

**The New Zealand Injury  
Prevention Strategy  
serious injury outcome  
indicators:**

**Technical report**

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**November 2008**

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## *Foreword*

Presented here are the technical specifications for the New Zealand Injury Prevention Strategy serious injury outcome indicators. This document is provided to accompany the Chartbooks for those readers who wish for more detail, particularly relating to the methods of how the indicators were derived. The development of these outcome indicators was described in the report:

Cryer C, Langley J, Stephenson S. Developing valid injury indicators. A report for the New Zealand Injury Prevention Strategy. Injury Prevention Research Unit Occasional Report OR 049, Dunedin: University of Otago, September 2004. (<http://www.nzips.govt.nz/documents/serious-injury-indicators-2004-09.pdf>)

## *Abbreviations*

ACC	Accident Compensation Corporation
Cryer 2004 report	Cryer C, Langley J, Stephenson S. Developing valid injury indicators. A report for the New Zealand Injury Prevention Strategy. Injury Prevention Research Unit Occasional Report (OR 049), Dunedin: University of Otago, September 2004.
ICD	WHO International Classification of Diseases
ICD-9	WHO International Classification of Diseases 9 <sup>th</sup> revision
ICD-9-CM	WHO International Classification of Diseases 9 <sup>th</sup> revision, Clinical Modification
ICD-10	WHO International Classification of Diseases 10 <sup>th</sup> revision
ICD-10-AM	WHO International Classification of Diseases 10 <sup>th</sup> revision, Australian Modification
ICISS	ICD-based Injury Severity Score
IPRU	Injury Prevention Research Unit, University of Otago, New Zealand
LTNZ	Land Transport New Zealand
MVTC	Motor vehicle traffic crashes
NMDS	NZHS National Minimum Data Set of hospital discharges
NZHS	New Zealand Health Information Service
NZIPS	New Zealand Injury Prevention Strategy
SNZ	Statistics New Zealand
SRR	Survival Risk Ratio
TCR	Police Traffic Crash Report
Technical Report	The New Zealand Injury Prevention Strategy serious injury outcome indicators: Technical report
WHO	World Health Organisation
WRFIS	Work-Related Fatal Injury Study
WSNZ	Water Safety New Zealand

# **Chapter 1: Background**

## *1.1 The New Zealand Injury Prevention Strategy*

The [New Zealand Injury Prevention Strategy \(NZIPS\)](#) is an expression of the Government's commitment to working with organisations and groups in the wider community to improve the country's injury prevention performance.

The Strategy's broad structure includes a vision, principles, goals, objectives and actions. The Strategy's vision is 'a safe New Zealand, becoming injury free', which is supported by two goals:

- to achieve a positive safety culture, and
- to create safe environments.

Ten key objectives are identified which are designed to address the vision and goals of NZIPS. (For further details see [www.nzips.govt.nz](http://www.nzips.govt.nz).)

Six priority areas are referred to in the objectives and actions. Those priority areas are:

- Assault,
- Workplace injuries,
- Suicide and deliberate self harm,
- Falls,
- Motor vehicle traffic crashes, and
- Drowning and near-drowning.

Serious injury outcome indicators (fatal and non-fatal) have been developed for these areas as one of the means of measuring performance in reducing injury. The purpose of the chartbooks is to present trends for each of the NZIPS serious injury indicators, for each of these priority areas, in order to judge progress in the prevention of serious injury during the lifetime of the NZIPS. Chartbooks have been produced for the whole New Zealand population, for Maori and for children.

## *1.2 What is a serious injury?*

Internationally, the most commonly accepted operational definition of injury are those pathologies in the "Injury" chapter of the WHO's International Classification of Disease codes (ICD-codes). ICD codes are used by the New Zealand Health Information Service (NZHIS) to code mortality<sup>1</sup> and hospitalisation data<sup>2</sup>. For hospitalisations, the operational definition of injury, for the serious injury indicators developed for the NZIPS, is given by the following ICD-10 code ranges: for a case to be included it had to have a principal diagnosis code in the range S00-T78, and a first external cause code in the range V01-Y36. For deaths, a case was selected where the underlying cause of death is an external cause code in the range V01-Y36. For the years where ICD-9 was used, close equivalent codes were used to define a case of injury.

There is some dispute in the international community as to which codes within the ICD injury chapter are in fact injuries. This is discussed in Chapter 2.

Injuries were regarded as serious if they resulted in death, or resulted in admission to hospital and were associated with at least a 6% threat-to-life (ie. chance of death). Amongst first discharges from hospital with a primary diagnosis of injury, approximately 15% of these exceed this threat-to-life severity threshold. The methods by which such cases of serious injury are identified for the indicators in the chartbooks are described in Chapter 2.

Injuries which result in long term disability and substantial cost should also be regarded as serious. Regrettably, at present the methodologies for deriving valid indicators based on these dimensions have not been developed.

### *1.3 The indicators*

The development of the NZIPS indicators is described in the [Cryer 2004 report](#).<sup>3</sup> For ‘all injury’ and for each of the six priority areas, the authors used the following approach to identify candidate indicators:

- they identified existing national indicators through a named contact within the lead agency for the NZIPS priority area
- they suggested new fatal and non-fatal injury indicators for ‘all injury’ and then sought similar indicators for each of the priority areas.
- they subjected all of the candidate indicators to a systematic assessment of validity, using the ICE criteria<sup>4</sup>
- based on the results of that validation, they identified proposed and / or provisional indicators for each priority area.

A fundamental part of the development of these indicators was consultation. Consultation was with the NZIPS project team, NZIPS advisory groups, and with selected representatives from within New Zealand, as well as with the international research community. Furthermore the draft of the Cryer 2004 report was subject to formal international peer review.

The ICE criteria was used to validate the candidate indicators. These are a set of criteria for validating injury indicators that were agreed at a meeting of the International Collaborative Effort on Injury Statistics (ICE) in 2001. The criteria suggest that an ideal indicator should<sup>4</sup>:

- Have a case definition based on diagnosis – on anatomical or physiological damage
- Focus on serious injury
- Have, as far as possible, unbiased case ascertainment
- Be derived from data that are representative of the target population
- Be based on existing data systems (or it should be practical to develop new data systems)
- Be fully specified.

These criteria were developed solely in the context of indicators of injury incidence and, within that, on the characteristics of the incident cases. The less criteria that are satisfied, the more likely it is that the indicator will exhibit some threats to validity.

In this work, each of the above criteria was used to assess the validity of existing and the newly proposed injury outcome indicators. This was achieved by each of the principal authors of the original report<sup>3</sup> independently assessing the candidate indicators against these criteria. Those assessments were reconciled and found to be consistent.

Since the 2001 ICE meeting, other important characteristics of indicators, and the data on which they are based, have been suggested, namely:<sup>3</sup>

- Completeness and accuracy of source data
- Timeliness
- Ability to measure change over time
- Measurement that is practicable
- Readily comprehensible

Although these additional criteria were not considered systematically in the development of the NZIPS indicators, they were taken into account when assessing the existing and new indicators for the Cryer 2004 report.

The validated NZIPS serious injury indicators for ‘all injury’ are as follows:

- Frequency of injury deaths
- Age-standardised injury mortality rate, per 100,000 person-years at risk
- Frequency of serious non-fatal injuries
- Age-standardised serious non-fatal injury incidence rate, per 100,000 person-years at risk

These indicators are based on the New Zealand Health Information Service (NZHIS) Mortality data and National Minimum Dataset (NMDS - of hospital inpatient data). Frequencies reflect the societal burden of injury<sup>a</sup>, while rates reflect individual risk.

The NZIPS serious injury indicators for most of the priority areas are based on those for ‘all injury’. Where valid indicators could not be identified, provisional indicators were developed (see Cryer 2004 report).<sup>2</sup>

The NZIPS fatal and serious non-fatal injury indicators have been accepted by the government as outcome indicators to monitor the impact of the New Zealand Injury

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<sup>a</sup> The majority of injury discharges from hospitals in New Zealand are publicly funded. For 2002 it was estimated that 99% of all hospital injury discharges were publicly funded. 5. Ministry of Health. Selected morbidity data for publicly funded hospitals 2001/02. Wellington: New Zealand Health Information Service, 2005, 6. Ministry of Health. Selected morbidity data for privately funded hospitals 2002. Wellington: New Zealand Health Information Service, 2006.

Prevention Strategy. The provisional serious injury indicators were candidate NZIPS indicators, but which had some identifiable threats to validity.

These indicators will be used to examine trends over time. The high threshold used to define serious injury was chosen for the non-fatal injury indicators to reduce the likelihood of producing misleading time trends. For discussion and illustration of this point, see the Cryer 2004 report.<sup>2</sup>

The scope and definitions that were used in the development of the NZIPS serious injury indicators for each of the priority areas and for each groups for which Chartbooks have been produced (whole population, Maori and children) are presented in the following Chapters. These chapters include a description of the operational definition of injury and the scope of each of the priority areas. This operational definition excludes medical injuries, pathologies resulting from chronic exposures over time, and the consequences of injury (ie. only the admissions to hospital immediately following the injury event are counted, not subsequent episodes of treatment and care).

## **Chapter 2: Definitions, scope and the indicators**

## 2.1 Operational definition of injury

Internationally, the most commonly accepted operational definition of injury is all those pathologies in the “Injury” chapter of the WHO’s International Classification of Diseases (ICD-codes)<sup>7</sup>. ICD codes are used by the New Zealand Health Information Service (NZHIS) to code mortality<sup>1</sup> and hospitalisation data<sup>2</sup>.

For both of the mortality and hospitalisation data sets, diagnosis and external cause of injury were classified using ICD-10 in the most recent years. For hospitalisations, the operational definition of injury for these indicators is given by the following ICD-10 code ranges: for a case to be included it had to have a principal diagnosis code in the range S00-T78, and a first external cause code in the range V01-Y36. For deaths, a case is selected where the underlying cause of death is an external cause code in the range V01-Y36. For the years where ICD-9 was used, close equivalent codes were used to define a case of injury. For hospitalisations, only first admissions were counted.

There is some dispute in the international injury research community as to which pathologies within the ICD injury chapter are in fact injuries. This dispute is discussed below in relation to the chosen operational definition.

Some have argued that “Medical injuries” are outside the domain of traditional injury prevention and control. Using a standard theoretical definition of injury<sup>8</sup>, all surgical and some medical procedures can be regarded as injury events, whether or not there are complications. It has been argued that to include complications as injury events, but to remove surgical incisions, is somewhat arbitrary.<sup>8</sup> The International Collaborative Effort on Injury Statistics recommended that these events be tabulated separately, in routine statistics, in recognition that these events occur under a very distinct set of circumstances. The operational definition used for the NZIPS indicators excludes them altogether.

The “Injury” chapter of ICD excludes pathologies resulting from chronic exposure to low energy over time e.g. occupational overuse syndrome. These events lie at the interface between injury and disease. The indicator definitions exclude these pathologies also.

The “Injury” chapter of ICD-10 includes “Maltreatment syndromes” (T74). This category includes “Neglect and abandonment”, “Physical abuse”, “Sexual abuse”, and “Psychological abuse” without any reference to physical injury. In other words, some forms of **intentional** psychological harm / injury are covered by the “Injury” chapter of ICD. Consequently, intentional psychological injury, as encompassed by the ICD “Injury” chapter, is included in the definition of injury used in the chartbooks.

Finally, the operational definition of injury includes only first admissions<sup>9</sup>. Sequelae (late affects) of injuries have been excluded as these relate to the late consequences of an injury, rather than the injury itself. The aim of the indicators is to focus on the measurement of injury incidence, and so episodes of inpatient care resulting from the sequelae of injury have been excluded. For example, a burn victim often has multiple

hospital admissions relating to their treatment and rehabilitation. For these cases, their first admission would be included but subsequent admissions would not.

Many of the above issues are discussed by Langley in two papers published in 2004<sup>8 10</sup>.

### 2.1.1 All Injury

The ‘[all injury](#)’ indicators include all diagnoses, all causes and all intents that satisfy our operational definition of an injury (see above). The NZIPS serious injury outcome indicators for ‘all injury’ are:

- Number of injury deaths. (NZHIS Mortality data)
- Age-standardised injury mortality rate, per 100,000 person-years at risk. (NZHIS Mortality data)
- Number of serious non-fatal injuries. (NZHIS NMDS)
- Age-standardised serious non-fatal injury rate, per 100,000 person-years at risk. (NZHIS NMDS)
- Number of fatal and serious non-fatal injuries (NZHIS Mortality Collection and NZHIS NMDS)
- Age standardized mortality and serious non-fatal injury rate (per 100,000 person years at risk (NZHIS Mortality Collection and NZHIS NMDS)

The specifications for all of the indicators, including combined fatal and serious non-fatal injury indicators, can be found in Chapters 7-9.

### 2.1.2 Assault

The term ‘assault’ has been used to describe both fatal and non-fatal interpersonal violence which is used with the intent of causing harm, injury, or death to another. Homicide is death due to injuries inflicted through any means by another person with the intent to injure or kill<sup>11</sup>.

The above definition includes all acts of commission with the exception of injuries due to legal intervention and operations of war. It includes sexual assault and acts of omission (e.g. abandonment) where injury has occurred.

The following were agreed as [NZIPS indicators](#):

- Number of assaultive injury deaths. (NZHIS Mortality data)
- Age-standardised assaultive injury mortality rate, per 100,000 person-years. (NZHIS Mortality data)

The equivalent serious non-fatal and combined fatal and non-fatal injury indicators are

not entirely free of threats to validity. Consequently, the following are **provisional** NZIPS indicators:

- Number of assaultive serious non-fatal injuries (NZHIS NMDS)
- Age-standardised assaultive serious non-fatal injury rate, per 100,000 person-years at risk (NZHIS NMDS)
- Number of assaultive fatal and serious non-fatal injuries (NZHIS Mortality Collection and NZHIS NMDS)
- Age standardized assaultive mortality and serious non-fatal injury rate (per 100,000 person years at risk (NZHIS Mortality Collection and NZHIS NMDS)

### *2.1.3 Work-related injury*

The NZIPS priority area is entitled ‘Workplace injuries (including occupational diseases)’. The NZIPS indicators presented here are confined to **injuries** and do not encompass occupational disease.

The phrase ‘workplace’ places the focus on location. Work-related and non-work-related injuries can occur at a workplace. (For example, for some workers their workplace is the road; however, non-work-related injury also occurs on the road.) The focus of the NZIPS indicators is work-related injury.

The scope for this priority area includes both unintentional and assaultive injury. Injuries that are purposely self-inflicted or are of undetermined intent are not included.

The scope of ‘work-related injury’ has been described in a number of different ways. It can include one or more of the following:

- bystanders,
- people travelling whilst at work,
- people commuting to and from work.

People traveling whilst at work are included within a theoretical definition of work-related injury. However, methods for the identification of motor vehicle traffic crashes (MVTs) that are work-related (either whilst working or when commuting to and from work) and for the identification of bystanders, using routinely collected data, are unreliable<sup>12</sup>, hence they are excluded from the operational definition of the NZIPS work-related injury indicators.

Historically, the measurement of fatal and non-fatal work-related injury experience based on routine data sources has been fraught with difficulties. Two Work-Related Fatal Injury Studies<sup>12 13</sup> were commissioned in the 1980s and then again in the 1990s because of difficulties in obtaining reliable estimates of work-related fatal injuries from routinely

collected national data sources. It follows, therefore, that the development of indicators based on these sources was not easy. It is only since the introduction of ICD-10, and the opportunity it presents to NZHIS to code 'activity' in their mortality data and in their NMDS of hospitalisations, as well as the initiation of the data linkage work of the Injury Information Manager, that the derivation of valid indicators based on routinely collected and processed data has become possible.

The work-related indicators presented in the chartbooks pose some potential threats to validity. Nevertheless, they could provide valid indicators for the future. These [indicators](#) are, therefore, **provisional**, and are as follows:

- Number of work-related injury deaths (NZHIS Mortality data)
- Age-standardised work-related injury mortality rate, per 100,000 workers (NZHIS Mortality data)
- Number of work-related injury deaths (ACC Mortality data)
- Age-standardised work-related injury mortality rate, per 100,000 workers (ACC Mortality data)
- Number of work-related serious non-fatal injuries (ACC-NMDS linked data-based)
- Age-standardised work-related serious non-fatal injury rate, per 100,000 workers (ACC-NMDS linked data-based)
- Number of work-related fatal and serious non-fatal injuries (NZHIS Mortality Collection and ACC-NMDS linked data-based)
- Age standardized mortality and serious non-fatal injury rate (per 100,000 person years at risk (NZHIS Mortality Collection and ACC-NMDS linked data-based)

#### *2.1.4 Intentional self-harm*

The NZIPS identified 'Suicide and deliberate self-harm' as a priority area. Acts of intentional self-harm can result in non-fatal injury or death. The latter are typically referred to as 'suicide'. This could be interpreted to mean that all victims so described intended to die, which is not the case.

Many refer to 'hospitalised self-harming behaviours' as attempted suicide. This is inaccurate since individuals self-harm for a wide range of reasons other than seeking to put their life at risk. Others have used the term 'Parasuicide' to refer to suicide attempts and deliberate self-harm inflicted with no intention to die<sup>14</sup>.

The tenth revision of WHO ICD refers collectively to these fatal and non-fatal events as 'Intentional self-harm' and in so doing does not seek to classify events according to whether or not death was the intended outcome. The same approach is adopted here. In

the chartbooks, the term intentional self-harm is used to refer to purposely inflicted self-harm which results in non-fatal injury or death.

The NZIPS serious injury outcome [indicators](#) are:

- Number of intentional self-harm injury deaths. (NZHIS Mortality data)
- Age-standardised intentional self-harm injury mortality rate, per 100,000 person-years. (NZHIS Mortality data)

The equivalent serious non-fatal injury and combined fatal and serious non-fatal indicators are not entirely free of threats to validity. Consequently, the following are **provisional** indicators:

- Number of intentional self-harm serious non-fatal injuries (NZHIS NMDS)
- Age-standardised intentional self-harm serious non-fatal injury rate, per 100,000 person-years at risk (NZHIS NMDS)
- Number of intentional self harm fatal and serious non-fatal injuries (NZHIS Mortality Collection and NZHIS NMDS)
- Age standardized intentional self harm mortality and serious non-fatal injury rate (per 100,000 person years at risk (NZHIS Mortality Collection and NZHIS NMDS)

### 2.1.5 Falls

The falls indicators focus on unintentional injury, and so the scope excludes both intentional self-harm and purposely inflicted injury events. The operational definition also excludes cases where the intent is undetermined.

For the indicators identified below, the operational definition of a fall is based on ICD-10-AM codes. For death and hospitalisation data, the range of falls codes is: W00-W19. These exclude falls from an animal, from a burning building, into fire, into water (with drowning or submersion), onto machinery (whilst in operation), and in/from a transport vehicle. Furthermore, it excludes the collapse of a building or structure. There are a significant number of these events; however, these exclusions are in line with international coding convention<sup>7</sup>.

It should be noted that the injury definition used (see ‘Operational definition of injury’ section 2.1), which is based on principal diagnosis and first external cause of injury codes at first discharge from hospital, means that falls that occur in hospital are unlikely to be ascertained by the NZIPS serious non-fatal injury indicator. This is an inevitable limitation of the operational definition of an injury used. To broaden the definition to include all falls in hospital would result in the capture of many more minor injuries, and compromise the validity of the indicators.

When constructing the charts for these indicators, the codes from both the 9<sup>th</sup> revision and the 10<sup>th</sup> revision of ICD need to be specified. For these retrospective analyses, falls were defined using ICD-9-CM-A, and the relevant codes were E800-E888. An important coding change that occurred in the transition from the 9<sup>th</sup> to the 10<sup>th</sup> revision of ICD was in relation to the ICD-9 code E887: 'Fracture, cause unspecified'. This code was moved from the falls category to elsewhere in ICD-10. Consistent with this, the indicators based on ICD-9 coded data exclude E887. Inclusion or exclusion of this code has little impact on the magnitude of these NZIPS indicators or the trends, however – see the Cryer 2004 report.<sup>2</sup>

Separate falls indicators for older people aged 75 and over have been adopted for the following reasons:

- The mechanism of falling is different for frail older people compared to the rest of the population.
- The multiple pathology experienced by frail older people means that identification of injury cases is less certain than for younger age groups.
- There are very high frequencies and rates of death and hospitalisation as a result of falls in people aged 75 and over.

The NZIPS injury outcome [indicators](#) include 6 fatal injury, 6 serious non-fatal injury and 6 combined fatal and serious non-fatal injury indicators:

- Number of fall-related injury deaths. (NZHIS Mortality data)
- Age-standardised fall-related injury mortality rate per 100,000 person-years at risk (NZHIS Mortality data)
- Number of fall-related injury deaths amongst people aged 0-74. (NZHIS Mortality data)
- Age-standardised fall-related injury mortality rate per 100,000 person-years for people aged 0-74. (NZHIS Mortality data)
- Number of fall-related injury deaths for people aged 75 and over. (NZHIS Mortality data)
- Age-standardised fall-related injury mortality rate per 100,000 person-years for people aged 75 and older. (NZHIS Mortality data)
- Number of fall-related serious non-fatal injuries (NZHIS NMDS)
- Age-standardised fall-related serious non-fatal injury rate, per 100,000 person-years at risk (NZHIS NMDS)
- Number of fall-related serious non-fatal injuries amongst people aged 0-74. (NZHIS NMDS)
- Age-standardised fall-related serious non-fatal injury rate per 100,000 person-years for people aged 0-74. (NZHIS NMDS)
- Number of fall-related serious non-fatal injury for people aged 75 and over. ((NZHIS NMDS)
- Age-standardised fall-related serious non-fatal injury rate per 100,000 person-years for people aged 75 and older. (NZHIS NMDS)
- Number of fall-related fatal and serious non-fatal injuries (NZHIS Mortality Collection and NZHIS NMDS)
- Age standardized fall-related mortality and serious non-fatal injury rate per 100,000 person years at risk (NZHIS Mortality Collection and NZHIS NMDS)
- Number of fatal and serious non-fatal injuries amongst people aged 0-74 (NZHIS Mortality Collection and NZHIS NMDS)
- Age standardized mortality and serious non-fatal injury rate amongst people aged 0-74 (per 100,000 person years at risk (NZHIS Mortality Collection and NZHIS NMDS)
- Number of fall-related fatal and serious non-fatal injuries for people aged 75 and over (NZHIS Mortality Collection and NZHIS NMDS)
- Age standardized mortality and serious non-fatal injury rate for people aged 75 and over per 100,000 person years at risk (NZHIS Mortality Collection and NZHIS NMDS)

### ***2.1.6 Motor vehicle traffic crashes***

A motor vehicle traffic crash is any crash on a public road involving at least one moving motorised vehicle. A crash is assumed to have occurred on a public road unless another place is specified, except in the case of crashes involving only off-road motor vehicles<sup>7</sup>.

This definition excludes all cases where there is no motor vehicle involvement, e.g. pedal cycle only crashes; collisions between pedal cyclists and pedestrians.

The scope of this indicator is unintentional injury. Injuries that are purposely self-inflicted, are due to assault, or are of undetermined intent, are not included.

The NZIPS serious injury outcome [indicators](#) are:

- Number of MVTC-related injury deaths (NZHIS Mortality data)
- Age-standardised MVTC-related injury mortality rate, per 100,000 person-years at risk (NZHIS Mortality data)
- Number of MVTC-related serious non-fatal injuries (NZHIS NMDS)
- Age-standardised MVTC-related serious non-fatal injury rate, per 100,000 person-years at risk (NZHIS NMDS)
- MVTC-related mortality rate per billion vehicle-kilometres (NZHIS Mortality data)
- MVTC-related mortality rate per 10,000 vehicles (NZHIS Mortality data)
- Number of MVTC-related fatal and serious non-fatal injuries (NZHIS Mortality Collection and NZHIS NMDS)
- Age standardized MVTC-related mortality and serious non-fatal injury rate (per 100,000 person years at risk (NZHIS Mortality Collection and NZHIS NMDS)

There is a problem with the timeliness for the NZHIS Mortality data based indicators. Consequently, Traffic Crash Report (TCR)-based mortality indicators are also included as **provisional** indicators; that is:

- Number of MVTC-related injury deaths (TCR data)
- Age-standardised MVTC-related injury mortality rate, per 100,000 person-years at risk (TCR data)
- MVTC-related death rate per billion vehicle-kilometres (TCR data)
- MVTC-related death rate per 10,000 vehicles (TCR data)

### *2.1.7 Drowning and near drowning*

The final NZIPS priority area is ‘Drowning and near drowning’. ‘Drowning’ (describing the **process** to include non-fatal, or near drowning, and fatal events) has been defined by the World Congress on Drowning as follows<sup>15</sup>:

*“Drowning is the process of experiencing respiratory impairment from submersion/immersion in liquid.”*

Since the introduction of ICD-10 by NZHIS to code external cause and nature of injury in both their mortality data (for deaths registered since 1 January 2000) and NMDS of hospital discharges (since mid-1999), it has been possible to identify drowning and near drowning as cases classified to the diagnostic code T75.1. There were, however, insufficient numbers of serious non-fatal near drowning injuries to enable the production of meaningful indicators for these, however, the production of a combined fatal and serious non-fatal indicator was possible.

The indicators will be restricted to fatal unintentional drowning.

The NZIPS serious injury outcome [indicators](#) are:

- Number of drowning cases (NZHIS Mortality data)
- Age-standardised drowning rate, per 100,000 person-years at risk (NZHIS Mortality data)

There is a lag of more than two years between the end of a given year and the release of NZHIS Mortality data for that year. Consequently, there is a problem of timeliness for the NZHIS Mortality data-based indicators. These indicators have been supplemented, therefore, with indicators based on Water Safety New Zealand’s database of Drowning cases, namely DrownBase. (A description of DrownBase is provided in the Cryer 2004 report.) The indicators based on DrownBase data are produced in the chartbooks as **provisional** indicators.

- Number of drowning cases (WSNZ DrownBase data)
- Age-standardised drowning rate, per 100,000 person-years (WSNZ DrownBase data)

# **Chapter 3: Methods used for the production of the charts for the Whole Population**

### 3.1 Background

The justification for, and a full description of, the methods used in the development and validation of the indicators are presented in the report that underpins this work, namely:

Cryer C, Langley J, Stephenson S. Developing valid injury indicators. A [report](#) for the New Zealand Injury Prevention Strategy. Injury Prevention Research Unit Occasional Report OR 049, Dunedin: University of Otago, September 2004.<sup>3</sup>

This Section reproduces some of the relevant sections of that report, as well as describing the specific methods used in producing the charts shown in the chartbooks. Much of the above report is dedicated to the identification of candidate indicators, and to an assessment and discussion of the validity of the NZIPS serious (fatal and non-fatal) injury and competing national injury indicators. This information is not presented here.

The following summarises the development of the NZIPS serious injury indicators

- The principal driver in their development was that there was a need for indicators that cover the period prior to and during the implementation of the New Zealand Injury Prevention Strategy.
- The approach to indicator development was consistent with the view that before newly proposed indicators are promulgated, they should be subject to formal validation.
- In arriving at the NZIPS indicators, the developers sought to strike a balance between ease of derivation of the indicator, ease of understanding, and validity.
- The NZIPS serious injury indicators are predominantly based on ICD diagnosis and external cause coding, because national death and hospitalisation data are coded using this classification system. (The principal advantage of ICD is that it is a WHO classification system used by many other countries – using it will permit future comparisons with other countries for the indicators that have been developed.)
- The development of national injury indicators involved a degree of rigour which surpasses comparable effort overseas.

Recommendations for the development of complementary indicators (to the NZIPS serious injury indicators) are included in the report cited above<sup>3</sup>. These recommendations are not reproduced or discussed here.

### 3.2 Sources of numerator data

The indicators have been chosen to draw attention to ‘important’ injuries as judged by their resulting in death, or because of their threat-to-life.

### 3.2.1 Fatal injury indicators

NZHIS Mortality data (based on death registrations and Coroner's reports) were used for the NZIPS mortality indicators for 'all injury' and the six priority areas. Alternative sources were used for the following provisional indicators:

- Work-related injury indicators W12 & W14: ACC mortality data
- Motor vehicle traffic crash indicators M15 – M18: Police traffic crash reports (TCRs).
- Drowning indicators D13 & D14: [Water Safety New Zealand \(WSNZ\) DrownBase](#).

### 3.2.2 Non-fatal injury indicators

NZHIS NMDS, a database which records information on all publicly funded hospital discharges in New Zealand, was used as the source for the NZIPS serious non-fatal injury indicators. Only a small number of relevant cases would not be identified through the exclusion of privately funded cases<sup>16</sup>. This source was also used for the majority of the provisional indicators. Exceptions to this are the work-related injury indicators W01 & W02, which will use [ACC data](#) linked to NZHIS NMDS data.

### 3.2.3 Serious (fatal and non-fatal) indicators

We have supplemented the separate fatal and serious non-fatal indicators with "serious injury indicators", for which the numerators are the sum of the relevant fatal and the serious non-fatal injury indicators – see below. The reason for including these additional indicators is as follows. Where there is a decline in the rates or numbers of fatal injury, the reason for this decline could be due to improved emergency medical systems, ie. due to more cases of serious injury surviving than before. If this is the case, then there would be a shift of cases from the fatal category to the serious non-fatal category. In order to present a more complete picture of what is happening with serious injury, the trends in serious injury (fatal and serious non-fatal injury) have also been presented.

## 3.3 Rates and denominator data

Rates, where applicable, are expressed as per 100,000 person-years at risk (i.e. per 100,000 population per year of exposure). Person-years have been used as denominators for the rates since:

- these are the natural units for a rate; and,
- where the indicator is based on moving averages, then the use of person-years naturally takes account of the effect of using multiple years to construct the rates.

Population data were obtained from Statistics New Zealand population estimates (see [www.stats.govt.nz](http://www.stats.govt.nz)). These are mid-year estimated resident population values. These estimates are for the usually resident population so do not include short-term overseas visitors to New Zealand (e.g. tourists). As such there may be a small mismatch for some rates between the numerator and denominator. However, this is likely to have little impact on the indicators or their trends.

There were a few exceptions to the use of total population estimates for the denominators:

- M13, M14, M17 and M18 are expressed as rates per billion vehicle-kilometres or per 100,000 registered vehicles. The source of these denominator data was LTNZ
- W02, W14 and W22 are expressed as rates per 100,000 workers, and W13 will also be expressed as a rate per 100,000 workers in subsequent chartbooks. Full-time and part-time workers aged 15 years and over were included in the denominator. The source of these denominator data was Household Labour Force Survey data (SNZ).

### 3.4 Definition of serious non-fatal injury

It has been IPRU's experience that large administrative sets of non-fatal injury data, such as the NZHIS NMDS of hospital discharges, cannot be used to produce valid indicators without some pre-processing. Typically, biases can be minimised in these data<sup>b</sup> by using a severity threshold for the case definition. A discussion of these issues is provided elsewhere<sup>17 18</sup>.

A serious non-fatal injury case was defined as one that is hospitalised and has an ICISS score of less than or equal to 0.941<sup>c</sup> (see Section 3.5). This is equivalent to selecting patients whose injuries give the patient a survival probability of 94.1% or worse – in other words, a probability of death (at admission) of at least 5.9%. Amongst first admissions for injury, this represents around 15% of all injury discharges. This severity threshold includes the majority of the following injuries: fracture of the neck of femur, intracranial injury (excluding concussion only injury), injuries to the nerves and spinal cord at neck level, multiple fractures of the ribs, asphyxia, hypothermia, and many other injury diagnoses of similar or greater severity. The frequency and description of the ICD-10 principal diagnosis codes captured using this severity threshold are tabulated in Appendix 1 of the Cryer 2004 report<sup>3</sup>.

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<sup>b</sup> For example, admissions are influenced by socio-demographic, service supply and access factors independent of injury; ACC entitlement claims are influenced by personal and health service factors, employment status, and business cycle, independent of injury.

<sup>c</sup> All hospital injury discharges that were publicly funded are considered, even ones with 0 days stay; however, only cases that satisfied the severity criterion of  $ICISS \leq 0.941$  were selected as cases.

The injury cases selected using this definition of serious injury have high face validity. Since hospital admissions are being used to identify our serious non-fatal injury cases, we must be confident that the injuries satisfying the serious injury definition have a very high likelihood of admission to hospital (and the injuries satisfying this serious injury definition do) and thus are little influenced by extraneous factors such as supply of and access to health services.

### 3.5. ICD-based Injury Severity Score (ICISS)

#### 3.5.1 *The ICISS Method*

For a discussion of the merits of the ICISS severity score relative to other severity scales, please see Appendix 1 of the Cryer 2004 report <sup>3</sup>.

The ICISS method involves calculating a Survival Risk Ratio (SRR), for each individual injury diagnosis code as the ratio of the number of patients with that injury code who have not died to the total number of patients assigned that diagnosis code. Thus, a given SRR represents the likelihood that a patient will survive a particular injury. Each patient's ICISS score (estimated survival probability) is derived as the product of the probabilities of surviving each of their injuries individually.

#### 3.5.2 *ICISS and the NZIPS serious injury indicators*

For the indicators presented in the chartbooks, the ICD-10-AM based SRRs were derived using hospital discharges for the period 1999 to 2001. That is, the SRRs are conditional on a case being discharged from hospital during this period. These were then applied to hospital discharges that were coded using ICD-10-AM, where the diagnosis and external cause of injury satisfied the NZIPS indicators injury definition.

This procedure was repeated for cases coded using ICD-9-CM, using a training set based on the years 1989 to 1998. A slightly different severity threshold was set (namely  $ICISS \leq 0.96$ ) so that very similar injuries were captured under ICD-9 as ICD-10.

## 3.6 The NZIPS indicators

### 3.6.1 Methods of calculation

The NZIPS indicators presented in the chartbooks are listed in [Chapter 2](#). There are 28 NZIPS fatal and serious non-fatal injury outcome indicators, and a further 16 provisional indicators. The chartbooks also present combined fatal and serious non-fatal injury indicators (10, plus 6 provisional indicators). The specifications for all of these indicators are presented in [Chapters 7-9](#), and give the method of calculation for each of the indicators.

### 3.6.2 95% confidence intervals

Ninety five percent confidence intervals are displayed for each bar presented on each chart. The indicators are either counts or rates.

- 95% confidence intervals for counts assume Poisson error – standard errors were derived as the square root of the count.
- 95% confidence intervals for age-standardised rates were produced using the method described in Clayton and Hills, 1993<sup>19</sup>.

## 3.7 Notes on the interpretation of indicator trends

ICD-10 was used to code diagnosis and external cause of injury for the NZHIS Mortality data registered from 1 January 2000 onwards and the NZHIS NMDS (hospitalisations) data from mid-1999 onwards. The change from the ICD-9 to ICD-10 coding frame, for diagnosis and external cause of injury, is likely to affect any trends in the indicators over the transition period. In the interpretation of the trends in the indicators, the focus is, therefore, on the calendar years from 2000 onwards.

Below is a brief description of the differences between ICD-9 and ICD-10.

### 3.7.1 Differences between ICD-9 and ICD-10

In regard to the use ICD-9 and ICD-10 for coding causes of death, Kreisfeld and Harrison (2005)<sup>20</sup> state:

*“Changes between ICD-9 and ICD-10 which have a bearing on the coding of injury mortality data are:*

- *Some changes to the rules for deciding which of the several causes of death that might be mentioned on the death certificate should be designated the Underlying Cause.*

- *The inclusion of a new chapter External Causes of Mortality and Morbidity to take the place of the previous supplementary classification.*
- *The adoption of an alphanumeric coding scheme.*
- *A change of axis for injuries, giving primacy to body part instead of nature of injury*
- *A change of axis for land transport accidents, giving more information about type of road vehicles.*
- *More specific categories for some External Causes, and less specific categories for others.*
- *Adoption of the term 'sequelae' in preference to 'late effect'.*
- *A changed fourth-character classification for place of injury occurrence, and a new short classification for activity at the time of injury."*

Above are some structural reasons why the transition from ICD-9 to ICD-10 could result in differences in the types of cases captured under ICD-9 and ICD-10. Below is a brief synopsis of the results of an empirical investigation of the changes that the use of ICD-10 rather ICD-9 introduces. The work is Australian. It would be difficult to replicate in New Zealand due to the smaller number of injury deaths that occur annually.

In Australia<sup>20</sup>, they found large differences between 1998 and 1999 in the frequency of deaths for:

- Unintentional falls (56% drop);
- Unintentional poisoning by pharmaceuticals (77% rise);
- Other unintentional injuries (133% rise).

Changes that occurred in other external causes groups, between 1998 and 1999, were much more consistent with chance variation. Some the large difference between the figures for 1998 and 1999 are due to the changed way in which information on cause of death was obtained in Australia from 1999. This particularly affected falls.

In the same report, a comparison of ICD-9 and ICD-10 was reported. This was carried out using 1998 mortality data; data for which underlying cause of death was coded using both ICD-9 and ICD-10. Comparability factors (CF) were produced, which are the ratio of cases coded to the particular category using ICD-10 to the number when using ICD-9:

CF=1 indicates the same result when using ICD-9 and ICD-10,

CF>1 indicates a larger case count under ICD-10, and

CF<1 indicates a larger case count under ICD-9

The following CFs were produced using Australian data for the major external cause of injury groups. Also shown below are the results of similar work in the USA:

	Australian Correction Factors	US Correction Factors
All external causes	1.03	
Homicide	1.00	1.00
Suicide	1.00	1.00
Unintentional falls	0.39	0.84
Transport	1.01	1.00
Unintentional drowning	1.02	1.00
Smoke fire and flames	0.99	0.97
Unintentional poisoning by pharmaceuticals	1.07	
Unintentional poisoning by other substances	1.18	
Other unintentional	2.44	
Undetermined intent	1.05	
Adverse events etc.	1.55	

Both the Australian and US CFs were quoted in Kreisfeld and Harrison (2005)<sup>20</sup>; the US CFs were taken from the paper published by Anderson and colleagues<sup>21</sup>. If the Australian and USA results can be applied to the situation in New Zealand, then few of the NZIPS priority groups would be affected by the change from ICD-9 to ICD-10. The major exception is falls. The problem in Australia is much more acute than New Zealand for falls as will be illustrated below.

The two similarly named ranges of codes in ICD-9 and ICD-10 for falls are not equivalent. The difference is that the cases captured by category E887 (“Fracture cause unspecified”) in ICD-9 are classified to falls in ICD-9 but not in ICD-10. This was the principal reason for the large difference in the number of cases classified to falls in Australia when ICD-9 was used, compared to when ICD-10 was introduced. In contrast to this, the use of E887 codes in New Zealand, during the period ICD-9 was used, was much less than in Australia. This is illustrated in the trends shown in the Cryer 2004 report<sup>3</sup> which shows trends in unintentional falls from 1994, with the case definition including E887 for one trend line, but excluding E887 for another. There is only a small shift in the trend line, and far less than that illustrated using Australian data<sup>20</sup>. In the chartbooks, we have addressed this problem by the removal of E887 cases from the definition of a case of falls, when dealing with ICD-9 coded data.

So, in synopsis, for these charts, the change from ICD-9 to ICD-10 will result in some differences in case ascertainment. In New Zealand, the structural problem that was identified for falls has been corrected in these charts, and so one would not necessarily expect any more marked effect of the change from ICD-9 to ICD-10 for falls compared to any of the other priority areas. Over this transition period, all the charts should be interpreted with a similar level of caution. Because of the likely changes in case ascertainment under ICD-9 and ICD-10, we have only

attempted to interpret the charts for the period that ICD-10 coding has been applied.

### *3.7.2 All injury*

The change from ICD-9 to ICD-10 (from 1998 to 2000) was accompanied by an increase in serious non-fatal injury frequencies / rates (I01, I02), but little change in fatal injury frequencies / rates (I11, I12). The structural changes from ICD-9 to ICD-10 are discussed in section 3.7.1.

### *3.7.3 Work-related injury*

The validity of the ACC data-based work-related fatal injury indicators is compromised for the years that use data between 1996 and 2000. Concerns regarding the use of ACC data alone were described in the Cryer 2004 report<sup>3</sup>. From 1996 to 1999, 100 large employers were part of an accredited employers' scheme. These employers collected data on behalf of the ACC. The intention was for these data to be submitted and incorporated into the ACC claims database regularly. ACC have informed us that this did not always happen leading to gaps in the database during this period (Tim Boyd Wilson, Chris Taylor [ACC], personal correspondence). Between July 1999 and April 2000, employers could opt out of the ACC and take up the option of private insurance. This also led to major gaps in the data for those who took up this option.

On 1 July 2000, the ACC Accredited Employers (Partnership) Programme started. This allowed accredited employers to manage their own claims, provide entitlements, and capture data, on behalf of the ACC. There was rapid uptake over the first 12 months; and the current level of uptake was achieved in the first 18 months. There were 178 large accredited employer groups in the Partnership Programme, representing 1,180 separate entities, accounting for over 25% of the fulltime workforce<sup>22</sup>. Accredited employers are required to submit claims data to ACC on a monthly basis. Following checks and revisions, the majority of claims appear to be sent in the same or the next quarter<sup>22</sup>. Completeness of data obtained since the introduction of this programme has been described as excellent; ACC employers have indicated that the data has been complete since 1 July 2000 (Tim Boyd Wilson, Chris Taylor [ACC], personal correspondence).

### *3.7.4 Falls*

As described earlier, there was a significant change in the coding of falls from the ICD-9 coding frame to ICD-10, between 1998 and 2000. Within ICD-9, falls are traditionally defined by the code range E800-E888. One of these, E887, captures "Fracture, cause unspecified". This code was omitted from the relevant code

range in ICD-10 (ie. W00-W19). As a consequence, in the falls-related charts presented in the chartbooks, for the period coded to ICD-9, the code E887 is not included - in order to maximize comparability.

### **3.7.5 Motor vehicle traffic crashes**

The change from ICD-9 to ICD-10 (from 1998 to 2000) was accompanied by little change in serious non-fatal injury frequencies / rates (M01, M02), but a marked reduction in fatal injury frequencies / rates (M11, M12). This could be due to differing practices in coding ICD-10 between the coders of mortality data and those who code hospitalisations. For example, if the involvement of a motor vehicle is not stated explicitly, under ICD-9 the instruction in the coding manual is for coders to assume these are motor vehicle traffic. With the change to ICD-10, this is now open to interpretation<sup>21</sup>. If coders of the mortality collection were, in general, providing a different interpretation of these unspecified cases compared with coders of hospitalisations, this could account for dramatic changes during transition from ICD-9 to ICD-10 in one case, but not in the other.

## **Chapter 4: Serious injury indicators for Māori**

## 4.1 Background

[The Chartbook of NZIPS serious injury outcome indicators for Māori](#) is an assertion of the principles of the Treaty of Waitangi, applied with the intention of contributing to positive health gains in Māori injury prevention.

This work has produced a single Chartbook of both the ‘proposed’ and the ‘provisional’ injury outcome indicators for Māori. The full set of NZIPS serious injury indicators is listed in the Executive Summary of the ‘NZIPS: Developing Valid Injury Outcome Indicators’ of the Cryer 2004 report<sup>3</sup>. Only a subset of indicators were viable for Māori - see the Maori chartbook. The methods used for the calculation of the Maori indicator charts are those described in Chapter 3. Chapter 4 provides variants or issues specifically relating to the Maori indicators.

The choice of 1996 as the starting year for the Māori indicators is based on two main factors. For mortality data, there was a major change in the recording of ethnicity on deaths between 1994 and 1996. Reliable counts are not available for 1995<sup>23</sup>. Additionally, there was a major change in the collection of ethnicity data by hospitals from 1995 to 1996. Morbidity data from 1996 onwards are thought to have a low under-count for Māori, in contrast to the years prior to this. The choice of 1996 as a start year is consistent with practice within Public Health Intelligence (Craig Wright, PHI, MoH, personal correspondence, 8 March 2005).

When calculating rates for Māori, there are difficulties with the comparability of numerators and denominators, which can lead to numerator-denominator bias. One of the challenges for this project was to minimise the effects of this bias on the indicators. An additional problem was that ethnic group classification within the potential sources of numerator data (death registrations, hospitalisations, traffic crash reports, ACC claims) and the denominator data (Census and SNZ population estimates) have not been constant over time. For example, the ethnicity question in the Census changed from 1991 to 1996, and then changed back to the 1991 format in 2001 (see Appendix C of Statistics New Zealand. Report of the Review of the Measurement of Ethnicity, June 2004)<sup>24</sup>. How the problem of numerator-denominator bias has been addressed when using death registrations and hospital data is described below. We were unable to address the problem of numerator-denominator bias when using ACC data alone or traffic crash reports as numerators.

## 4.2 Numerator-denominator bias

The protocol requirements used by the Ministry of Health for output of ethnicity information include the following:

1. One of the following three methods of output must be used: sole/combination, total response (overlapping) or prioritised.
2. The same output method must be used for both numerator and denominator datasets.

(<http://www.nzhis.govt.nz/documentation/ethnicity/ethnicity-02.html>). Due to the nature of the prioritisation, ‘total response’ and ‘prioritised’ method of output are equivalent for Māori.

### 4.2.1 Definitions

The following are taken from the document: “Ethnicity Data Protocols for the Health and Disability Sector”<sup>25</sup>.

*Sole / combination:*

*“In the sole/combination form of output, there are sole ethnic categories for respondents who report only one ethnic group, and combination categories for respondents who give more than one ethnic group. Examples of combination categories are Samoan/Tongan, NZ European/Māori and Māori/Pacific.”*

*Total response (overlapping):*

*“In total response output, each respondent is counted in each of the ethnic groups that they reported. Because individuals who indicate more than one ethnic group are counted more than once, the sum of the ethnic group populations will exceed the total population of New Zealand.”*

*Prioritised:*

*“In prioritised output, each respondent is allocated to a single ethnic group using the priority system (Māori, Pacific peoples, Asian, other groups except NZ European, and NZ European). The aim of prioritisation is to ensure that where some need exists to assign people to a single ethnic group, ethnic groups of policy importance, or of small size, are not swamped by the NZ European ethnic group”.*

#### 4.2.2 Why “total Māori” for hospitalisations and deaths?

“Sole / combination” is the form of output currently recommended by Statistics New Zealand (SNZ). However, it is relatively new and untried, and members of the Māori population could be misidentified<sup>25</sup>. Another alternative is “Total response (overlapping)” output. For Māori people, this is the same as “Prioritised”. Prioritised output is most frequently used in MoH statistics<sup>25</sup>. There has been some validation of measures for sole and total Māori (see below).

#### 4.2.3 Why not NZCMS weights for hospitalisations and deaths?

New Zealand Census Mortality Study (NZCMS) weights were constructed for mortality data. They provide a correction for the undercount of Māori in the Mortality Collection compared with the 1996 Census; derived from a linkage study of mortality to census data. For deaths, they are only available for the period 1996-1999. At the time of writing, the weights for the period 2001 to 2004 had not been published and so were unavailable for our work. PHI do not currently use adjusters for the period 2000 onwards (ie. they use weights=1). Once NZCMS is updated and the updates published, however, then this will be reviewed. (Craig Wright, personal correspondence, 8-March-05).

NZCMS weights are not appropriate for hospitalisations – they have not been derived for hospital discharge data, nor have the Mortality Collection weights been validated for these data.

#### 4.2.4 What are appropriate numerators for NZHIS hospitalisations and mortality data?

In the absence of appropriate NZCMS adjusters for hospital discharge data or for the whole of the period of interest (1996-2005 for hospital discharge data and 1996-2003 for mortality data), work has suggested that the “ever-Māori” method is a good alternative for estimating “Total Māori” numerators from both NZHIS Mortality Collection and NMDS hospitalisations data. This has been used in recent publications<sup>26-28</sup>. For example, Curtis et al. (2005)<sup>26</sup> describes the methods used to estimate breast cancer incidence and mortality in Māori and non-Māori using multiple methods to estimate Māori numerators. Quoting from their paper:

*“Unadjusted and NHI-adjusted were least similar to the NZCMS-adjusted estimate used as the ‘gold standard’ in this study. Ever Māori-adjusted results closely approximated NZCMS-adjusted results in both incidence<sup>d</sup> and mortality data.”*

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<sup>d</sup> Although NZCMS adjusted numerators are used as a ‘gold standard’ for incidence, Curtis et al. (2005) acknowledge that it is uncertain how valid it is to apply the method to morbidity data since the NZCMS weights have been derived from mortality data. They made the assumption

Their recommendations are that:

*“Future calculations of breast cancer incidence and mortality rates should assign sole and total ethnicity and reduce ethnicity misclassification by using NZCMS or ever Māori-adjusted estimates.”*

In this work, we have applied these results beyond breast cancer registrations and mortality - in particular to serious non-fatal injury incidence and mortality. Work to validate this approach for injury is described Chapter 5. The results presented in Chapter 5 suggest that the ever-Māori method does well in correcting for Māori undercount and potential numerator-denominator bias.

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that the problems of ethnicity data collection are similar between routinely collected administrative data sets.

# **Chapter 5: Validation of the “ever-Māori” approach for hospitalisations and deaths**

## 5.1 Background

When deriving counts for total Māori (see [Section 4.2.1](#) for a description of the recording of ethnicity in different data sets) using NZHIS Mortality Collection and NMDS of hospital discharges, historically there has been an undercount for Māori. For deaths, the New Zealand Census Mortality Study (NZCMS) has provided estimates of the undercount for the period 1996 to 1999<sup>29</sup>. In March 2008, estimates of the undercount for the period 2001 to 2004 were also published<sup>30</sup>. Within NZCMS, the undercount is presented as adjustment ratios. These adjustment ratios could be used to derive the fatal injury indicators for 1996 to 1999 and 2001 to 2004 separately, but they cannot be used to adjust for an undercount in hospitalisation data. In addition, there is a delay in the publication of the adjustment ratios and not all years are included, resulting in no adjustment ratios being available for 2000, or for the most recent year of Mortality Collection data – 2005.

For the calculation of these national injury indicators, an alternative method was sought. The ever-Māori method had been recommended in our discussions with Craig Wright (PHI), Tony Blakely and Bridget Robson (Wellington School of Medical and Health Sciences), and Joanne Baxter (Dunedin School of Medicine), and has been used in some recent reports produced or published by the Ministry of Health<sup>28</sup>. This is the method we chose to use. There is a question of how well the ever-Māori method corrects for the Māori undercount and the numerator-denominator bias between numerators produced from the Mortality Collection and the NMDS, and denominators derived from the Census data over the period 1996 to 2005. This Chapter seeks to investigate that question.

The specific research questions, to test the validity of the ever-Māori approach, were as follows.

- 1. Fatal injury – trend comparison.**  
Do the fatal injury trends when using the ever-Māori method reflect the trends produced when NZCMS adjustment ratios are applied to the total Māori count?
- 2. Fatal injury – adjustment ratio comparisons.**  
For injury deaths, for all ages and for specific age groups, how similar are the percentage increases from the NZHIS Mortality Collection total Māori count, to the Māori count obtained when using the ever-Māori method, for the periods 1996 to 1999 and 2001 to 2004, compared with the NZCMS adjustment ratios for “injury/suicide”(1996-1999) and “external causes” (2001-2004)?
- 3. Hospital data – adjustment ratio comparisons.**  
How similar are the percentage increases from the NMDS-based total Māori count to the count obtained when using the “ever Māori” method for (a) serious

non-fatal injuries and for (b) injury deaths in hospital – separately for the periods 1996-1999, and 2001-2007.

4. **Fatal and non-fatal injury – ever-Māori versus unadjusted trends.**

How similar are the trends when using the ever-Māori method compared with those using total Māori from either the Mortality Collection for the fatal injury indicators, or the NMDS of hospitalisations for the serious non-fatal injury indicators?

With questions 1-3, if the ever-Māori method is appropriately adjusting for the undercount and/or bias, then the result will be that the output corresponding to each of these questions will show similar trends and similar adjustment ratios. The fourth question will provide an indication as to how important the method used to identify Māori is when the interest is in trends– rather than absolute counts.

## 5.2 Method

### 5.2.1 *Adjustment ratio estimates.*

#### 5.2.1.1 NZCMS

Detailed methods for the derivation of the NZCMS adjustment ratios can be found in the relevant reports<sup>29 30</sup>. Briefly, however, the NZCMS adjustment ratios used for research questions (1) and (2) were derived as follows. For the period 1996-1999, the NZCMS linked the 1997-1999 NZHIS Mortality Collection records to 1996 census data<sup>29</sup>. For the period 2001-2004, the NZCMS linked the 2001-2004 Mortality Collection records to 2001 census data<sup>30</sup>. For high probability links, the counts for Māori from the Mortality Collection were compared with those from the Census. From these comparisons, adjustment ratios were derived. This was done overall and for a number of strata including gender and age. The age categories used were 0-14, 15-24, 25-44, 45-64, and 65-77 (1996-1999) and 0-14, 15-29, 30-44, 45-64, 65-74, 75-84 and 85+ years (2001-2004). For 1996-1999, interpolation and extrapolation were used to generate adjustment ratios for the following age categories: <1, 1-4, 5-9,... 75-79. 80-84 and 85+ years. For those aged less than one year, the adjustment ratio was derived by comparing birth registrations to census counts for Māori<sup>29</sup>. Similar methods were applied for the 2001-2004 cohort. However, it was not clear whether ethnicity was derived from birth registrations for those aged under one year in this group.

#### 5.2.1.2 Ever-Maori

The ever-Māori method allocates Māori ethnicity to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori in any of the following databases: NMDS (1982-2007), Cancer

Registry (1948-2007), Primary Health Organisation (2006-2007), Mortality Collections (1988-2005).

Adjustment ratios for the ever-Māori method were calculated by comparing the counts for Māori from the Mortality Collection or NMDS with those derived using the ever-Māori method for the same age categories used for each of the NZCMS cohorts.

### *5.2.2 Fatal injury – trend comparison.*

We compared trends in the fatal injury indicators for the period 1996 to 1999 for counts derived using the following:

- (a) ever-Māori;
- (b) NZCMS adjustment ratios applied to NZHIS total Māori counts from the Mortality Collection.

For (a), the age categories of 0-4, 5-9, 10-14, ..., 50-54, 55+ years were used in the age-standardisation of ever-Māori counts. For (b) 5-year age categories (up to age 74 years) were used when applying the NZCMS adjustment ratios and for age-standardisation. The adjustment ratios used can be found on pp 60-61 of Ajwani et al. (2003) and 83-84 of Fawcett et al (2008).

### *5.2.2 Fatal injury – adjustment ratio comparisons.*

This approach to validation is similar to that used in the reports ‘Tatau Kahukura: Māori Health Chartbook’ (2006) and ‘Unequal Impact’ (2006)<sup>27 28</sup>.

For the Mortality Collection data, the ever-Māori adjustment ratios were estimated as the percentage change in the Māori count using the “ever Māori” method compared with total Māori count for the period 1996 to 1999 or 2001 to 2004. This was compared with the 10% increase (ie. adjustment ratio = 1.10) obtained in the NZCMS (1996-1999) for “injury/suicide”<sup>29</sup>, and the 2% decrease (adjustment ratio =0.98) obtained in the NZCMS (2001-2004) for “external causes”<sup>30</sup>.

For both of the periods 1996-1999 and 2001-2004, we compared the increase in Māori counts using the ever-Māori method against NZCMS adjustment ratios for each age group. NZCMS age groups 0-14, 15-24, 25-44, 45-64, and 65-77 (1996-1999) and 0-14, 15-34, 35-49, 50-64, 65-74, 75-84, 85+ (2001-2004).

### *5.2.3 Hospital data – adjustment ratio comparisons.*

Two advisors for this investigation (Tony Blakely and Bridget Robson) expressed concern that the ever-Māori method may tend to over-count cases of Māori post-2000. We estimated and compared the percentage increases from the NMDS-based total Māori count to the count obtained when using the “ever-Māori” method for (a) serious non-fatal injuries and (b) injury deaths in hospital – separately for the periods 1996-1999, and

2001-2007. If there was no residual under- or over-count when using the "ever-Māori" method for admissions, the inflation in counts (adjustment ratios) for the serious non-fatal and the fatal cases would be similar.

In addition, we compared the adjustment ratios obtained using the ever-Māori method with those published in Hauora IV<sup>31</sup> for the period 2000-2005. Hauora IV provides an alternative method of estimating the undercount of Māori ethnicity in the NMDS, by comparing ethnicity recorded in this data set with that recorded in the Housing New Zealand and Mortality Collection data sets for the period 2003-2005 and 2000-2004, respectively. Housing New Zealand ethnicity data was considered more reliable than that stored in the NMDS because it was self reported<sup>31</sup>.

#### *5.2.4 Fatal and non-fatal injury – ever-Māori versus unadjusted trends.*

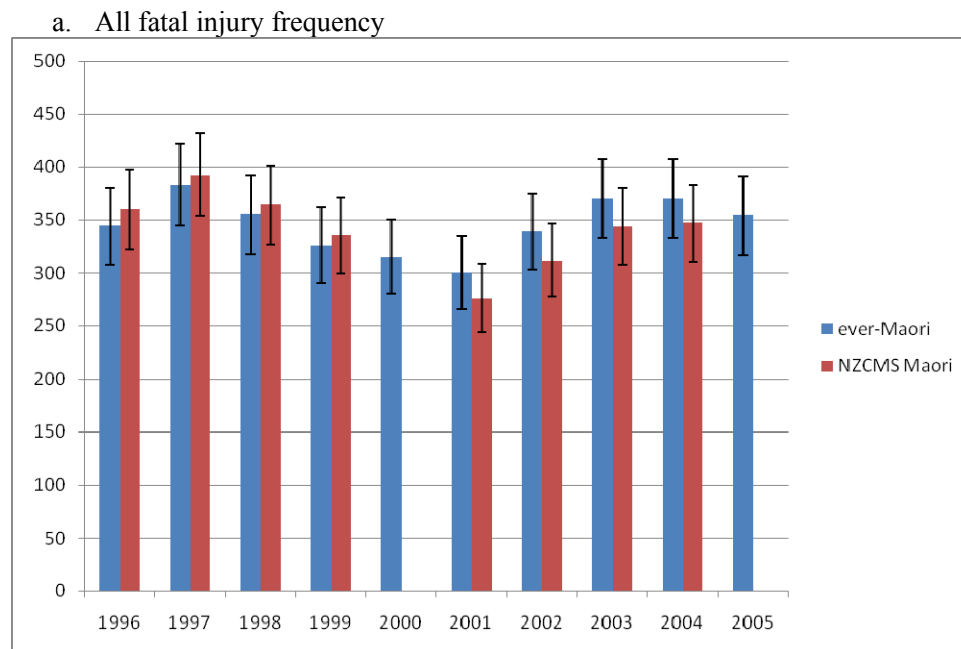
To investigate whether the ever-Māori method was over-counting cases post-2000, we compared trends in the counts of Maori when using ever-Māori and total Māori from the Mortality Collection for the fatal injury indicators (1996-2005), and from the NMDS of hospitalisations for the serious non-fatal injury indicators (1996-2007). If the ever-Māori method was over-counting in the most recent years, it would inflate the slope of the trend. This would not be the case when using ethnic group classification from single records to identify Māori.

## 5.3 Results

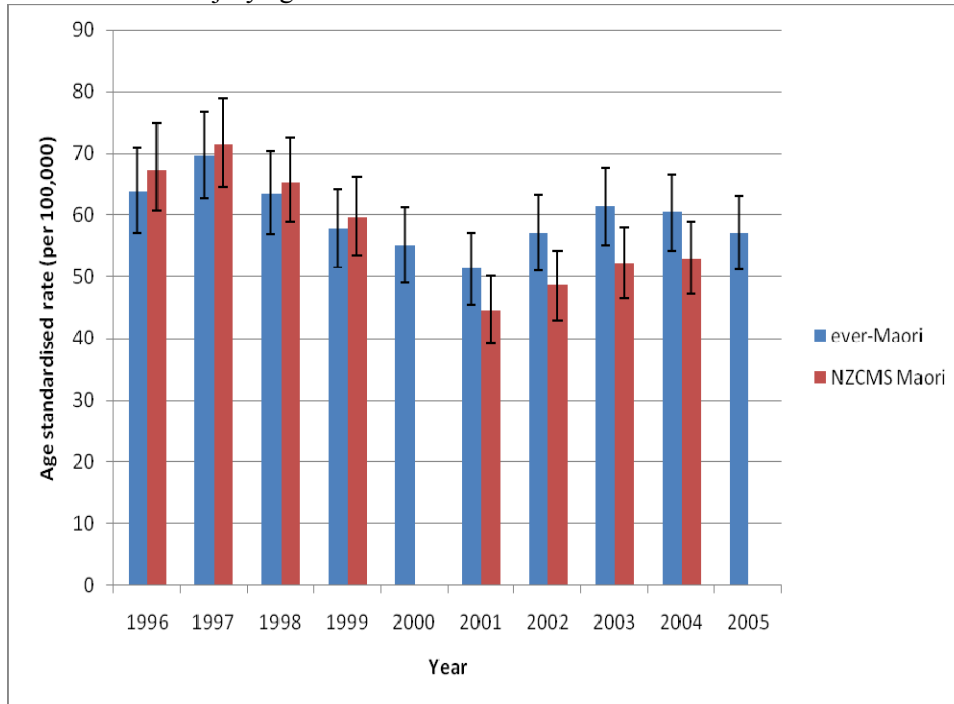
### 5.3.1 Fatal injury – trend comparison.

Trends for the period 1996 to 1999 and 2001 to 2004 are shown in Figure 5.1 based on (a) the ever-Māori method and (b) using NZCMS weights. Note, because NZCMS weights were not available for 2000 or 2005, the bars for these years have not been presented in the charts.

**Figure 5.1: All fatal injury frequencies and rates for 1996 to 1999 and 2001 to 2004 for Māori estimated using (a) the ever-Māori method and (b) NZCMS weights.**



b. All fatal injury age standardised rate



The trends are very similar for the NZHIS Mortality Collection undercount corrected using the ever-Māori method or using the NZCMS adjustment ratios.

**5.3.2 Fatal injury – adjustment ratio comparisons.**

We compared the inflation of the Māori counts when using the ever-Māori method with NZCMS adjustment ratios, separately for the period 1996 to 1999 and 2001 to 2004 using the NZCMS age group, across all ages and for specific age groups. This is shown in Table 5.1. In this table, the value of 1.09 represents a 9% increase in Māori counts.

**Table 5.1: Adjustment ratios for injury for the ever-Māori method and from the NZCMS, 1996-1999 and 2001-2004.**

1996-1999

Age group	Adjustment ratios	
	1996-1999	
	Ever-Māori	NZCMS
0-14	1.09	1.08
15-24	1.06	1.13
25-44	1.07	1.10
45-64	1.06	1.05
65-77	1.16	1.07
All ages	1.07	1.10

2001-2004

Age group	Adjustment ratios	
	2001-2004	
	Ever-Māori	NZCMS
0-14	1.06	1.03
15-24	1.06	0.97
25-44	1.08	0.99
45-64	1.04	0.98
65-74	1.11	0.98
75-84	1.11	1.01
85+	1.07	0.93
All ages	1.06	0.98

This table indicates that for 1996 to 1999 the ever-Māori method over-compensated for the undercount for people aged 65 and over, and under-compensated for people aged 15-44. For the period 2001 to 2004, the ever-Māori method over-compensated for all age groups.

### *5.3.3 Hospital data – adjustment ratio comparisons.*

The ever-Māori adjustment ratio for (a) serious non-fatal injuries and for (b) injury deaths in hospital – separately for the periods 1996-1999, and 2000-2007 - are shown in Table 5.2.

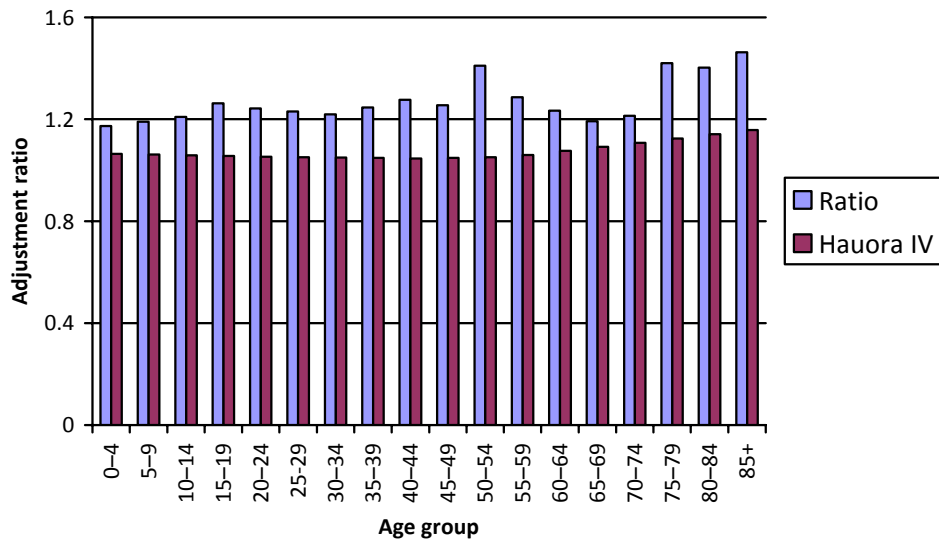
**Table 5.2: Ever-Māori adjustment ratio for (a) serious non-fatal injuries and for (b) injury deaths in hospital – separately for the periods 1996-1999, and 2000-2007**

Period	Ever-Māori adjustment ratios	
	Non-Fatals	fatals
1996-99	1.34	1.41
2000-07	1.23	1.18

If there was no residual undercount when using the "ever-Māori" method for admissions, the adjustment ratios for the non-fatal and the fatal cases should be similar. This is the case for the period 1996-99 and 2001-07.

Figure 5.2 provides a comparison of the adjustment ratios derived using the ever-Māori method with those published in Hauora IV<sup>31</sup> for the period 2000-2005. It is apparent from this figure that, compared with Hauora IV, the ever-Māori method over-counts cases in all age groups. The magnitude of the difference is more pronounced for the 75+ age groups.

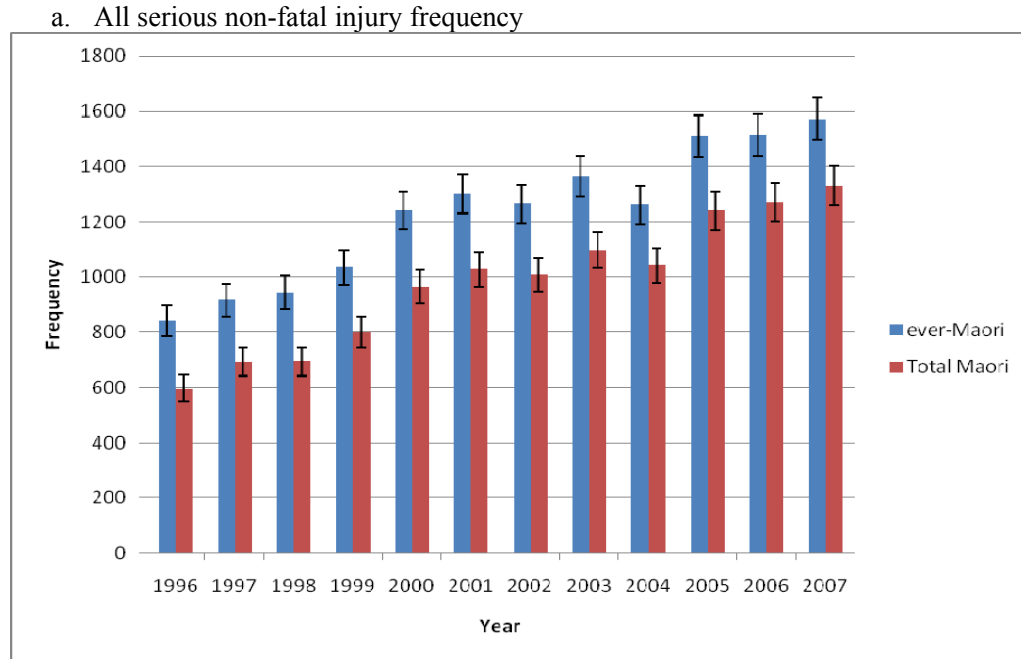
**Figure 5.2: Comparison of adjustment ratios for NMDs data – ever-Māori method vs Hauora IV**



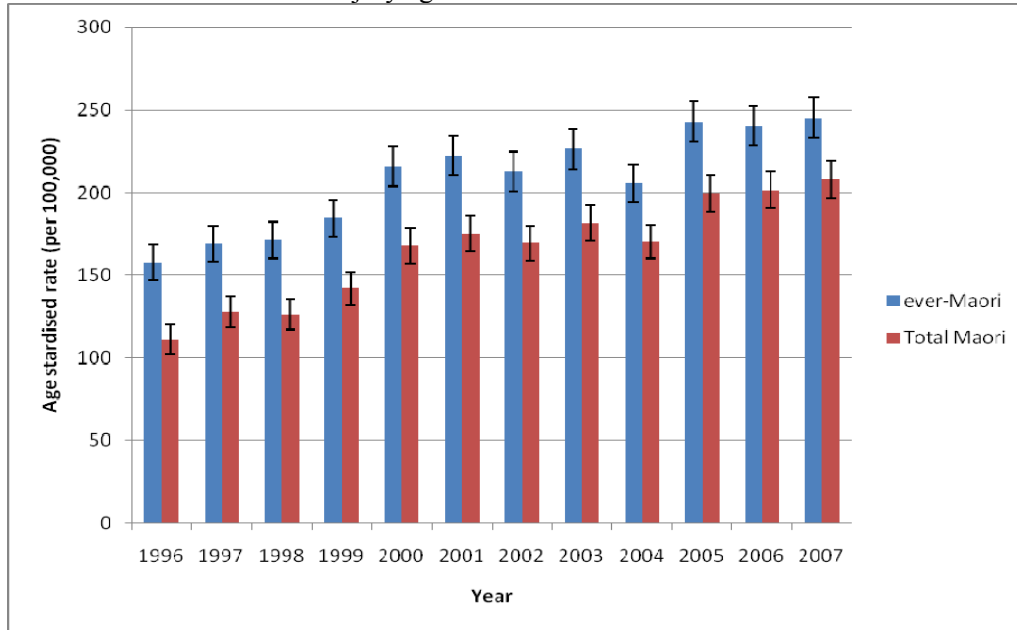
### 5.3.4 Fatal and non-fatal injury – ever-Māori versus unadjusted trends.

Not surprisingly, each of the following figures show a lower count obtained from using the ethnic group classification from single Mortality Collection records or NMDS hospital discharge records than when using the ever-Māori method (Figure 5.3). Nevertheless, the trends show similar patterns.

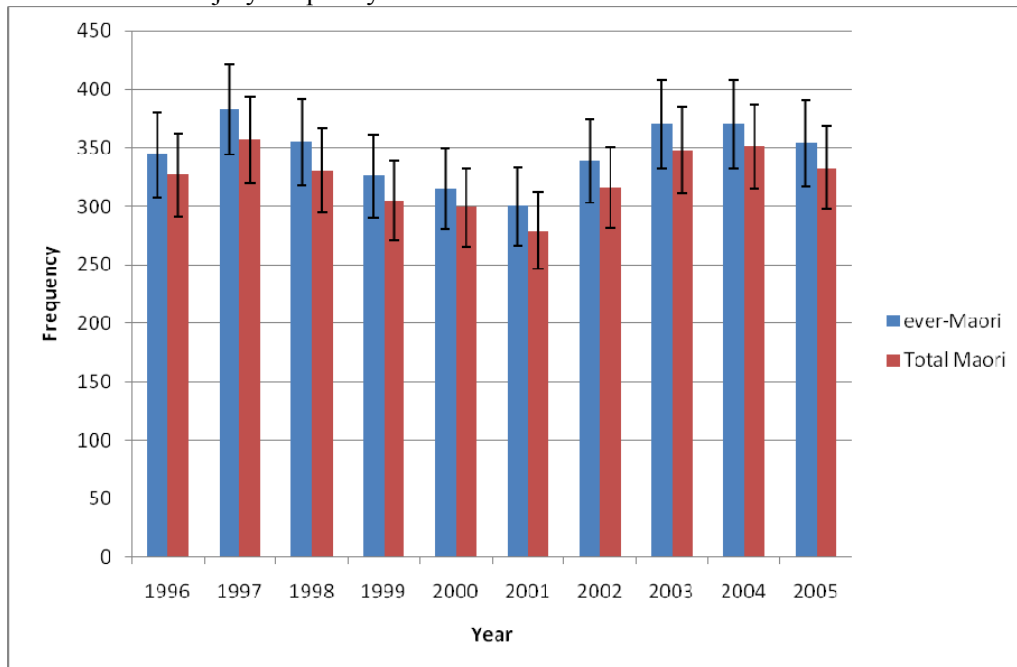
**Figure 5.3: Charts contrasting rates and frequencies using the ethnic group classification from the NMDS hospital discharge record (a. and b.) or the Mortality Collection record (c. and d.) compared with when using the ever-Māori method**



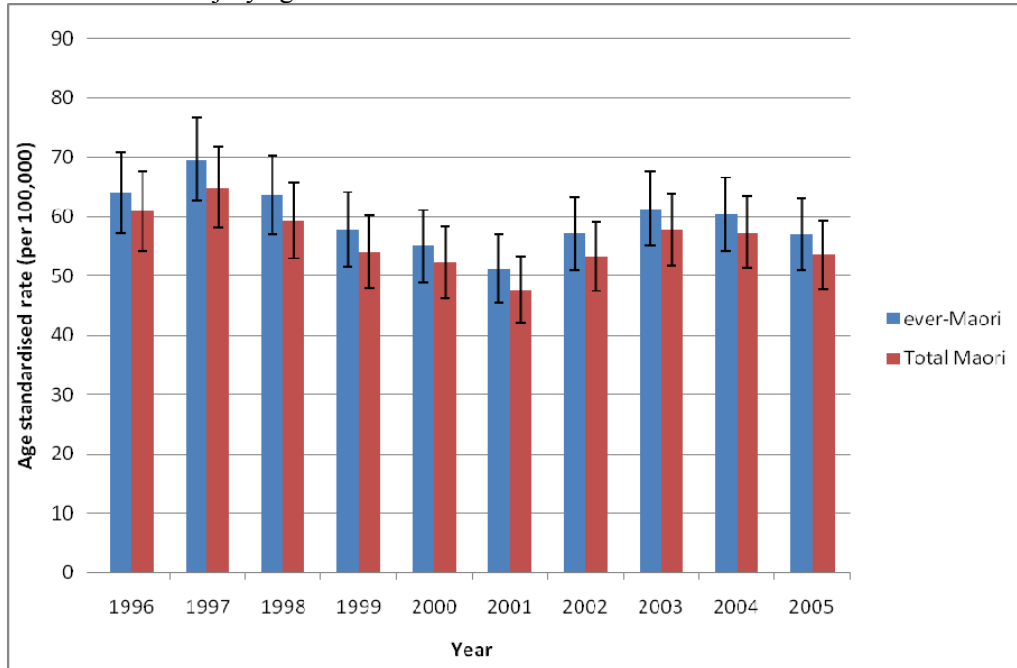
b. All serious non-fatal injury age standardized rate



c. All fatal injury frequency



d. All fatal injury age standardised rate



## 5.4 Discussion

### 5.4.1 Comparison of the trends in counts using two methods.

The trends shown in the results section in relation to question 4 (Figure 5.3) show a lower count when just using the ethnic group classification from the Mortality Collection record or the NMDS hospital discharge record than when using the ever-Māori method. Nevertheless, the trends show similar patterns. This is reassuring as it suggests that the ever-Māori method is not over-estimating Māori in later years to the extent that it causes significant bias to the trends. Bias in the direction and slope of trends is the most important consideration in the context of these NZIPS indicators, as the indicators have been designed to be valid indicators monitoring the change in injury incidence and rate over time.

This body of work suggests that for trend analyses, the direction and slope of the trends do not appear to be critically dependent on the ethnic group classification method that is used.

### 5.4.2 Fatal injury

The ever-Māori method appears to produce very similar trends in the 'all injury' indicators compared with the indicators produced using NZCMS adjustment ratios. This

is reassuring and suggests that the ever-Māori method produces 'all age' counts to an acceptable level of accuracy. For the period 1996-1999, age-specific adjustment ratios in Māori counts using the ever-Māori method show some variance from the NZCMS adjustment ratios for equivalent age groups. For the period 2001-2004, age specific adjustment ratios using the ever-Māori method were higher than the corresponding NZCMS adjustment ratios for all age groups. This would suggest that the ever-Māori method under-inflates the counts for the ages 15-44, and over-inflates them for people aged 65 and over for the period 1996-1999. Nevertheless, this seems to even itself out for the 'all age' indicators. For the period 2001-2004, the ever-Māori method appears to over-inflate the counts for all age groups.

### *5.4.3 Non-fatal injury*

The methods used to validate the ever-Māori method, when applied to NMDS hospitalisation data, show almost identical adjustment ratios for fatal and non-fatal injuries for the period 1996 to 1999 and 2001 to 2004. This suggests no undercount, but it is not definitive proof for the following reason. The ever-Māori adjustment ratio derived from the Mortality Collection was based on cases identified as injuries from the underlying cause of death field. Earlier work of ours indicated that around 60% of people who are admitted to hospital with a primary diagnosis of injury and who subsequently die in hospital, were found on the NZHIS Mortality Collection with an underlying cause of death other than injury (eg. circulatory disease)<sup>32 33</sup>. Consequently, even though the ever-Māori method seems to have acceptable validity compared with the NZCMS approach when based on injury as classified in the NZHIS Mortality Collection data, the same will not necessarily be true for the much greater number of cases admitted to hospital with a primary diagnosis of injury who die in hospital.

The publication of the adjustment ratios for the 2001-2004 period by Fawcett et al indicates that the Mortality Collection is now accurately recording ethnicity. As such, it appears that the ever-Māori method is over-counting cases of Māori deaths during this period. In addition, given that the ever-Māori method provides higher counts in 2001-04 compared to NZCMS adjustment, it suggests that the ever-Māori method also over counts when applied to NMDS for 2001-2004. Further support for this is provided by way of comparison of the ever-Māori adjustment ratios with the Hauora IV adjustment ratios (Figure 2). This comparison suggests that the ever-Māori method is over-counting for all (fatal and non-fatal) NMDS cases.

Unpublished work of Bridget Robson and her colleagues suggests that the number of deaths classified to Māori using the ever Māori method has increased in recent years. Their work in progress suggests that this method produces counts around 8% higher for 2000-2004 than using death registration ethnicity only. (Bridget Robson, personal correspondence, 28 April 2007).

Despite the above, the results relating to question 4 do not suggest a bias in the trends sufficient to threaten the validity of our fatal or our non-fatal indicators.

# **Chapter 6: Serious injury indicators for children**

## 6.1 Background

The desire for a [Chartbook of Injury Indicators for Children](#) was indicated by a number of organisations including SafeKids. The children's chartbook presents an adaptation of the NZIPS serious injury indicators (<http://www.nzips.govt.nz/documents/chartbook-serious-indicators.pdf>) for children aged 0-14 years, for four of the priority areas (workplace injuries and drowning and near drowning have been excluded, see below).

## 6.2 The indicators

The validated NZIPS serious injury indicators for 'all injury' are as follows:

- Age-standardised injury fatality rate, per 100,000 person-years at risk
- Frequency of injury fatality
- Age-standardised serious non-fatal injury rate, per 100,000 person-years at risk
- Frequency of serious non-fatal injuries

The indicators are based on the New Zealand Health Information Service's (NZHIS) Mortality Collection and National Minimum Dataset (NMDS) of hospital discharge data<sup>e</sup>. Absolute numbers and rates have been calculated for each indicator. Absolute numbers reflect the societal burden of injury, while rates reflect individual risk.

For children aged 0-14 years, there are practical limitations with regard to the small number of cases (and thus the imprecision of the indicators). To overcome some of these limitations a 'Serious (fatal + non-fatal)' indicator that combines fatal injuries and serious non-fatal injuries has been calculated. In addition to this, two priority areas, 'Assault' and 'Intentional Self-Harm', have been combined into one 'Intentional' indicator. Following input from SafeKids, two additional traffic related indicators, not present in the all population Chartbook<sup>34</sup> have been included for children. Both of these indicators are subsets of motor vehicle traffic crashes; Pedestrian injuries and Car occupant injuries. Indicators presented in the chartbooks, for which there were considered to be adequate numbers, are presented in Table 6.1 below:

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<sup>e</sup> NZHIS NMDS, a database which records information on all publicly funded hospital discharges in New Zealand, was used as the source for the NZIPS serious non-fatal injury indicators. The NZHIS NMDS excludes cases that are funded privately. Only a small number of relevant cases would not be identified through the exclusion of these latter cases<sup>15</sup>.

**Table 6.1: Indicators for children aged 0-14 years**

Area	Fatals	Serious non-fatals	Serious (fatal + non-fatal)
All injury	✓	✓	✓
Assault	X	X	✓
Work related	X	X	X
Intentional self-harm	X	X	X
Falls	X	✓	✓
Motor vehicle traffic crashes	✓	✓	✓
Pedestrian	X	X	✓
Car occupant	X	X	✓
Drowning and near drowning	X	X	X
Intentional (assault and self-harm combined)	X	✓	✓

✓ = number of cases per year makes the indicators viable

X = small numbers of cases makes the indicators non-viable

# **Chapter 7: Whole population indicator specifications**

**ID** I01

**Name** ICISS-based All Serious Non-Fatal Injury Frequency

**Concept of Interest** Societal burden of serious non-fatal injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Cases hospitalised for injury in a calendar year, who were discharged alive and had an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an injury hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E800-E869, E880-E928 or E950-E999. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A

**Calculation** N/A

ID I02

**Name** ICISS-based All Serious Non-Fatal Injury Rate.

**Concept of Interest** Individuals' average annual risk of serious non-fatal injury.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Cases hospitalised for injury in a calendar year, who were discharged alive and had an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an injury hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E800-E869, E880-E928 or E950-E999. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator**

**Description**

Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID I11

**Name** All Fatal Injury Frequency

**Concept of Interest** Societal burden of fatal injury.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Injury fatalities registered in a calendar year.

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>.

In order to compare with earlier years the definition of an injury fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These are an underlying cause of death e-code in the range E800-E869, E880-E928 or E950-E999.

**Source** NZHIS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A

**Calculation** N/A

ID I12

**Name** All Fatal Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal injury.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Injury fatalities registered in a calendar year.

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>.

In order to compare to earlier years the definition of an injury fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These are an underlying cause of death e-code in the range E800-E869, E880-E928 or E950-E999.

**Source** NZHIS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source** Statistics New Zealand

**Calculation** Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

**ID I21****Name** *All Serious (Fatal + Non-Fatal) Injury Frequency***Concept of Interest** Societal burden of fatal and serious non-fatal injury.**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages

**Source Organisation** Developed by IPRU for NZIPS.**Numerator****Description** Injury fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year.**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification <sup>35</sup>.

In order to compare to earlier years the definition of an injury fatality has been translated into equivalent ICD-9-CM-A codes <sup>37</sup>. These are an underlying cause of death e-code in the range E800-E869, E880-E928 or E950-E999.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification <sup>35</sup>. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al <sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al <sup>22 36</sup>.

In order to compare to earlier years the definition of an injury hospitalisation has been translated into equivalent ICD-9-CM-A codes <sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E800-E869, E880-E928 or E950-E999. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHIS Mortality Collection and NMDS

([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator** N/A**Calculation** N/A

**ID** I22

**Name** All Serious (Fatal and Non-Fatal) Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Injury fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>.

In order to compare to earlier years the definition of an injury fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E800-E869, E880-E928 or E950-E999.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an injury hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E800-E869, E880-E928 or E950-E999. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

*(continued)*

ID I22 (cont)

**Name** All Serious (Fatal and Non-Fatal) Injury Rate

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID A01

**Name** Provisional ICISS-based Serious Non-Fatal Assault Injury Frequency

**Concept of Interest** Societal burden of serious non-fatal injury from Assault.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Cases hospitalised for assault in a calendar year, who were discharged alive, with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Assault hospitalisations are injury hospitalisations with a first external cause code in the range X85-Y09. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22 36</sup>.

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A

**Calculation** N/A

ID A02

**Name** Provisional ICISS-based Serious Non-Fatal Assault Injury Rate

**Concept of Interest** Individuals' average annual risk of serious non-fatal injury.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Cases hospitalised for assault in a calendar year, who were discharged alive and had an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Assault hospitalisations are injury hospitalisations with a first external code in the range X85-Y09. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22 36</sup>.

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator**

**Description**

Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

**ID** A11

**Name** Provisional Fatal Assault Injury Frequency

**Concept of Interest** Societal burden of fatal assault injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Assault fatalities in a calendar year.

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Assault fatalities are injury fatalities with an underlying cause of death e-code in the range X85-Y09.

In order to compare to earlier years the definition of an assault fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E960-E969.

**Source** NZHIS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A

**Calculation** N/A

**ID** A12

**Name** Provisional Fatal Assault Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal injury from assault.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Assault fatalities in a calendar year.

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Assault fatalities are injury fatalities with an underlying cause of death e-code in the range X85-Y09.

In order to compare to earlier years the definition of an assault fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E960-E969.

**Source** NZHIS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source** Statistics New Zealand

**Calculation** Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical Research, 2<sup>nd</sup> ed., pp 399-403.

**ID** A21

**Name** Provisional Serious (Fatal + Non-Fatal) Assault Injury Frequency

**Concept of Interest** Societal burden of fatal and serious non-fatal assault injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Assault fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Assault fatalities are injury fatalities with an underlying cause of death e-code in the range X85-Y09.

In order to compare to earlier years the definition of an assault fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E960-E969.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Assault hospitalisations are injury hospitalisations with a first external cause code in the range X85-Y09. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator** N/A

**Calculation** N/A

**ID** A22

**Name** Provisional Serious (Fatal + Non-Fatal) Assault Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal assault injury from assault.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Assault fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Assault fatalities are injury fatalities with an underlying cause of death e-code in the range X85-Y09.

In order to compare to earlier years the definition of an assault fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E960-E969.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Assault hospitalisations are injury hospitalisations with a first external cause code in the range X85-Y09. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

(continued)

ID A22(contd.)

**Name** Provisional Serious (Fatal + Non-Fatal) Assault Injury Rate

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source** Statistics New Zealand

**Calculation** Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID W01

**Name** Provisional ICISS-based Serious Non-Fatal Work-Related Injury Frequency

**Concept of Interest** Societal burden of serious non-fatal work-related injury.

**Scope**

**Area** All injury  
**Gender** Both genders  
**Age** 15 and older

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Work-related injury hospitalisations for people aged 15 to 84, who were discharged alive, with an ICISS score of 0.941 or less.

**Details**

Work-related hospitalisations are injury hospitalisations with an associated work-related ACC claim. Work-related ACC claims are those made to the Self-Employed Work and Employers' ACC accounts. Additional cases were also identified from the Residual fund through the ACC 'At work' indicator.

Gradual process claims were excluded (i.e. where the case was identified by ACC as a 'gradual process', was coded to an explicit occupational disease code, or if the 'read\_id\_label' includes one of the following words: 'neoplasm', 'anomalies', 'anomaly', 'asbestos', 'asbestosis', 'mesothelioma', 'lymphoma', 'tumour', 'asthma', 'alveolitis', 'carcinoma', 'stoma appliances', 'leptospirosis', 'personal history of unspecified problems').

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>.

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

**Source** ACC and NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A

**Calculation** N/A

ID W02

**Name** Provisional ICISS-based Serious Non-Fatal Work-Related Injury Rate

**Concept of Interest** Individuals' average annual risk of serious non-fatal work-related injury.

**Scope**

<b>Area</b>	All injury
<b>Gender</b>	Both genders
<b>Age</b>	15 and older

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Work-related injury hospitalisations for people aged 15 to 84, who were discharged alive, with an ICISS score of 0.941 or less.

**Details**

Work-related hospitalisations are injury hospitalisations with an associated work-related ACC claim. Work-related ACC claims are those made to the Self-Employed Work and Employers' ACC accounts. Additional cases were also identified from the Residual fund through the ACC 'At work' indicator.

Gradual process claims were excluded (i.e. where the case was identified by ACC as a 'gradual process', was coded to an explicit occupational disease code, or if the 'read\_id\_label' includes one of the following words: 'neoplasm', 'anomalies', 'anomaly', 'asbestos', 'asbestosis', 'mesothelioma', 'lymphoma', 'tumour', 'asthma', 'alveolitis', 'carcinoma', 'stoma appliances', 'leptospirosis', 'personal history of unspecified problems').

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>.

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>

**Source** ACC claims and NZHIS NMDS

**Denominator**

**Description** Estimated total New Zealand working population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the Household Labour Force Survey estimated number of employed non-institutionalised New Zealand residents.  
(<http://wdmzpub01.stats.govt.nz/wds/TableViewer/tableView.aspx>)

**Source** Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 15-19, 20-24, 25-29, ... 60-64, and 65 and above. The standard population was the estimated New Zealand working population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID W11

**Name** Provisional Work-Related Fatal Injury Frequency

**Concept of Interest** Societal burden of work-related fatal injury.- NZHIS

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 15 years and older

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Work-related injury fatalities registered in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification. Work-related fatalities are those with an ICD-10-AM activity code of 2<sup>383838</sup>  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf)).

**Source**

NZHIS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A

**Calculation** N/A

ID W12

**Name** Provisional Work-Related Fatal Injury Frequency - ACC

**Concept of Interest** Societal burden of work-related fatal injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 15 years and older

**Source Organisation** Developed by IPRU for NZIPS

**Numerator**

**Description** New work-related injury fatalities ACC claims registered in a calendar year.

**Details** A case of work related injury was selected from the ACC fatalities data using the following procedure:

ACC claims for work-related fatal injury are those made to the Self-Employed Work and Employers' ACC accounts. Additional cases were also identified from the Residual fund through the ACC 'At work' indicator. Gradual process claims were excluded (i.e. where the case was identified by ACC as a 'gradual process', was coded to an explicit occupational disease code, or if the 'read\_id\_label' includes one of the following words: 'neoplasm', 'anomalies', 'anomaly', 'asbestos', 'asbestosis', 'mesothelioma', 'lymphoma', 'tumour', 'asthma', 'alveolitis', 'carcinoma', 'stoma appliances', 'sudden cardiac death', 'leptospirosis', 'personal history of unspecified problems').

**Source** ACC

**Denominator** N/A

**Calculation** N/A

ID W13

**Name** Provisional Work-Related Fatal Injury Rate

**Concept of Interest** Individuals' average annual risk of work-related fatal injury. - NZHIS

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 15 years and older

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Work-related injury fatalities registered in a calendar year.

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification. Work-related fatalities are those with an ICD-10-AM activity code of 2<sup>3838383838</sup>  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Source** NZHIS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description** Estimated total New Zealand working population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on the Household Labour Force Survey estimated number of employed non-institutionalised New Zealand residents  
(<http://wdmzpub01.stats.govt.nz/wds/TableViewer/tableView.aspx>).

**Source** Statistics New Zealand

**Calculation** Age standardised rate. Age standardisation was via the direct method with age groups of 15-19, 20-24, 25-29...and 65 and above. The standard population was the estimated New Zealand working population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical Research, 2<sup>nd</sup> ed., pp 399-403.

ID W14

**Name** Provisional Work-Related Fatal Injury Rate - ACC

**Concept of Interest** Individuals' average annual risk of work-related fatal injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 15 years and older

**Source Organisation** Developed by IPRU for NZIPS

**Numerator**

**Description** New work-related injury fatalities ACC claims registered in a calendar year.

**Details** A case of work related injury was selected from the ACC fatalities data using the following procedure:

ACC claims for work-related fatal injury are those made to the Self-Employed Work and Employers' ACC accounts. Additional cases were also identified from the Residual fund through the ACC 'At work' indicator. Gradual process claims were excluded (i.e. where the case was identified by ACC as a 'gradual process', was coded to an explicit occupational disease code, or if the 'read\_id\_label' includes one of the following words: 'neoplasm', 'anomalies', 'anomaly', 'asbestos', 'asbestosis', 'mesothelioma', 'lymphoma', 'tumour', 'asthma', 'alveolitis', 'carcinoma', 'stoma appliances', 'sudden cardiac death', 'leptospirosis', 'personal history of unspecified problems').

**Source** ACC

**Denominator**

**Description** Estimated total New Zealand working population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on the Household Labour Force Survey estimated number of employed non-institutionalised New Zealand residents.  
(<http://wdmzpub01.stats.govt.nz/wds/TableViewer/tableView.aspx>).

**Source** Statistics New Zealand

**Calculation** Age standardised rate. Age standardisation was via the direct method with age groups of 15-19, 20-24, 25-29 and 65 and above. The standard population was the estimated New Zealand working population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical Research, 2<sup>nd</sup> ed., pp 399-403.

**ID W21****Name** Provisional Work-Related Serious (Fatal and Non-fatal) Injury Frequency**Concept of Interest** Societal burden of work-related serious (fatal and non-fatal) injury.**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	15 years and older

**Source Organisation** Developed by IPRU for NZIPS**Numerator****Description** Work-related fatal, and non fatal injury for people aged 15 to 84 years. Non-fatal cases were hospitalisations, who were discharged alive, with an ICISS score of 0.941 or less.**Details**

A case of work related fatal injury was selected from the ACC fatalities data using the following procedure:

ACC claims for work-related fatal injury are those made to the Self-Employed Work and Employers' ACC accounts. Additional cases were also identified from the Residual fund through the ACC 'At work' indicator. Gradual process claims were excluded (i.e. where the case was identified by ACC as a 'gradual process', was coded to an explicit occupational disease code, or if the 'read\_id\_label' includes one of the following words: 'neoplasm', 'anomalies', 'anomaly', 'asbestos', 'asbestosis', 'mesothelioma', 'lymphoma', 'tumour', 'asthma', 'alveolitis', 'carcinoma', 'stoma appliances', 'sudden cardiac death', 'leptospirosis', 'personal history of unspecified problems').

Work-related hospitalisations are injury hospitalisations with an associated work-related ACC claim. Work-related ACC claims are those made to the Self-Employed Work and Employers' ACC accounts. Additional cases were also identified from the Residual fund through the ACC 'At work' indicator.

Gradual process claims were excluded (i.e. where the case was identified by ACC as a 'gradual process', was coded to an explicit occupational disease code, or if the 'read\_id\_label' includes one of the following words: 'neoplasm', 'anomalies', 'anomaly', 'asbestos', 'asbestosis', 'mesothelioma', 'lymphoma', 'tumour', 'asthma', 'alveolitis', 'carcinoma', 'stoma appliances', 'sudden cardiac death', 'leptospirosis', 'personal history of unspecified problems').

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>.

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

**Source**

ACC and NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

ID W21 (cont.)

**Name** Provisional Work-Related Serious (Fatal and Non-fatal) Injury Frequency

**Denominator** N/A

**Calculation** N/A

ID W22

**Name** Provisional Work-Related Serious (Fatal and Non-fatal) Injury Rate

**Concept of Interest** Individuals' average annual risk of work-related serious (fatal and non-fatal) injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 15 years and older

**Source Organisation** Developed by IPRU for NZIPS

**Numerator**

**Description** Work-related fatal, and non fatal injury for people aged 15 to 84 years. Non-fatal cases were hospitalisations, who were discharged alive, with an ICISS score of 0.941 or less.

**Details**

A case of work related fatal injury was selected from the ACC fatalities data using the following procedure:

ACC claims for work-related fatal injury are those made to the Self-Employed Work and Employers' ACC accounts. Additional cases were also identified from the Residual fund through the ACC 'At work' indicator. Gradual process claims were excluded (i.e. where the case was identified by ACC as a 'gradual process', was coded to an explicit occupational disease code, or if the 'read\_id\_label' includes one of the following words: 'neoplasm', 'anomalies', 'anomaly', 'asbestos', 'asbestosis', 'mesothelioma', 'lymphoma', 'tumour', 'asthma', 'alveolitis', 'carcinoma', 'stoma appliances', 'sudden cardiac death', 'leptospirosis', 'personal history of unspecified problems').

Work-related hospitalisations are injury hospitalisations with an associated work-related ACC claim. Work-related ACC claims are those made to the Self-Employed Work and Employers' ACC accounts. Additional cases were also identified from the Residual fund through the ACC 'At work' indicator.

Gradual process claims were excluded (i.e. where the case was identified by ACC as a 'gradual process', was coded to an explicit occupational disease code, or if the 'read\_id\_label' includes one of the following words: 'neoplasm', 'anomalies', 'anomaly', 'asbestos', 'asbestosis', 'mesothelioma', 'lymphoma', 'tumour', 'asthma', 'alveolitis', 'carcinoma', 'stoma appliances', 'sudden cardiac death', 'leptospirosis', 'personal history of unspecified problems').

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>.

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

**Source** ACC and NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

(continued)

ID W22 (contd.)

**Name** Provisional Work-Related Serious (Fatal and Non-fatal) Injury Rate

**Denominator**

**Description** Estimated total New Zealand working population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the Household Labour Force Survey estimated number of employed non-institutionalised New Zealand residents.  
(<http://wdmzpub01.stats.govt.nz/wds/TableViewer/tableView.aspx>).

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 15-19, 20-24, 25-29 and 65 and above. The standard population was the estimated New Zealand working population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

**ID** S01

**Name** Provisional Serious Non-Fatal Self-harm Injury Frequency

**Concept of Interest** Societal burden of serious non-fatal self-harm injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Self-harm hospitalised cases with an ICISS score of 0.941 or less, in a calendar year.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Self-harm hospitalisations are injury hospitalisations with a first external cause code in the range X60-X84. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a self-harm hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E950-E959. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A

**Calculation** N/A

ID S02

**Name** Provisional Serious Non-Fatal Self-harm Injury Rate

**Concept of Interest** Individuals' average annual risk of serious non-fatal injury from self-harm.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Self-harm injury hospitalised cases with an ICISS score of 0.941 or less, in a calendar year.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Self-harm hospitalisations are injury hospitalisations with a first external cause code in the range X60-X84. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a self-harm hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E950-E959. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID S11

**Name** Fatal Self-harm Injury Frequency

**Concept of Interest** Societal burden of fatal self-harm injury.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Self-harm injury fatalities registered in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Self-harm fatalities are injury fatalities with an underlying cause of death e-code in the range X60-X84.

In order to compare with earlier years the definition of a self-harm fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These are an underlying cause of death e-code in the range E950-E959.

**Source**

NZHis Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A  
**Calculation** N/A

ID S12

**Name** Fatal Self-harm Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal self-harm injury.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Self-harm injury fatalities registered in a calendar year.

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Self-harm fatalities are injury fatalities with an underlying cause of death e-code in the range X60-X84.

In order to compare to earlier years the definition of a self-harm fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These are an underlying cause of death e-code in the range E950-E959.

**Source** NZHIS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source** Statistics New Zealand

**Calculation** Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

**ID** S21

**Name** Provisional Serious (Fatal + Non-Fatal) Self-harm Injury Frequency

**Concept of Interest** Societal burden of fatal and serious non-fatal self-harm injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Self-harm injury fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Self-harm fatalities are injury fatalities with an underlying cause of death e-code in the range X60-X84.

In order to compare to earlier years the definition of a self-harm fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E950-E959.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Self-harm hospitalisations are injury hospitalisations with a first external cause code in the range X60-X84. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a self-harm hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E950-E959. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator** N/A

**Calculation** N/A

ID S22

**Name** Provisional Serious (Fatal + Non-Fatal) Self-harm Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal injury from self-harm.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Self-harm injury fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Self-harm fatalities are injury fatalities with an underlying cause of death e-code in the range X60-X84.

In order to compare to earlier years the definition of a self-harm fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E950-E959.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Self-harm hospitalisations are injury hospitalisations with a first external cause code in the range X60-X84. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a self-harm hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E950-E959. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

*(continued)*

ID S22 (contd.)

**Name** Provisional Serious (Fatal + Non-Fatal) Self-harm Injury Rate

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source** Statistics New Zealand

**Calculation** Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

**ID** F01a

**Name** ICISS-based Serious Non-Fatal Falls Injury Frequency

**Concept of Interest** Societal burden of serious non-fatal injury from falls.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Cases hospitalised for falls in a calendar year, who were discharged alive, with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A

**Calculation** N/A

ID F02a

**Name** ICISS-based Serious Non-Fatal Falls Injury Rate

**Concept of Interest** Individuals' average annual risk of serious non-fatal falls injury.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Cases hospitalised for falls in a calendar year, who were discharged alive, with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

**ID** F11a

**Name** Serious Fatal Falls Injury Frequency

**Concept of Interest** Societal burden of fatal falls injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Falls fatalities in a calendar year.

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E880-E886 or E888.

**Source** NZHIS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A

**Calculation** N/A

**ID** F12a

**Name** Serious Fatal Falls Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal injury from falls.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Falls fatalities in a calendar year.

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E880-E886 or E888.

**Source** NZHIS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source** Statistics New Zealand

**Calculation** Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical Research, 2<sup>nd</sup> ed., pp 399-403.

ID F21a

**Name** Serious (Fatal + Non-Fatal) Falls Injury Frequency

**Concept of Interest** Societal burden of fatal and serious non-fatal falls injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Falls fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E880-E886 or E888.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>8</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator** N/A  
**Calculation** N/A

ID F22a

**Name** Serious (Fatal + Non-Fatal) Falls Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal injury from falls.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Falls fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E880-E886 or E888.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

*(continued)*

ID F22a (contd.)

**Name** Serious (Fatal + Non-Fatal) Falls Injury Rate

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source** Statistics New Zealand

**Calculation** Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2nd ed., pp 399-403.

**ID** F01b

**Name** ICISS-based Serious Non-Fatal Falls Injury Frequency aged 0-74 years.

**Concept of Interest** Societal burden of serious non-fatal injury from falls.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	0-74 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Cases hospitalised for falls in a calendar year, who were discharged alive, with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A  
**Calculation** N/A

ID F02b

**Name** ICISS-based Serious Non-Fatal Falls Injury Rate aged 0-74 years.

**Concept of Interest** Individuals' average annual risk of serious non-fatal falls injury.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	0-74 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Cases hospitalised for falls in a calendar year, who were discharged alive, with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator**  
**Description**

Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 70-74 years. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2nd ed., pp 399-403.

ID F11a

**Name** Serious Fatal Falls Injury Frequency

**Concept of Interest** Societal burden of fatal falls injury aged 0-74 years.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-74 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Falls fatalities in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E880-E886 or E888.

**Source**

NZHS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A

**Calculation** N/A

ID F12a

**Name** Serious Fatal Falls Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal injury from falls for aged 0-74 years.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-74 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Falls fatalities in a calendar year.

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E880-E886 or E888.

**Source** NZHIS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source** Statistics New Zealand

**Calculation** Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 70-74 years. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2nd ed., pp 399-403.

ID F21b

**Name** Serious (Fatal + Non-Fatal) Falls Injury Frequency for aged 0-74 years

**Concept of Interest** Societal burden of fatal and serious non-fatal falls injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-74 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Falls fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E880-E886 or E888.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A  
**Calculation** N/A

ID F22b

**Name** Serious (Fatal + Non-Fatal) Falls Injury Rate for aged 0-74 years

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal injury from falls.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-74 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Falls fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E880-E886 or E888.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

*(continued)*

ID F22b (contd.)

**Name** Serious (Fatal + Non-Fatal) Falls Injury Rate for aged 0-74 years

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 70-74 years. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2nd ed., pp 399-403.

ID F01c

**Name** ICISS-based Serious Non-Fatal Falls Injury Frequency for aged 75 years and over

**Concept of Interest** Societal burden of serious non-fatal injury from falls.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	75 years and over

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Cases hospitalised for falls in a calendar year, who were discharged alive, with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A

**Calculation** N/A

ID F02c

**Name** ICISS-based Serious Non-Fatal Falls Injury Rate for aged 75 years and older.

**Concept of Interest** Individuals' average annual risk of serious non-fatal falls injury.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	75 years and over

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Cases hospitalised for falls in a calendar year, who were discharged alive, with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 75-79, 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2nd ed., pp 399-403.

ID F11c

**Name** Serious Fatal Falls Injury Frequency for aged 75 years and older

**Concept of Interest** Societal burden of fatal falls injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 75 years and over

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Falls fatalities in a calendar year.

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E880-E886 or E888.

**Source** NZHIS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A  
**Calculation** N/A

ID F12c

**Name** Serious Fatal Falls Injury Rate for aged 75 years and older

**Concept of Interest** Individuals' average annual risk of fatal injury from falls.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 75 years and over

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Falls fatalities in a calendar year.

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E880-E886 or E888.

**Source** NZHIS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source** Statistics New Zealand

**Calculation** Age standardised rate. Age standardisation was via the direct method with age groups of 75-79, 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2nd ed., pp 399-403.

ID F21c

**Name** Serious (Fatal + Non-Fatal) Falls Injury Frequency for aged 75 years and older

**Concept of Interest** Societal burden of fatal and serious non-fatal falls injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 75 years and older

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Falls fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E880-E886 or E888.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A  
**Calculation** N/A

ID F22c

**Name** Serious (Fatal + Non-Fatal) Falls Injury Rate for aged 75 years and older

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal injury from falls.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 75 years and older

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Falls fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E880-E886 or E888.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

*(continued)*

ID F22c (contd.)

**Name** Serious (Fatal + Non-Fatal) Falls Injury Rate for aged 75 years and older

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source** Statistics New Zealand

**Calculation** Age standardised rate. Age standardisation was via the direct method with age groups of 75-79, 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2nd ed., pp 399-403.

ID M01

**Name** ICISS-based Serious Non-Fatal MVTC Injury Frequency

**Concept of Interest** Societal burden of serious non-fatal injury from MVTCs.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Cases hospitalised following MVTC in a calendar year, who were discharged alive, with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. MVTC hospitalisations are injury hospitalisations with a first external cause code in the range V02-V04 (with a 4th digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a MVTC hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A

**Calculation** N/A

**ID M02****Name** ICISS-based Serious Non-Fatal MVTC Injury Rate**Concept of Interest** Individuals' average annual risk of serious non-fatal MVTC injury.**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages

**Source Organisation** Developed by IPRU for NZIPS.**Numerator****Description** Cases hospitalised following MVTC in a calendar year, who were discharged alive, with an ICISS score of 0.941 or less.**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. MVTC hospitalisations are injury hospitalisations with a first external cause code in the range V02-V04 (with a 4th digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a MVTC hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator****Description** Estimated total New Zealand population as at 30 June of the relevant year.**Details**

The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (ref <http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2nd ed., pp 399-403.

ID M11

**Name** Fatal MVTC Injury Frequency

**Concept of Interest** Societal burden of fatal MVTC injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** MVTC fatalities registered in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. MVTC fatalities are injury fatalities with an underlying cause of death e-code in the range V02-V04 (with a 4th digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2).

In order to compare with earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These are an underlying cause of death e-code in the range E810-E819.

**Source**

NZHS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A

**Calculation** N/A

ID M12

Name Fatal MVTC Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal MVTC injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** MVTC injury fatalities registered in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. MVTC fatalities are injury fatalities with a first external cause code in the range V02-V04 (with a 4th digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2).

In order to compare to earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These are an underlying cause of death e-code in the range E810-E819.

**Source**

NZHis Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2nd ed., pp 399-403.

ID M13

Name MVTC Fatal Injury Rate Per Vehicle Kilometre

**Concept of Interest** Individuals' average annual risk of fatal injury from MVTCs adjusting for exposure.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** MVTC fatalities registered in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. MVTC fatalities are injury fatalities with an underlying cause of death external cause code in the range V02-V04 (with a 4th digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2).

In order to compare to earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These are an underlying cause of death e-code in the range E810-E819.

**Source**

NZHis Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description**

Estimated total kilometres travelled by motor vehicles in New Zealand in the relevant year.

**Details**

From 2000, estimates of Vehicle Kilometres Travelled (VKT) are based on traffic count surveys conducted on both state highways and local roads. Prior to 2000 the estimates of the number of VKT are based on Transit's state highway traffic count index. No surveys were conducted in 2002 and 2004.

**Source**

LTNZ

**Calculation**

As no Traffic Count surveys were conducted in 2002 or 2004, estimates of Vehicle Kilometres Travelled (VKT) for these years were obtained by regression.

ID M14

Name MVTC Fatal Injury Rate Per Vehicle

**Concept of Interest** Drivers' average annual risk of fatal injury from MVTCs.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** MVTC fatalities registered in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. MVTC fatalities are injury fatalities with an underlying cause of death external cause code in the range V02-V04 (with a 4th digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2)

In order to compare to earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These are an underlying cause of death e-code in the range E810-E819.

**Source**

NZHS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description** Estimated total motor vehicles registered in New Zealand as at 30 June of the relevant year.

**Details**

Vehicle numbers include registered Cars, Vans, Trucks, Buses, Motor Caravans, Motor Cycles and Mopeds, but excludes those with an exempt or restoration licence. Source Motor vehicle register, LTNZ

**Calculation**

LTNZ provide the total number of vehicles registered as at 31 December. Annual estimates of the total motor vehicles registered as at 30 June were obtained by the average of the total motor vehicles registered in the relevant year and the previous year.

ID M15

**Name** Provisional MVTC Fatal Injury Frequency

**Concept of Interest** Societal burden of fatal injury from MVTCs.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages

**Source Organisation** LTNZ

**Numerator**

**Description** MVTC fatalities recorded in the Traffic Crash Report (TCR) database in a calendar year.

**Details**

All motor vehicle crashes resulting in injury or death that occur on a public road are required to be reported within 24 hours. Reported crashes are attended by a police officer who completes a TCR. People injured in a crash are coded as fatalities if they die within 30 days of the crash. Deaths that did not result from injuries sustained in the crash or result from suicide or murder are excluded.

**Source** LTNZ TCR database

**Denominator** N/A

**Calculation** N/A

ID M16

**Name** Provisional MVTC Fatal Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal injury from MVTCs.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** LTNZ

**Numerator**

**Description** MVTC fatalities recorded in the Traffic Crash Report (TCR) database in a calendar year.

**Details** All motor vehicle crashes resulting in injury or death that occur on a public road are required to be reported within 24 hours. Reported crashes are attended by a police officer who completes a TCR. People injured in a crash are coded as fatalities if they die within 30 days of the crash. Deaths that did not result from injuries sustained in the crash or result from suicide or murder are excluded.

**Source** LTNZ TCR database

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source** Statistics New Zealand

**Calculation** Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14...80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical research, 2nd ed., pp 399-403.

Each year between 0.2% & 4.1% of TCR fatalities had missing age data. Because the percentage of missing data was decreasing with time, it was considered important to include the fatalities with missing age data in the calculation of the age standardized rate. To do this the assumption was made that the missing ages followed the same distribution as those with age information.

ID M17

**Name** Provisional MVTC Fatal Injury Rate Per Vehicle Kilometre

**Concept of Interest** Individuals' average annual risk of fatal injury from MVTCs adjusting for exposure.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** LTNZ.

**Numerator**

**Description** MVTC fatalities recorded in the Traffic Crash Report (TCR) database in a calendar year.

**Details** All motor vehicle crashes resulting in injury or death that occur on a public road are required to be reported within 24 hours. Reported crashes are attended by a police officer who completes a TCR. People injured in a crash are coded as fatalities if they die within 30 days of the crash. Deaths that did not result from injuries sustained in the crash or result from suicide or murder are excluded.

**Source** LTNZ TCR database

**Denominator**

**Description** Estimated total kilometres travelled by motor vehicles in New Zealand in the relevant year.

**Details** From 2000 estimates of Vehicle Kilometres Travelled (VKT) are based on traffic count surveys conducted on both state highways and local roads. Prior to 2000 the estimates of the number of VKT are based on Transit's state highway traffic count index. No surveys were conducted in 2002 and 2004.

**Source** LTNZ, Traffic Count Surveys

**Calculation** As no Traffic Count Surveys were conducted in 2002 or 2004, estimates of Vehicle Kilometres Travelled (VKT) for these years were obtained by regression.

ID M18

**Name** Provisional MVTC Fatal Injury Rate Per Vehicle

**Concept of Interest** Drivers' average annual risk of fatal injury from MVTCs.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages

**Source Organisation** LTNZ.

**Numerator**

**Description** MVTC fatalities recorded in the Traffic Crash Report (TCR) database in a calendar year.

**Details** All motor vehicle crashes resulting in injury or death that occur on a public road are required to be reported within 24 hours. Reported crashes are attended by a police officer who completes a TCR. People injured in a crash are coded as fatalities if they die within 30 days of the crash. Deaths that did not result from injuries sustained in the crash or result from suicide or murder are excluded.

**Source** LTNZ TCR database

**Denominator**

**Description** Total motor vehicles registered in New Zealand as at 30 June of the relevant year.

**Details** Vehicle numbers include registered Cars, Vans, Trucks, Buses, Motor Caravans, Motor Cycles and Mopeds, but excludes those with an exempt or restoration licence. The total number of vehicles registered in New Zealand as at 31 December each year was from the LTSA Motor Vehicle Crashes in NZ report. Annual estimates of the total number of vehicles registered in New Zealand as at 30 June was obtained from the average of the preceding and current year.

**Source** LTNZ Motor vehicle register

ID M21

**Name** Serious (Fatal + Non-Fatal) MVTC Injury Frequency

**Concept of Interest** Societal burden of fatal and serious non-fatal MVTC injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** MVTC fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. MVTC fatalities are injury fatalities with a first external cause code in the range V02-V04 (with a 4th digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2).

In order to compare to earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E810-E819.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. MVTC hospitalisations are injury hospitalisations with a first external cause code in the range V02-V04 (with a 4th digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a MVTC hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A  
**Calculation** N/A

ID M22

**Name** Serious (Fatal + Non-Fatal) MVTC Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal MVTC injury.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** MVTC injury fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. MVTC fatalities are injury fatalities with a first external cause code in the range V02-V04 (with a 4th digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2).

In order to compare to earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are an underlying cause of death e-code in the range E810-E819.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. MVTC hospitalisations are injury hospitalisations with a first external cause code in the range V02-V04 (with a 4th digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a MVTC hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHis Mortality Collection and NMDS

([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

*Continued*

ID M22 (contd.)

**Name** Serious (Fatal + Non-Fatal) MVTC Injury Rate

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source** Statistics New Zealand

**Calculation** Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2nd ed., pp 399-403.

ID D11

**Name** Drowning Fatal Injury Frequency

**Concept of Interest** Societal burden of fatal injury from drowning.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Drowning fatalities registered in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Drowning fatalities are injury fatalities with any diagnosis of T75.1 and an underlying cause of death external cause code that is not in the range X60- Y09.

There are no available equivalent ICD-9-CM-A codes<sup>37</sup> to identify drowning fatalities.

**Source**

NZHS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A

**Calculation** N/A

ID D12

**Name** Drowning Fatal Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal injury from drowning.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Drowning fatalities registered in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Drowning fatalities are injury fatalities with any diagnosis of T75.1 and an underlying cause of death external cause code that is not in the range X60-Y09.

There are no available equivalent ICD-9-CM-A codes<sup>37</sup> to identify drowning fatalities.

**Source**

NZHS Mortality Collection  
383838383737 ([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14...80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical research, 2nd ed., pp 399-403.

**ID** D13

**Name** Provisional Drowning Fatal Injury Frequency

**Concept of Interest** Societal burden of fatal injury from drowning.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages

**Source Organisation** Water Safety New Zealand

**Numerator**

**Description** Drowning fatalities recorded in the DrownBase database in a calendar year.

**Details**

Fatalities are recorded in DrownBase if:  
Drowning is the primary cause of death; or  
Drowning is a contributing cause of death and the primary cause was potentially survivable in the absence of the drowning.  
Multiple sources are used to identify potential drowning-related fatalities including police reports, media and coroner's files<sup>39</sup>.

**Source** DrownBase

**Denominator** N/A

**Calculation** N/A

ID D14

**Name** Provisional Drowning Fatal Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal injury from drowning.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** All ages

**Source Organisation** Developed by IPRU for NZIPS

**Numerator**

**Description** Drowning fatalities recorded in the DrownBase database in a calendar year.

**Details**

Fatalities are recorded in DrownBase if:  
Drowning is the primary cause of death; or  
Drowning is a contributing cause of death and the primary cause was potentially survivable in the absence of the drowning.  
Multiple sources are used to identify potential drowning-related fatalities including police reports, media and coroner's files<sup>39</sup>.

**Source**

DrownBase

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14...80-84, and 85 and above. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical research, 2nd ed., pp 399-403.

# **Chapter 8: Māori indicator specifications**

ID M(T)I01

**Name** ICISS-based All Serious Non-Fatal Injury Frequency for Total Māori

**Concept of Interest** Societal burden of serious non-fatal injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** What about Cases of Maori (total) hospitalized for injury and discharged alive with an ICISS score of 0.941 or less, in a calendar year.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare with earlier years the definition of an injury hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E800-E869, E880-E928 or E950-E999. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A

**Calculation** N/A

ID M(T)I02

**Name** ICISS-based All Serious Non-Fatal Injury Rate for Total Māori

**Concept of Interest** Individuals' average annual risk of serious non-fatal injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** What about Cases of Maori (total) hospitalized for injury and discharged alive with an ICISS score of 0.941 or less, in a calendar year.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an injury hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E800-E869, E880-E928 or E950-E999. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

*(continued)*

ID M(T)I02 (contd.)

Name ICISS-based All Serious Non-Fatal Injury Rate for Total Māori (contd.)

**Denominator**

**Description** Estimated Total Māori population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>).

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 50-54, and 55 and above. The standard population was the estimated total Māori population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID M(T)I11

**Name** All Fatal Injury Frequency for Total Māori

**Concept of Interest** Societal burden of fatal injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** Injury fatalities registered in a calendar year amongst Māori (Total).

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>.

In order to compare with earlier years the definition of an injury fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E800-E869, E880-E928 or E950-E999.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

NZHS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A

**Calculation** N/A

ID M(T)I12

**Name** All Fatal Injury Rate for Total Māori

**Concept of Interest** Individuals' average annual risk of fatal injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** Injury fatalities amongst Māori (Total) registered in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>.

In order to compare to earlier years the definition of an injury fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E800-E869, E880-E928 or E950-E999.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

NZHS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description** Estimated Total Māori population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 50-54, and 55 and above. The standard population was the estimated Total Māori population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID M(T)I21

**Name** All Serious (Fatal + Non-Fatal) Injury Frequency for Total Māori

**Concept of Interest** Societal burden of fatal and serious non-fatal injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** Injury fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year for Māori (total).

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>.

In order to compare to earlier years the definition of an injury fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E800-E869, E880-E928 or E950-E999.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an injury hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E800-E869, E880-E928 or E950-E999. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator** N/A

**Calculation** N/A

ID M(T)I22

**Name** All Serious (Fatal and Non-Fatal) Injury Rate for Total Māori

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** Injury fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year for Māori (total).

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification <sup>35</sup>.

In order to compare to earlier years the definition of an injury fatality has been translated into equivalent ICD-9-CM-A codes <sup>37</sup>. These codes are an underlying cause of death e-code in the range E800-E869, E880-E928 or E950-E999.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification <sup>35</sup>. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al <sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al <sup>22,36</sup>.

In order to compare to earlier years the definition of an injury hospitalisation has been translated into equivalent ICD-9-CM-A codes <sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E800-E869, E880-E928 or E950-E999. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

(continued)

ID M(T)I22 (cont)

**Name** All Serious (Fatal and Non-Fatal) Injury Rate for Total Māori

**Denominator**

**Description** Estimated Total Māori population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 50-54, and 55 and above. The standard population was the estimated Total Māori population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID M(T)A01

**Name** Provisional ICISS-based Serious Non-Fatal Assault Injury Frequency for Total Māori

**Concept of Interest** Societal burden of serious non-fatal injury from Assault for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** What about Cases of Maori (total) hospitalized for assault injury and discharged alive with an ICISS score of 0.941 or less, in a calendar year.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Assault hospitalisations are injury hospitalisations with a first external cause code in the range X85-Y09. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A

**Calculation** N/A

ID M(T)A02

**Name** Provisional ICISS-based Serious Non-Fatal Assault Injury Rate for Total Māori

**Concept of Interest** Individuals' average annual risk of serious non-fatal injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** What about Cases of Maori (total) hospitalized for assault injury and discharged alive with an ICISS score of 0.941 or less, in a calendar year.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Assault hospitalisations are injury hospitalisations with a first external code in the range X85-Y09. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

*(continued)*

ID M(T)A02 (contd.)

**Name** Provisional ICISS-based Serious Non-Fatal Assault Injury Rate for Total Māori

**Denominator**

**Description** Estimated Total Māori population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 50-54, and 55 and above. The standard population was the estimated Total Māori population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID M(T)A21

**Name** Provisional Serious (Fatal + Non-Fatal) Assault Injury Frequency for Total Māori

**Concept of Interest** Societal burden of fatal and serious non-fatal assault injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** Assault fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year for Māori (total).

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Assault fatalities are injury fatalities with an underlying cause of death e-code in the range X85-Y09.

In order to compare to earlier years the definition of an assault fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E960-E969.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Assault hospitalisations are injury hospitalisations with a first external cause code in the range X85-Y09. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator** N/A  
**Calculation** N/A

ID M(T)A22

**Name** Provisional Serious (Fatal + Non-Fatal) Assault Injury Rate for Total Māori

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal assault injury from assault for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** Assault fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year for Māori (total).

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Assault fatalities are injury fatalities with an underlying cause of death e-code in the range X85-Y09.

In order to compare to earlier years the definition of an assault fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E960-E969.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Assault hospitalisations are injury hospitalisations with a first external cause code in the range X85-Y09. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

NZHS Mortality Collection and NMDS

([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

(continued)

ID M(T)A22 (contd.)

**Name** Provisional Serious (Fatal + Non-Fatal) Assault Injury Rate for Total Māori

**Denominator**

**Description** Estimated Total Māori population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 50-54, and 55 and above. The standard population was the estimated Total Māori population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID M(T)W01

**Name** Provisional ICISS-based Serious Non-Fatal Work-Related Injury Frequency for Total Māori

**Concept of Interest** Societal burden of serious non-fatal work-related injury for Māori.

Scope

<b>Area</b>	All injury
<b>Gender</b>	Both genders
<b>Age</b>	15-84
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** For each calendar year, ACC claims for work-related injury for Māori (Total) aged 15 to 84 linked to hospitalisations in which the patient was discharged alive with an ICISS score of 0.941 or less.

**Details**

Work-related hospitalisations are injury hospitalisations with an associated work-related ACC claim. Work-related ACC claims are those made to the Self-Employed Work and Employers' ACC accounts. Additional cases were also identified from the Residual fund through the ACC 'At work' indicator.

Gradual process claims were excluded (i.e. where the case was identified by ACC as a 'gradual process', was coded to an explicit occupational disease code, or if the 'read\_id\_label' includes one of the following words: 'neoplasm', 'anomalies', 'anomaly', 'asbestos', 'asbestosis', 'mesothelioma', 'lymphoma', 'tumour', 'asthma', 'alveolitis', 'carcinoma', 'stoma appliances', 'leptospirosis', 'personal history of unspecified problems').

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>.

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source** ACC claims and NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A

**Calculation** N/A

ID M(T)W02

**Name** Provisional ICISS-based Serious Non-Fatal Work-Related Injury Rate for Total Māori

**Concept of Interest** Individuals' average annual risk of serious non-fatal work-related injury for Māori.

Scope

<b>Area</b>	All injury
<b>Gender</b>	Both genders
<b>Age</b>	15-84
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** ACC claims for work-related injury for people aged 15 to 84 linked to Māori (Total) hospitalisations in a calendar year, who were discharged alive, with an ICISS score of 0.941 or less.

**Details**

Work-related hospitalisations are injury hospitalisations with an associated work-related ACC claim. Work-related ACC claims are those made to the Self-Employed Work and Employers' ACC accounts. Additional cases were also identified from the Residual fund through the ACC 'At work' indicator.

Gradual process claims were excluded (i.e. where the case was identified by ACC as a 'gradual process', was coded to an explicit occupational disease code, or if the 'read\_id\_label' includes one of the following words: 'neoplasm', 'anomalies', 'anomaly', 'asbestos', 'asbestosis', 'mesothelioma', 'lymphoma', 'tumour', 'asthma', 'alveolitis', 'carcinoma', 'stoma appliances', 'leptospirosis', 'personal history of unspecified problems').

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>.

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22 36</sup>

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

ACC claims and NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

*(continued)*

ID M(T)W02 (contd.)

**Name** Provisional ICISS-based Serious Non-Fatal Work-Related Injury Rate for Total Māori

**Denominator**

**Description** Estimated Total Māori working population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on the New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source** Statistics New Zealand

**Calculation** Age standardised rate. Age standardisation was via the direct method with age groups of 15-19, 20-24, 25-29, ... 50-54, and 55 and above. The standard population was the estimated Total Māori working population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID M(T)S11

**Name** Fatal Self-harm Injury Frequency for Total Māori

**Concept of Interest** Societal burden of fatal self-harm injury for Māori.

Scope

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** Self-harm injury fatalities amongst Māori (Total) registered in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Self-harm fatalities are injury fatalities with an underlying cause of death e-code in the range X60-X84.

In order to compare with earlier years the definition of a self-harm fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E950-E959.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

NZHS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A

**Calculation** N/A

ID M(T)S12

**Name** Fatal Self-harm Injury Rate for Total Māori

**Concept of Interest** Individuals' average annual risk of fatal self-harm injury for Māori.

Scope

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** Self-harm injury fatalities amongst Māori (Total) registered in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Self-harm fatalities are injury fatalities with an underlying cause of death e-code in the range X60-X84.

In order to compare to earlier years the definition of a self-harm fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E950-E959.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

NZHS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description** Estimated Total Māori population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 50-54, and 55 and above. The standard population was the estimated Total Māori population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID M(T)S21

**Name** Provisional Serious (Fatal + Non-Fatal) Self-harm Injury Frequency for Total Māori

**Concept of Interest** Societal burden of fatal and serious non-fatal self-harm injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** Self-harm injury fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year for Māori (total).

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Self-harm fatalities are injury fatalities with an underlying cause of death e-code in the range X60-X84.

In order to compare to earlier years the definition of a self-harm fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E950-E959.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Self-harm hospitalisations are injury hospitalisations with a first external cause code in the range X60-X84. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a self-harm hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E950-E959. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator** N/A  
**Calculation** N/A

ID M(T)S22

**Name** Provisional Serious (Fatal + Non-Fatal) Self-harm Injury Rate for Total Māori

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal injury from self-harm for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** Self-harm injury fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year for Māori (total).

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Self-harm fatalities are injury fatalities with an underlying cause of death e-code in the range X60-X84.

In order to compare to earlier years the definition of a self-harm fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E950-E959.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Self-harm hospitalisations are injury hospitalisations with a first external cause code in the range X60-X84. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a self-harm hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E950-E959. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

NZHS Mortality Collection and NMDS

([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

(continued)

ID M(T)S22 (contd.)

**Name** Provisional Serious (Fatal + Non-Fatal) Self-harm Injury Rate for Total Māori

**Denominator**

**Description** Estimated Total Māori population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 50-54, and 55 and above. The standard population was the estimated Total Māori population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

**ID** M(T)F01a

**Name** ICISS-based Serious Non-Fatal Falls Injury Frequency for Total Māori

**Concept of Interest** Societal burden of serious non-fatal injury from falls for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** What about Cases of Maori (total) hospitalized for falls and discharged alive with an ICISS score of 0.941 or less, in a calendar year.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al.<sup>15</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22 36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source** NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A

**Calculation** N/A

ID M(T)F02a

**Name** ICISS-based Serious Non-Fatal Falls Injury Rate for Total Māori

**Concept of Interest** Individuals' average annual risk of serious non-fatal falls injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** What about Cases of Maori (total) hospitalized for falls and discharged alive with an ICISS score of 0.941 or less, in a calendar year.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

NZHS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

*(continued)*

ID M(T)F02a (contd.)

Name ICISS-based Serious Non-Fatal Falls Injury Rate for Total Māori

**Denominator**

**Description** Estimated Total Māori population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 50-54, and 55 and above. The standard population was the estimated Total Māori population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID M(T)F21a

**Name** Serious (Fatal + Non-Fatal) Falls Injury Frequency for Total Māori

**Concept of Interest** Societal burden of fatal and serious non-fatal falls injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** Falls fatalities and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year for Māori (total).

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E880-E886 or E888.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator** N/A  
**Calculation** N/A

ID M(T)F22a

**Name** Serious (Fatal + Non-Fatal) Falls Injury Rate for Total Māori

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal injury from falls for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** Falls fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year for Māori (Total).

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E880-E886 or E888.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**ID** M(T)F22a (contd.)

**Name** Serious (Fatal + Non-Fatal) Falls Injury Rate for Total Māori

**Denominator**

**Description** Estimated Total Māori population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 50-54, and 55 and above. The standard population was the estimated Total Māori population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID M(T)F01b

**Name** ICISS-based Serious Non-Fatal Falls Injury Frequency for Total Māori aged 0-74 years.

**Concept of Interest** Societal burden of serious non-fatal injury from falls for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	0-74 years
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** For each calendar year cases hospitalised for falls amongst Māori (Total) aged 0-74 years, who were discharged alive, with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source** NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A

**Calculation** N/A

ID M(T)F02b

**Name** ICISS-based Serious Non-Fatal Falls Injury Rate for Total Māori aged 0-74 years.

**Concept of Interest** Individuals' average annual risk of serious non-fatal falls injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	0-74 years
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** For each calendar year cases hospitalised for falls amongst Māori (Total) aged 0-74 years, who were discharged alive, with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

NZHS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

*(continued)*

ID M(T)F02b (contd.)

**Name** ICISS-based Serious Non-Fatal Falls Injury Rate for Total Māori aged 0-74 years

**Denominator**

**Description** Estimated Total Māori population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on the New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source** Statistics New Zealand

**Calculation** Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 50-54, and 55 and above. The standard population was the estimated Total Māori population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID M(T)F21b

**Name** Serious (Fatal + Non-Fatal) Falls Injury Frequency for Total Māori aged 0-74 years

**Concept of Interest** Societal burden of fatal and serious non-fatal falls injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	0-74 years
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** Falls fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year for Māori (Total) aged 0-74 years.

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E880-E886 or E888.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator** N/A  
**Calculation** N/A

ID M(T)F22b

**Name** Serious (Fatal + Non-Fatal) Falls Injury Rate for Total Māori aged 0-74 years

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal injury from falls for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	0-74 years
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** Falls fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year for Māori (Total) aged 0-74 years.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E880-E886 or E888.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

NZHIS Mortality Collection and NMDS

([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

*(continued)*

ID M(T)F22b (contd.)

**Name** Serious (Fatal + Non-Fatal) Falls Injury Rate for Total Māori aged 0-74 years

**Denominator**

**Description** Estimated Total Māori population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 50-54, and 55 and above. The standard population was the estimated Total Māori population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID M(T)F01c

**Name** ICISS-based Serious Non-Fatal Falls Injury Frequency for Total Māori aged 75 years and over

**Concept of Interest** Societal burden of serious non-fatal injury from falls for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	75 years and over
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** For each calendar year cases hospitalised for falls amongst Māori (Total) aged over 75 years, who were discharged alive, with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source** NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A

**Calculation** N/A

ID M(T)F02c

**Name** ICISS-based Serious Non-Fatal Falls Injury Rate for Total Māori aged 75 years and older.

**Concept of Interest** Individuals' average annual risk of serious non-fatal falls injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	75 years and over
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** For each calendar year cases hospitalised for falls amongst Māori (Total) aged 75 years and older who were discharged alive, with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

*(continued)*

ID M(T)F02c (contd.)

**Name** ICISS-based Serious Non-Fatal Falls Injury Rate for Total Māori aged 75 years and older

**Denominator**

**Description** Estimated Total Māori population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 75-79, 80-84, and 85 and above. The standard population was the estimated Total Māori population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID M(T)F21c

**Name** Serious (Fatal + Non-Fatal) Falls Injury Frequency for Total Māori aged 75 years and older

**Concept of Interest** Societal burden of fatal and serious non-fatal falls injury for Māori.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 75 years and older  
**Ethnicity** Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** Falls fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year for Māori (Total) aged over 75 years.

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E880-E886 or E888.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator** N/A  
**Calculation** N/A

ID M(T)F22c

**Name** Serious (Fatal + Non-Fatal) Falls Injury Rate for Total Māori aged 75 years and older

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal injury from falls for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	75 years and older
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** Falls fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year for Māori (Total) aged 75 and over.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00-W19.

In order to compare to earlier years the definition of a falls fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E880-E886 or E888.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

(continued)

**ID** M(T)F22c (contd.)

**Name** Serious (Fatal + Non-Fatal) Falls Injury Rate for Total Māori aged 75 years and older

**Denominator**

**Description** Estimated Total Māori population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm> )

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 75-79, 80-84, and 85 and above. The standard population was the estimated Total Māori population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID M(T)M01

**Name** ICISS-based Serious Non-Fatal MVTC Injury Frequency for Total Māori

**Concept of Interest** Societal burden of serious non-fatal injury from MVTCs for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** What about Cases of Maori (total) hospitalized for MVTC and discharged alive with an ICISS score of 0.941 or less, in a calendar year.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. MVTC hospitalisations are injury hospitalisations with a first external cause code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a MVTC hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source** NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A

**Calculation** N/A

ID M(T)M02

**Name** ICISS-based Serious Non-Fatal MVTC Injury Rate for Total Māori

**Concept of Interest** Individuals' average annual risk of serious non-fatal MVTC injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** What about Cases of Maori (total) hospitalized for MVTC and discharged alive with an ICISS score of 0.941 or less, in a calendar year.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. MVTC hospitalisations are injury hospitalisations with a first external cause code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a MVTC hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

*(continued)*

ID M(T)M02 (contd.)

Name ICISS-based Serious Non-Fatal MVTC Injury Rate for Total Māori

**Denominator**

**Description** Estimated Total Māori population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 50-54, and 55 and above. The standard population was the estimated Total Māori population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID M(T)M11

Name Fatal MVTC Injury Frequency for Total Māori

**Concept of Interest** Societal burden of fatal MVTC injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** MVTC fatalities amongst Māori (Total) registered in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. MVTC fatalities are injury fatalities with an underlying cause of death e-code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2).

In order to compare with earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E810-E819.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source** NZHIS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A

**Calculation** N/A

ID M(T)M12

Name Fatal MVTC Injury Rate for Total Māori

**Concept of Interest** Individuals' average annual risk of fatal MVTC injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** MVTC injury fatalities amongst Māori (Total) registered in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. MVTC fatalities are injury fatalities with a first external cause code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2).

In order to compare to earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E810-E819.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

**Source**

NZHIS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description** Estimated Total Māori population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 50-54, and 55 and above. The standard population was the estimated Total Māori population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical Research*, 2<sup>nd</sup> ed., pp 399-403.

ID M(T)M21

**Name** Serious (Fatal + Non-Fatal) MVTC Injury Frequency for Total Māori

**Concept of Interest** Societal burden of fatal and serious non-fatal MVTC injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** MVTC fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year for Māori (Total).

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. MVTC fatalities are injury fatalities with a first external cause code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2).

In order to compare to earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E810-E819.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. MVTC hospitalisations are injury hospitalisations with a first external cause code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a MVTC hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

*(continued)*

ID M(T)M21 (contd.)

**Name** Serious (Fatal + Non-Fatal) MVTC Injury Frequency for Total Māori

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator** N/A

**Calculation** N/A

ID M(T)M22

**Name** Serious (Fatal + Non-Fatal) MVTC Injury Rate for Total Māori

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal MVTC injury for Māori.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages
<b>Ethnicity</b>	Māori (Total)

**Source Organisation** Developed by IPRU and Ngai Tahu Māori Health Research Unit for NZIPS.

**Numerator**

**Description** MVTC injury fatalities, and hospitalised cases with an ICISS score of 0.941 or less, in a calendar year for Māori (Total).

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. MVTC fatalities are injury fatalities with a first external cause code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2).

In order to compare to earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E810-E819.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. MVTC hospitalisations are injury hospitalisations with a first external cause code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a MVTC hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Māori ethnicity was allocated to a case according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori, either sole or total, in any NMDS admission record (1982-2008), cancer registry record (1948-2008), PHO data (2006-2007), or on the Mortality Collections (1988-2005).

(continued)

ID M(T)M22 (contd.)

**Name** Serious (Fatal + Non-Fatal) MVTC Injury Rate for Total Māori

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator**

**Description** Estimated Total Māori population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the New Zealand Censuses and post-enumeration surveys adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm> )

**Source**

Statistics New Zealand

**Calculation**

Age standardised rate. Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14, ... 50-54, and 55 and above. The standard population was the estimated Total Māori population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical Research, 2<sup>nd</sup> ed., pp 399-403.

# **Chapter 9: Children's indicator specifications**

ID I01

**Name** All Serious Non-fatal Injury Frequency

**Concept of Interest** Societal burden of serious non-fatal injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Injury hospitalisations in a calendar year who did not die in hospital with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>

In order to compare to earlier years the definition of an injury hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E800-E869, E880-E928 or E950-E999. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A

**Calculation** N/A

ID I02

**Name** All Serious Non-fatal Injury Rate

**Concept of Interest** Individuals' average annual risk of serious non-fatal injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Injury hospitalisations in a calendar year who didn't die in hospital with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>

In order to compare to earlier years the definition of an injury hospitalisation has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E800-E869, E880-E928 or E950-E999.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source**

Statistics New Zealand

**Calculation**

Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14 years. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical research*, 2<sup>nd</sup> ed., pp 399-403.

ID I11

**Name** All Fatal Injury Frequency

**Concept of Interest** Societal burden of fatal injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Injury fatalities registered in a calendar year.

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification <sup>35</sup>.

In order to compare with earlier years the definition of an injury fatality has been translated into equivalent ICD-9-CM-A codes <sup>37</sup>. These codes are an underlying cause of death e-code in the range E800-E869, E880-E928 or E950-E999.

**Source** NZHIS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A

**Calculation** N/A

ID 112

**Name** All Fatal Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Injury fatalities registered in a calendar year.

**Details** All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>.

In order to compare to earlier years the definition of an injury fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E800-E869, E880-E928 or E950-E999.

**Source** NZHIS Mortality Collection  
<sup>3838383838</sup> ([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

**Source** Statistics New Zealand

**Calculation** Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14 years. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical Research, 2<sup>nd</sup> ed., pp 399-403.

ID I21

**Name** All Serious (Fatal + Non-Fatal) Injury Frequency

**Concept of Interest** Societal burden of fatal and serious non-fatal injury.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Injury fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>.

In order to compare to earlier years the definition of an injury fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E800-E869, E880-E928 or E950-E999.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an injury hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E800-E869, E880-E928 or E950-E999. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator** N/A

**Calculation** N/A

ID I22

**Name** All Serious (Fatal and Non-Fatal) Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal injury.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Injury fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>.

In order to compare to earlier years the definition of an injury fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E800-E869, E880-E928 or E950-E999.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification<sup>35</sup>. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>

In order to compare to earlier years the definition of an injury hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E800-E869, E880-E928 or E950-E999. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm> )

**Source** Statistics New Zealand

(continued)

**ID** I22 (cont)

**Name** All Serious (Fatal and Non-Fatal) Injury Rate

**Calculation** Age standardisation was via the direct method with age groups of 0-4, 5-9 and 10-14 years. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical research*, 2<sup>nd</sup> ed., pp 399-403.

ID A21

**Name** Assault Serious (Fatal + Non-Fatal) Injury Frequency

**Concept of Interest** Societal burden of fatal and serious non-fatal injury from assault.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Assault fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Assault fatalities are injury fatalities with a underlying cause of death e-code in the range X85-Y09.

In order to compare to earlier years the definition of an assault fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E960-E969.

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and e-codes are coded using the ICD-10-AM classification<sup>35</sup>. Assault hospitalisations are injury hospitalisations with a first external cause code in the range X85-Y09. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHis Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A

**Calculation** Because the annual number of assault fatalities and serious non-fatal injuries was less than 100, three-year moving averages are presented.

ID A22

**Name** Assault Serious (Fatal and Non-Fatal) Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal injury from assault.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Assault fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification. Assault fatalities are injury fatalities with a underlying cause of death e-code in the range X85-Y09.

In order to compare to earlier years the definition of an assault fatality has been translated into equivalent ICD-9-CM-A codes<sup>37</sup>. These codes are an underlying cause of death e-code in the range E960-E969.

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first e-code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification.<sup>35</sup> Assault hospitalisations are injury hospitalisations with a first external cause code in the range X85-Y09. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes.<sup>4</sup> These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics NZ. They are based on the most recent NZ Census and post-enumeration survey adjusted for the estimated number of NZ residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (ref <http://www.stats.govt.nz/tables/nat-pop-est-tables.htm>)

(continued)

**ID** A22 (contd.)

**Name** Assault Serious (Fatal and Non-Fatal) Injury Rate

**Source** Statistics New Zealand

**Calculation** Age standardisation was via the direct method with age groups of 0-4, 5-9 and 10-14 years. The standard population was the estimated NZ population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical research*, 2<sup>nd</sup> ed., pp 399-403.

ID F01

**Name** Falls Serious Non-Fatal Injury Frequency

**Concept of Interest** Societal burden of serious non-fatal injury from falls.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Falls hospitalisations in a calendar year who didn't die in hospital with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first external cause code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHis NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator** N/A

**Calculation** N/A

ID F02

**Name** Falls Serious Non Fatal Injury Rate

**Concept of Interest** Individuals' average annual risk of serious non-fatal injury from falls.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Falls hospitalisations in a calendar year who didn't die in hospital with an ICISS score of 0.941 or less.

**Details** Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first e-code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup> These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22 36</sup>.

An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details** The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm> )

**Source** Statistics New Zealand

**Calculation** Age standardisation was via the direct method with age groups of 0-4, 5-9 and 10-14 years. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical research, 2<sup>nd</sup> ed., pp 399-403.

ID F21

**Name** Falls Serious (Fatal + Non-Fatal) Injury Frequency

**Concept of Interest** Societal burden of fatal and serious non-fatal injury from falls.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Falls fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death external cause code in the range W00-W19.

In order to compare to earlier years the definition of a fatal fall has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E880-E886 or E888.

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first e-code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup> These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator** N/A

**Calculation** N/A

ID F22

**Name** Falls Serious (Fatal + Non-Fatal) Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal or serious non-fatal injury from falls.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Falls fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls fatalities are injury fatalities with an underlying cause of death external cause code in the range W00-W19.

In order to compare to earlier years the definition of a fatal fall has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E880-E886 or E888.

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Falls hospitalisations are injury hospitalisations with a first e-code in the range W00-W19. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes<sup>37</sup> These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS

([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.

(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm> )

(continued)

**ID** F22 (contd.)

**Name** Falls Serious (Fatal + Non-Fatal) Injury Rate

**Source** Statistics New Zealand

**Calculation** Age standardisation was via the direct method with age groups of 0-4, 5-9 and 10-14 years. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical research*, 2<sup>nd</sup> ed., pp 399-403.

**ID M01****Name** MVTC Serious Non-fatal Injury Frequency**Concept of Interest** Societal burden of serious non-fatal injury from MVTCs.**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	0-14 years

**Source Organisation** Developed by IPRU for NZIPS.**Numerator****Description** MVTC hospitalisations in a calendar year who didn't die in hospital with an ICISS score of 0.941 or less.**Details**

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. MVTC hospitalisations are injury hospitalisations with a first e-code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an MVTC hospitalisation has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator**

N/A

**Calculation**

Because the annual frequencies were less than 100, three-year moving averages are presented.

ID M02

Name MVTC Serious Non-fatal Injury Rate

**Concept of Interest** Individuals' average annual risk of serious non-fatal injury from MVTCs.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** MVTC hospitalisations in a calendar year who didn't die in hospital with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. MVTC hospitalisations are injury hospitalisations with a first external cause code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an MVTC hospitalisation has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm> )

**Source**

Statistics New Zealand

**Calculation**

Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14 years. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), *Statistical Methods in Medical research*, 2<sup>nd</sup> ed., pp 399-403.

ID M11

Name MVTC Fatal Injury Frequency

**Concept of Interest** Societal burden of fatal injury from MVTCs.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** MVTC fatalities registered in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. MVTC fatalities are injury fatalities with an underlying cause of death external cause code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2).

In order to compare to earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E810-E819.

**Source**

NZHS Mortality Collection  
<sup>3838383838</sup> ([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

N/A

**Calculation**

Because the annual number of MVTC serious non-fatal injuries was less than 100, three-year moving averages are presented.

ID M12

Name MVTC Fatal Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal injury from MVTCs.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** MVTC fatalities registered in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. MVTC fatalities are injury fatalities with an underlying cause of death external cause code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2)

In order to compare to earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E810-E819.

**Source**

NZHS Mortality Collection  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm> )

**Source**

Statistics New Zealand

**Calculation**

Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14 years. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical research, 2<sup>nd</sup> ed., pp 399-403.

ID M21

Name MVTC Serious (Fatal and Non-Fatal) Injury Frequency

**Concept of Interest** Societal burden of fatal and serious non-fatal injury from MVTCs.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** MVTC fatalities and hospitalizations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification.<sup>35</sup> MVTC fatalities are injury fatalities with an underlying cause of death external cause code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2).

In order to compare to earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E810-E819.

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification.<sup>35</sup> MVTC hospitalisations are injury hospitalisations with a first e-code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al.<sup>8</sup>

ICISS scores have been calculated using the methods described in Stephenson et al.<sup>22,36</sup>

In order to compare to earlier years the definition of an MVTC hospitalisation has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator** N/A

**Calculation** N/A

ID M22

**Name** MVTC Serious (Fatal and Non-Fatal) Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal injury from MVTCs.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** MVTC fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification.<sup>35</sup> MVTC fatalities are injury fatalities with an underlying cause of death external cause code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2)

In order to compare to earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E810-E819.

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification.<sup>35</sup> MVTC hospitalisations are injury hospitalisations with a first external cause code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an MVTC hospitalisation has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHS Mortality Collection and NMDS

([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

(continued)

**ID** M22 (contd.)

**Name** MVTC Serious (Fatal and Non-Fatal) Injury Rate

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm> )

**Source**

Statistics New Zealand

**Calculation**

Age standardisation was via the direct method with age groups of 0-4, 5-9, 10-14 years. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical research, 2<sup>nd</sup> ed., pp 399-403.

ID P21

**Name** Pedestrian Serious (Fatal and Non-Fatal) Injury Frequency

**Concept of Interest** Societal burden of fatal and serious non-fatal injury from Pedestrian related MVTCs.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Pedestrian related MVTC fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification.<sup>35</sup> Pedestrian fatalities are injury fatalities with an underlying cause of death external cause code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9).

In order to compare to earlier years the definition of a Pedestrian fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E810-E819 (4<sup>th</sup> digit=7).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification.<sup>35</sup> MVTC hospitalisations are injury hospitalisations with a first e-code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an Pedestrian hospitalisation has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819 (4<sup>th</sup> digit=7). An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf))

**Denominator** N/A

**Calculation** Because the annual number of pedestrian fatalities and serious non-fatal injuries was less than 100, three-year moving averages are presented.

ID P22

**Name** Pedestrian Serious (Fatal and Non-Fatal) Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal injury from Pedestrian related MVTCs.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Pedestrian related MVTC fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification.<sup>35</sup> Pedestrian fatalities are injury fatalities with an underlying cause of death external cause code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9).

In order to compare to earlier years the definition of a Pedestrian fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E810-E819 (4<sup>th</sup> digit=7).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification.<sup>35</sup> Pedestrian hospitalisations are injury hospitalisations with a first external cause code in the range V02-V04 (with a 4<sup>th</sup> digit in the range .1-.9). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an Pedestrian hospitalisation has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819 (4<sup>th</sup> digit=7). An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

(continued)

**ID** P22 (contd.)

**Name** Pedestrian Serious (Fatal and Non-Fatal) Injury Rate

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm> )

**Source**

Statistics New Zealand

**Calculation**

Age standardisation was via the direct method with age groups of 0-4, 5-9, and 10-14 years. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical research, 2<sup>nd</sup> ed., pp 399-403.

**ID C21****Name** Car Occupant Serious (Fatal and Non-Fatal) Injury Frequency**Concept of Interest** Societal burden of fatal and serious non-fatal injury from MVTCS in which children were car occupants.**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	0-14 years

**Source Organisation** Developed by IPRU for NZIPS.**Numerator****Description** Car Occupant fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification.<sup>35</sup> Car Occupant fatalities are injury fatalities with an underlying cause of death external cause code in the range V40-V49 (with a 4<sup>th</sup> digit in the range .4-.9).

In order to compare to earlier years the definition of a Car Occupant fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E810-E819 (4<sup>th</sup> digit=1).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification.<sup>35</sup> Car Occupant hospitalisations are injury hospitalisations with a first e-code in the range V40-V49 (with a 4<sup>th</sup> digit in the range .4-.9). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of a Car Occupant hospitalisation has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819 (4<sup>th</sup> digit=1). An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator** N/A**Calculation** Because the annual number of car occupant fatalities and serious non-fatal injuries was less than 100, three-year moving averages are presented.

ID C22

**Name** Car Occupant Serious (Fatal and Non-Fatal) Injury Rate

**Concept of Interest** Individuals' average annual risk of fatal and serious non-fatal injury from MVTCS in which children were car occupants.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Car Occupant fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification.<sup>35</sup> Car Occupant fatalities are injury fatalities with an underlying cause of death external cause code in the range V40-V49 (with a 4<sup>th</sup> digit in the range .4-.9).

In order to compare to earlier years the definition of a Car Occupant fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E810-E819 (4<sup>th</sup> digit=1).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Car Occupant hospitalisations are injury hospitalisations with a first e-code in the range V40-V46 (with a 4<sup>th</sup> digit in the range .4-.9). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an Car Occupant hospitalisation has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819 (4<sup>th</sup> digit=1). An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

*(continued)*

ID C22 (contd.)

**Name** Car Occupant Serious (Fatal and Non-Fatal) Injury Rate

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration.  
(<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm> )

**Source**

Statistics New Zealand

**Calculation**

Age standardisation was via the direct method with age groups of 0-4, 5-9 and 10-14 years. The standard population was the estimated New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical research, 2<sup>nd</sup> ed., pp 399-403.

**ID** In01

**Name** Intentional Serious Non-Fatal Injury Frequency

**Concept of Interest** Societal burden of serious non-fatal injury from assault or self harm.

**Scope**

<b>Area</b>	All Injury
<b>Gender</b>	Both genders
<b>Age</b>	All ages

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Intentional (assault and self harm) hospitalisations in a calendar year who didn't die in hospital with an ICISS score of 0.941 or less.

**Details**

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first e-code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification.<sup>35</sup> Intentional hospitalisations are injury hospitalisations with a first external cause code in the range X85-Y09 (assault) or X60-X84 (self harm). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969 (assault) and E950-E959 (self harm). An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHIS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator**

N/A

**Calculation**

Because the annual number of serious non-fatal intentional injuries was less than 100, three-year moving averages are presented.

ID In02

**Name** Intentional Serious Non-Fatal Injury Rate

**Concept of Interest** Individuals' average annual risk of serious non-fatal injury from assault or self harm.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Intentional (assault and self harm) hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

**Details**

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first e-code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification.<sup>35</sup> Intentional hospitalisations are injury hospitalisations with a first external cause code in the range X85-Y09 (assault) or X60-X84 (self harm). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969 (assault) and E950-E959 (self harm). An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source**

NZHS NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf))

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics NZ. They are based on the most recent NZ Census and post-enumeration survey adjusted for the estimated number of NZ residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm> )

**Source**

Statistics New Zealand

**Calculation**

Age standardisation was via the direct method with age groups of 0-4, 5-9 and 10-14 years. The standard population was the estimated NZ population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical research, 2<sup>nd</sup> ed., pp 399-403.

ID In21

**Name** Intentional Serious (Fatal + Non-Fatal) Injury Frequency

**Concept of Interest** Societal burden of fatal and serious non-fatal injury from assault and self harm.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Assault and self harm fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification<sup>35</sup>. Intentional fatalities are injury fatalities with a underlying cause of death e-code in the range X85-Y09 (assault) and X60-X84 (self harm).

In order to compare to earlier years the definition of an assault fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E960-E969 (assault) and E950-E959 (self harm).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first e-code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification.<sup>35</sup> Intentional hospitalisations are injury hospitalisations with a first external cause code in the range X85-Y09 (assault) or X60-X84 (self harm). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969 (assault) and E950-E959 (self harm). An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

**Denominator** N/A

**Calculation** Because the annual number of assault and self harm fatalities and serious non-fatal injuries was less than 100, three-year moving averages are presented.

ID In22

**Name** Intentional Serious (Fatal + Non-Fatal) Injury Rate

**Concept of Interest** Individual's average annual risk of fatal or serious non-fatal injury from assault and self harm.

**Scope**

**Area** All Injury  
**Gender** Both genders  
**Age** 0-14 years

**Source Organisation** Developed by IPRU for NZIPS.

**Numerator**

**Description** Assault and self harm fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

**Details**

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification. Intentional fatalities are injury fatalities with a underlying cause of death e-code in the range X85-Y09 (assault) and X60-X84 (self harm).

In order to compare to earlier years the definition of an assault fatality has been translated into equivalent ICD-9-CM-A codes.<sup>37</sup> These codes are an underlying cause of death e-code in the range E960-E969 (assault) and E950-E959 (self harm).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first e-code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification.<sup>35</sup> Intentional hospitalisations are injury hospitalisations with a first external cause code in the range X85-Y09 (assault) or X60-X84 (self harm). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al<sup>9</sup>.

ICISS scores have been calculated using the methods described in Stephenson et al<sup>22,36</sup>.

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes. These codes are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969 (assault) and E950-E959 (self harm). An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

**Source** NZHIS Mortality Collection and NMDS  
([http://www.nzhis.govt.nz/moh.nsf/pagesns/238/\\$File/National+Minimum+Data+Dictionary+v6.9.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/238/$File/National+Minimum+Data+Dictionary+v6.9.pdf),  
[http://www.nzhis.govt.nz/moh.nsf/pagesns/235/\\$File/mortality-dictionary.pdf](http://www.nzhis.govt.nz/moh.nsf/pagesns/235/$File/mortality-dictionary.pdf) )

(continued)

ID In22 (contd.)

**Name** Intentional Serious (Fatal + Non-Fatal) Injury Rate

**Denominator**

**Description** Estimated total New Zealand population as at 30 June of the relevant year.

**Details**

The estimates used have been published by Statistics NZ. They are based on the most recent NZ Census and post-enumeration survey adjusted for the estimated number of NZ residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (<http://www.stats.govt.nz/tables/nat-pop-est-tables.htm> )

**Source**

Statistics New Zealand

**Calculation**

Age standardisation was via the direct methods with age groups of 0-4, 5-9 and 10-14 years. The standard population was the estimated NZ population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical Research, 2<sup>nd</sup>. Ed.,pp399-403

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