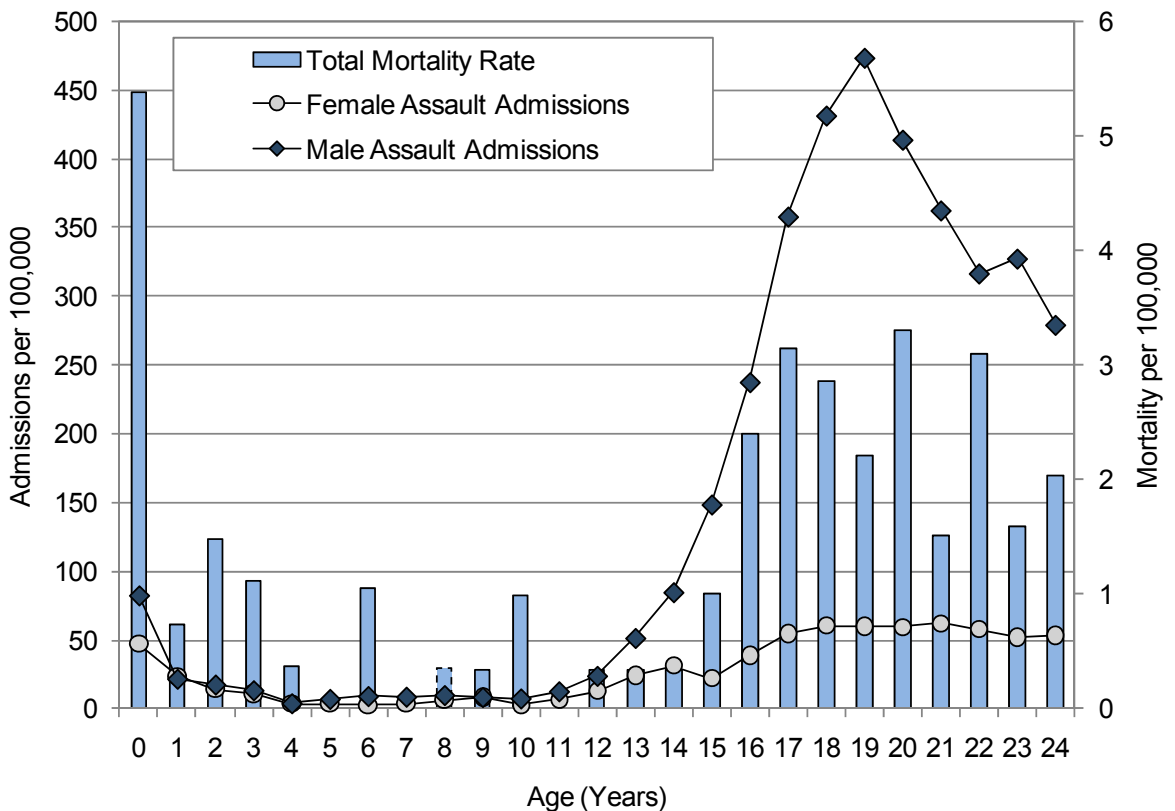


Figure 1. Hospital Admissions (1990-2008) and Deaths (1990-2006) due to Injuries Arising from the Assault, Neglect or Maltreatment of New Zealand Children 0-14 Years



Source: Numerators-National Minimum Dataset and National Mortality Collection; Denominator Census; Numbers of Deaths for 1990-2005 are per 2 year period. Deaths for 2006 are for single year only.

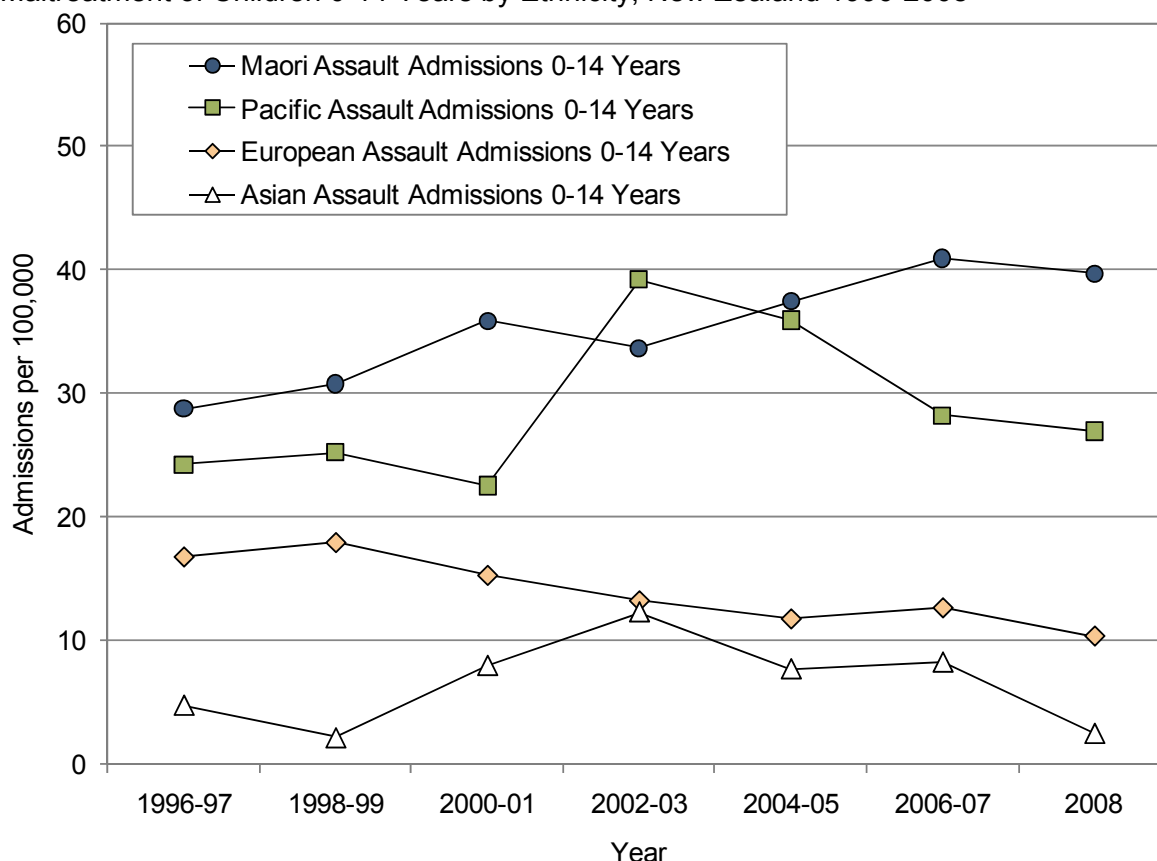
Figure 2. Hospital Admissions (2004-2008) and Deaths (2002-2006) due to Injuries Arising from the Assault, Neglect or Maltreatment of New Zealand Children and Young People by Age and Gender



Source: Numerators-National Minimum Dataset and National Mortality Collection; Denominator Census



Figure 3. Hospital Admissions due to Injuries Arising from the Assault, Neglect or Maltreatment of Children 0-14 Years by Ethnicity, New Zealand 1996-2008



Source: Numerator-National Minimum Dataset; Denominator Census; Ethnicity is Level 1 Prioritised

Table 1. Risk Factors for Hospital Admissions due to Injuries Arising from the Assault, Neglect or Maltreatment in Children 0-14 Years, New Zealand 2004-2008

| Variable | Rate | RR | 95% CI | Variable | Rate | RR | 95% CI |
|-----------------------------|------|-------|--------------|-------------------------------|------|------|-------------|
| NZ Deprivation Index Decile | | | | NZ Deprivation Index Quintile | | | |
| 1 | 3.6 | 1.00 | | 1 | 6.4 | 1.00 | |
| 2 | 9.3 | 2.63 | 1.47 - 4.69 | 2 | 10.3 | 1.62 | 1.16 - 2.27 |
| 3 | 8.4 | 2.37 | 1.31 - 4.29 | 3 | 15.6 | 2.45 | 1.78 - 3.35 |
| 4 | 12.2 | 3.44 | 1.96 - 6.04 | 4 | 24.1 | 3.79 | 2.81 - 5.10 |
| 5 | 13.6 | 3.82 | 2.18 - 6.67 | 5 | 36.8 | 5.77 | 4.36 - 7.64 |
| 6 | 17.6 | 4.96 | 2.88 - 8.53 | Ethnicity | | | |
| 7 | 18.9 | 5.33 | 3.10 - 9.14 | Māori | 39.3 | 3.32 | 2.85 - 3.87 |
| 8 | 29.1 | 8.18 | 4.86 - 13.78 | Pacific | 31.0 | 2.61 | 2.11 - 3.24 |
| 9 | 33.9 | 9.54 | 5.71 - 15.96 | European | 11.8 | 1.00 | |
| 10 | 39.2 | 11.02 | 6.63 - 18.31 | Asian | 6.8 | 0.57 | 0.38 - 0.87 |
| Gender | | | | | | | |
| Female | 13.7 | 1.00 | | | | | |
| Male | 25.0 | 1.83 | 1.59 - 2.11 | | | | |

Source: Numerator-National Minimum Dataset; Denominator-Census; Rate per 100,000 per year; Ethnicity is Level 1 Prioritised; RR: Rate Ratios are Compared to the European Group and are Unadjusted



Distribution by Age and Gender: New Zealand

In New Zealand during 2004-2008, hospital admissions for injuries arising from the assault, neglect or maltreatment of children exhibited a J-shaped distribution with age, with rates being higher for infants <1 year and those > 11 years of age. In contrast, mortality was highest for infants < 1 year. While the gender balance was relatively even during infancy and early childhood, admissions for males became more predominant as adolescence approached (**Figure 2**).

Distribution by Age, Gender, Ethnicity and NZ Deprivation Index Decile

In New Zealand during 2004-2008, hospital admissions for injuries arising from the assault, neglect or maltreatment of children were *significantly* higher for males, Māori and Pacific > European > Asian children, and those living in the most deprived areas (**Table 1**).

In New Zealand during 1996-2008, hospital admissions for injuries arising from the assault, neglect or maltreatment of children were consistently higher for Māori and Pacific > European > Asian children (**Figure 3**).

Table 2. Nature of Injury Arising from Assault, Neglect or Maltreatment in Hospitalised Children 0-12 Years by Age Group, New Zealand 2004-2008

| Injury Type | Total Number 2004-2008 | % of Age Group |
|--------------------------------|---------------------------|----------------|
| Age 0-4 Years | | |
| Traumatic Subdural Haemorrhage | 84 | 24.9 |
| Superficial Injury to Scalp | 57 | 16.9 |
| Fracture Skull / Facial Bones | 19 | 5.6 |
| Other Head Injuries | 33 | 9.8 |
| Upper Limb Injuries | 26 | 7.7 |
| Fractured Femur | 11 | 3.3 |
| Other Lower Limb Injuries | 16 | 4.7 |
| Maltreatment Unspecified | 41 | 12.2 |
| Other Injuries | 50 | 14.8 |
| Total | 337 | 100.0 |
| Age 5-12 Years | | |
| Superficial Injury to Scalp | 25 | 12.3 |
| Fracture Skull / Facial Bones | 21 | 10.3 |
| Other Head Injuries | 55 | 27.0 |
| Upper Limb Injuries | 38 | 18.6 |
| Lower Limb Injuries | 9 | 4.4 |
| Maltreatment Unspecified | 13 | 6.4 |
| Other Injuries | 43 | 21.1 |
| Total | 204 | 100.0 |

Source: National Minimum Dataset

Nature of the Injury Sustained

During 2004-2008, the type of intentional injury leading to hospital admission varied with the age of the child, with those in the 0-4 year age bracket tending to be assigned an ICD-10 Y07 "Maltreatment" code (including mental cruelty, physical abuse, sexual abuse or torture), while older children (particularly males aged 13-14 years) were more likely to be assigned to ICD-10 Y04 "Assault by Bodily Force" (including unarmed brawl or fight). While it is tempting to speculate that this reflects a transition towards assaults occurring in non-family contexts as children approach adolescence, the ICD-10 5th digit (describing the relationship of the victim to the perpetrator) was most frequently 9 (unspecified person), making such hypotheses difficult to substantiate. As a result of this likely transition, the



tables below consider only pre-school (0-4 years) and primary school (5-12 years) age children.

During 2004-2008, the most common types of injury sustained as the result of the assault, neglect or maltreatment of children aged 0-4 years were subdural haemorrhages and superficial scalp injuries, followed by fractures of the face and femur, and other injuries to the head and upper limbs. For children aged 5-12 years, head and upper limb injuries predominated, with fractures of the skull and facial bones being common (**Table 2**).

Summary

In New Zealand during 2004-2008, hospital admissions for injuries sustained as the result of the assault, neglect or maltreatment of children exhibited a J-shaped distribution with age, with rates being highest for infants < 1 year, and those > 11 years of age. In contrast, mortality was highest for infants < 1 year. While the gender balance was relatively even during infancy and early childhood, hospital admissions for males became more predominant as adolescence approached. In addition, admissions were also *significantly* higher for males, Māori and Pacific > European > Asian children, and those in the most deprived areas.

References

1. Ministry of Health, *Our Children's Health. Key Findings on the Health of New Zealand Children*. 1998, Ministry of Health: Wellington. p. 1-197.
2. UNICEF, *A League Table of Child Maltreatment Deaths in Rich Nations*. Innocenti Report Card, 2003(No. 5).
3. Ministry of Social Development, *The Social Report 2004*. 2004, Ministry of Social Development: Wellington. p. 106-107.
4. Kendell-Tackett, K., *The Health Effects of Childhood Abuse: Four Pathways by Which Abuse Can Influence Health*. *Child Abuse and Neglect*, 2002. **26**: p. 715-729.

