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Purpose

This report outlines the technical specifications for the serious injury outcome indicators used to monitor the progress of injury prevention in New Zealand. It accompanies the three reports for the serious injury outcome indicators, which provide a measure of New Zealand’s progress in reducing serious injury for the population as a whole, for children, and for Māori. These reports are:

- Serious injury outcome indicators
- Serious injury outcome indicators for children
- Serious injury outcome indicators for Māori.

These three reports, along with this technical report, were previously known as Chartbooks of the New Zealand Injury Prevention Strategy serious injury outcome indicators. They have been published annually since 2006.

This report is for readers who wish for more detail on the indicators, particularly about the methods for deriving them. It also provides information on how to interpret the graphs presented in each of the indicator reports.

The development of the indicators was described in Developing valid injury indicators: A report for the New Zealand Injury Prevention Strategy (Cryer, Langley, & Stephenson, 2004).

Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC</td>
<td>Accident Compensation Corporation</td>
</tr>
<tr>
<td>DSP</td>
<td>Diagnosis-specific Survival Probability</td>
</tr>
<tr>
<td>ICD</td>
<td>WHO International Classification of Diseases</td>
</tr>
<tr>
<td>ICD-9</td>
<td>WHO International Classification of Diseases 9th revision</td>
</tr>
<tr>
<td>ICD-9-CM</td>
<td>ICD-9, Clinical Modification</td>
</tr>
<tr>
<td>ICD-10</td>
<td>WHO International Classification of Diseases 10th revision</td>
</tr>
<tr>
<td>ICD-10-AM</td>
<td>ICD-10, Australian Modification</td>
</tr>
<tr>
<td>ICISS</td>
<td>ICD-based Injury Severity Score</td>
</tr>
<tr>
<td>IPRU</td>
<td>Injury Prevention Research Unit, University of Otago</td>
</tr>
<tr>
<td>MBIE</td>
<td>Ministry of Business, Innovation and Employment</td>
</tr>
<tr>
<td>MoH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>MVTC</td>
<td>Motor-vehicle traffic crashes</td>
</tr>
<tr>
<td>NMDS</td>
<td>National Minimum Dataset of hospital discharges</td>
</tr>
<tr>
<td>NZIPS</td>
<td>New Zealand Injury Prevention Strategy</td>
</tr>
<tr>
<td>SRR</td>
<td>Survival risk ratio (term now replaced by DSP)</td>
</tr>
</tbody>
</table>
1 Background to serious injury outcome indicators

This chapter provides background information about the serious injury outcome indicators. These indicators were originally developed to monitor the implementation of the New Zealand Injury Prevention Strategy (NZIPS). Injury prevention and the priority areas monitored now form part of the business-as-usual responsibilities of several government agencies.

This chapter describes how these indicators were developed and also gives some background to the indicators used in each of the three serious injury outcome indicator reports (see below).

1.1 What are the serious injury outcome indicators?

The serious injury outcome indicator reports present annual frequencies and rates for serious injury outcomes in New Zealand, through a set of indicators for fatal and non-fatal injuries. They provide the most robust and reliable measures of serious injury outcomes currently available for New Zealand.

The NZIPS identified six priority areas for national injury prevention (see below). Indicators to measure the incidence and rates of injury were developed for each of the original priority areas to measure performance in reducing injury. Indicators were also developed for ‘all injury’ as an overall measure.

The serious injury outcome indicators monitor the incidence of serious injury for the following three groups:
- whole population
- Māori
- children (0–14 years).

An annual report is produced for each group.

1.2 Development of the serious injury outcome indicators

The serious injury outcome indicators were developed by the Injury Prevention Research Unit (IPRU) at the University of Otago, funded by the Accident Compensation Corporation (ACC) through the NZIPS. Between 1996 and 2010, the IPRU published the serious injury outcome indicator reports as the Chartbooks of the New Zealand Injury Prevention Strategy Serious Injury Outcome Indicators. From 2011 onwards, Statistics NZ (as the Injury Information Manager) began producing the serious injury outcome indicator reports.

Injury prevention in New Zealand

The NZIPS (ACC, 2003) established a framework for the injury prevention activities of government agencies, local government, non-government organisations, communities, and individuals. The NZIPS was disestablished in 2013, but the activities that it monitors continue.

The 2003 strategy identified six priority areas for national injury prevention, which together make up more than 80 percent of injury deaths and serious injuries in New Zealand. Each area was assigned to a lead agency or agencies. These six priority areas now form part of the business-as-usual activities of the lead agencies.
## Priority area | Lead agency or agencies
---|---
Assault | Ministry of Justice, Ministry of Social Development
Work-related injuries | WorkSafe New Zealand
Suicide and intentional self-harm | Ministry of Health
Falls | Accident Compensation Corporation
Motor-vehicle traffic crashes | Ministry of Transport
Drowning and near-drowning | Accident Compensation Corporation

Since 2013, leadership of these priority areas has formed part of the business-as-usual responsibilities of the lead agencies. Serious injury outcome indicators have been developed for each of these areas. The indicators include fatal, serious non-fatal, and serious (fatal and non-fatal combined) injury indicators.

The serious injury outcome indicator reports present trends for serious injury in each of these priority areas, in order to monitor the impact of injury prevention efforts.

### The Injury Information Manager

Statistics NZ is the Injury Information Manager (IIM) under the Accident Compensation Act 2001. The primary goals of the IIM are to improve the quality of injury information in New Zealand; to achieve better outcomes for injury prevention, treatment, and rehabilitation; and to minimise the personal, social, and economic costs of injury. As IIM, Statistics NZ works to achieve these goals through leading the Official Injury Information Programme.

### 1.3 Background

#### How the indicators were developed

The IPRU developed the injury indicators for the six priority areas specified above, along with indicators for ‘all injury’. The indicators include numbers and rates, for both fatal injury and serious non-fatal injury. The number of injuries reflects the burden of injury to society,\(^1\) while rates reflect the individual risk of being injured.

The IPRU identified potential indicators for ‘all injury’ and for each of the six priority areas by:

- identifying existing national indicators through a named contact within the lead agency for the injury priority area
- assessing the validity of the existing national indicators
- suggesting new fatal and non-fatal injury indicators for ‘all injury’ and then seeking similar indicators for each of the priority areas
- subjecting all potential indicators to a systematic assessment of validity, using the International Collaborative Effort on Injury Statistics (Injury ICE) criteria (see below)
- identifying proposed and/or provisional indicators for each priority area, based on the results of that validation.

---

\(^1\) In this context, the societal burden of injury is considered to be related to the number of deaths and hospitalisations associated with injury. The majority of injury discharges from hospitals in New Zealand are publicly funded. For 2007 it was estimated that 99.5 percent of all hospital injury discharges were publicly funded.
Validating the indicators

The proposed indicators went through a process of validation, to check that they measured what they are intended to measure (the incidence of injury). Threats to validity included other factors that may influence the number of injuries reported (eg criteria for hospital admission, funding, hospital policies).

The Injury ICE criteria were used to validate the proposed indicators (Cryer, 2005). These criteria were agreed on at a meeting of the Injury ICE in 2001. The criteria suggest that an ideal injury indicator should:

- 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.

The fewer criteria that are satisfied, the more likely it is that the indicator will show some threats to validity (ie the indicator may not be measuring what it is intended to measure). The IPRU independently assessed each of the proposed indicators against these criteria.

In some cases, valid indicators could not be identified, and provisional indicators were developed. These are proposed indicators that showed potential threats to validity. In the serious injury outcome indicator reports the provisional indicators are clearly marked in a different colour.

More information about the development of the serious injury outcome indicators can be found in Developing valid injury indicators (Cryer et al, 2004).

Data sources for the indicators

The majority of serious injury outcome indicators are based on the Ministry of Health’s Mortality Collection data and National Minimum Dataset of hospital discharges. Data also comes from the Accident Compensation Corporation, Ministry of Transport, Water Safety New Zealand, WorkSafe NZ, and Statistics NZ. Full details of the indicators presented in the serious injury outcome indicator reports for the whole population, Māori, and children can be found in chapters 10–12.
2 Definition of injury

This chapter defines what 'injury' means in the context of the serious injury outcome indicators, and in particular what is meant by a 'serious injury'. It also describes which injury events are excluded from the definition used to identify a case in the serious injury outcome indicators.

2.1 Definition of injury for the serious injury outcome indicators

For the serious injury outcome indicators the word 'injury' refers to an injury event. That is, an event in which an injury or injuries have occurred. The definition of an injury event is based on the diagnoses in the ‘Injury’ chapter of the Australian Modification of the 10th revision of the World Health Organization’s International Classification of Diseases and Related Health Problems (ICD) (World Health Organization, 1992). ICD codes are used by the Ministry of Health (MoH) to code mortality and hospitalisation data.

Deaths resulting from injury include events in which the underlying cause of death is an external cause code in the range V01–Y36. A non-fatal injury event must have codes in the following ranges to fall within the definition of injury:

- principal diagnosis in the range S00–T78
- first external cause code in the range V01–Y36.

In addition, the ‘Injury’ chapter in the ICD-10 also includes ‘maltreatment syndromes’ (T74). This category includes neglect or abandonment, and psychological abuse, without any reference to physical injury. Some forms of intentional psychological harm or injury are covered by the ‘Injury’ chapter of the ICD-10 (e.g., intentional psychological injury), and are therefore included in the definition of injury used in the serious injury outcome indicators.

Injury events excluded from the definition

Medical injuries

‘Medical injuries’ refers to injuries that result from surgical complications or errors in medical procedures. There is an argument that ‘medical injuries’ should lie outside the domain of traditional injury prevention and control, because they occur under a very distinct set of circumstances. In recognition of these distinct circumstances, the Injury ICE recommended that these events be counted separately in routinely collected statistics. Therefore, the operational definition used for the serious injury outcome indicators excludes medical injuries.

Occupational disease

The ‘Injury’ chapter of ICD-10 excludes occupational disease. This refers to diagnoses resulting from chronic exposure over time, and includes occupational overuse syndrome. These events lie on the border between injury and disease. The operational definitions for the work-related indicator exclude these diagnoses.

Late effects of injuries

The operational definition of injury includes only first admissions to hospital. Late effects of injuries (also known as sequelae) have been excluded, as these relate to delayed consequences of an injury rather than the injury itself. As an 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. The
aim of the indicators is to focus on the measurement of injury incidence, so episodes of inpatient care resulting from the sequelae of injury have been excluded from the indicator reports.

2.2 What is a serious injury?

The serious injury outcome indicators measure and monitor national trends in serious injury over time. However, there is no internationally accepted definition of serious injury, so defining which injury cases to include is a challenge. The principle behind the serious injury outcome indicators is that they draw attention to 'important' injuries – that is, an injury resulting in death or in admission to hospital with a high chance of death. Based on this principle, the definition for fatal injury is obviously death; however, defining serious non-fatal injury is not as simple.

Serious non-fatal injuries

The serious non-fatal injury indicators draw numerator data primarily from the MoH's National Minimum Dataset (NMDS). The NMDS is an administrative database that records information on all publicly funded hospital discharges in New Zealand.

Large administrative databases such as the NMDS cannot be used to produce valid indicators without some processing of the data. This is because admission to hospital is influenced by factors independent of the injury itself and not all injuries that require admission to hospital have a high chance of death. Research has shown that applying a severity threshold can minimise the impact of these biases (Cryer, Jarvis, Edwards, & Langley, 1999; Langley & Cryer, 2000). Applying a severity threshold means that, theoretically, only those injury cases that have a very high likelihood of admission to hospital and are little influenced by factors independent to injury are included in the indicators. This threshold provides some assurance that any trends observed in the serious injury outcome indicators reflect changes in the incidence of serious injury rather than changes in other factors, such as greater access to health services.

Following this principle, a serious non-fatal injury case is defined as one that is hospitalised and has a probability of death (at admission) of at least 6.9 percent. In other words, patients whose injuries give a survival probability of 93.1 percent or worse are included in the serious injury outcome indicators.
3 Work-related injury indicators

This chapter outlines the background and redevelopment of the serious injury outcome indicators for work-related injury that took place before publication of the serious injury outcome indicators for 2000–11 in May 2013. This chapter describes in detail the process undertaken to evaluate the data required to produce the most robust and reliable indicators for work-related injury in New Zealand.

3.1 Introduction

The work-related injury indicators were redeveloped during the first part of 2013, to create a consistent and agreed definition of work-related injury.

Statistics NZ; the Ministry of Business, Innovation and Employment (MBIE); and the Accident Compensation Corporation (ACC) worked together to review and update the definition of work-related injury used for the serious injury outcome indicators. This redevelopment improved the quality and coverage of the work-related injury indicators.

- The data source for the fatal work-related injury indicators now includes fatal harm notification made to WorkSafe NZ, along with ACC claims.
- The definition of work-related injury now includes ACC claims when the person can be identified as at work at the time; this includes claims in the motor vehicle and earners’ accounts.
- ACC claims with location ‘farm’ by people with an agricultural occupation (not involved in a sport or recreational activity) are now included.
- The process for identifying and removing occupational disease, illness, and gradual process injury was updated.

Identifying all possible fatal work-related injury data sources

Investigating the anticipated undercount in fatal work-related injury from the fatal ACC claims data required identifying and investigating all other potential data sources.

The development work completed by the IPRU established the linked NMDS and ACC data as the most robust data to monitor serious non-fatal injury in New Zealand (Cryer et al, 2004). This remains the case, particularly for the purposes of the serious injury outcome indicators, where the ‘seriousness’ of the injury event is established using the NMDS diagnosis codes.

Some of the datasets described below contain non-fatal injury data; however, on the whole, non-fatal events are not well reported for injury monitoring purposes. Therefore, the additional datasets examined were those that relate in particular to addressing the anticipated undercount in the fatal work-related indicators. These additional data sources are as follows.

MBIE / WorkSafe NZ serious harm notifications

Under the Health and Safety in Employment Act 1992 (the Act), all serious harm and fatal injury events in the workplace must be notified to a regulatory body. Before December 2013, MBIE administered and enforced the Act in most workplaces in New Zealand. On 1 December 2013, this responsibility passed to WorkSafe NZ. Workplaces outside the jurisdiction of Worksafe NZ are those in the maritime and aviation sectors. Road traffic injuries are investigated by the Commercial Vehicle Investigation Unit of the Police.

WorkSafe NZ must be notified of serious harm events by phone, email, or fax, as soon as possible after the event. Written notice of the circumstances must also be provided within
seven days. Once WorkSafe NZ has been notified of a harm event, a Health and Safety Inspector will investigate and collect information about the event. This information is collated at WorkSafe NZ into the Serious Harm Notification database.

**Maritime event notifications**

Maritime New Zealand (MNZ) is designated to administer the Act for the maritime sector, specifically for work on board ships and for ships as places of work. Maritime events include serious harm injuries on board a vessel.

MNZ investigates and keeps a register of serious harm arising from hazards in the maritime sector. The notification is done in a two-step process: a verbal report as soon as possible, followed by written notification.

All serious harm maritime events must be reported to MNZ. This means that not all MNZ notifications are for work-related (commercial) incidents. Recreational incidents are also included in the MNZ data. Currently, MNZ data does not include a systematically assigned work-related indicator variable. While there is a distinction between commercial and recreational incidents, not all the incidents in the commercial category are work-related, so a manual check of the data is required to identify the work-related commercial maritime incidents.

**Civil Aviation Authority notifications**

The Civil Aviation Authority (CAA) monitors safety and security throughout the aviation community. The CAA is designated to administer the provisions of the Act in respect of the aviation sector, specifically for aircraft while in operation. This includes work on board aircraft and for aircraft as places of work while in operation, and relates to when the aircraft is taxiing, taking off, in flight, or landing.

The CAA investigates and keeps a register of serious harm arising from hazards in the aviation sector. The notification process is done in two steps: a notification as soon as possible, followed by written report within 10 days of the event.

All civil aviation incidents are required to be reported to the CAA. This means that not all CAA notifications are for work-related events. Recreational incidents are also included in the data. Currently, the CAA data does not include a systematically assigned work-related indicator variable. A manual check of the CAA data is required to identify the work-related civil aviation incidents.

**Coronial data**

The Coronial Service of New Zealand provides an independent coronial system that investigates and prevents deaths, and promotes justice by: identifying the causes and circumstances of sudden and unexplained deaths, or deaths in special circumstances, and making recommendation that may reduce the chances of the occurrence of other deaths in similar circumstances.

The Coronial Service Unit maintains a coronial information database known as the case management system (CMS). This is a national Internet-based data storage and retrieval system for all New Zealand coronial cases. It contains information about every death reported to a coroner since 1 July 2007. Information in the CMS is gathered from a variety of sources, including police, pathologists, hospitals, and medical and legal practitioners, as well as information from examinations or investigations, medical or otherwise.

If a death was the result of an injury, information is collected on: the underlying cause of death, mechanism of injury, objects/substances contributing to the injury, place of occurrence, activity, intent, and use of alcohol and other related drugs. Information about workplace injury is also collected and two variables in the CMS indicate whether an injury death was work-related.
Coronial findings can take some time to be finalised, so there is often a time lag of two years on the availability of this data. However, when the findings are available, this information is filtered through to the ACC claims and Mortality Collection datasets.

Ministry of Health Mortality Collection

The Ministry of Health’s Mortality Collection data covers all deaths registered in New Zealand and is readily available back to 1988. Data is collected in a number of ways, including monthly data feeds from the official Births, Deaths, and Marriages (BDM) registers, funeral directors forwarding medical certificates of cause of death, and regional coronial offices sending interim and final coroners’ reports. Additional information is also gained from the NMDS, the New Zealand cancer registry, the Coronal Services Unit, New Zealand Transport Authority (NZTA), Water Safety New Zealand, the Internet, and certifying doctors and health information release officers in public hospitals.

If the death is the result of an injury, the information recorded includes: underlying cause of death, location, the type of activity undertaken (sport or other recreational activity, or as a result of a workplace accident), as well as place of death. There is a work-related indicator in the Mortality Collection that flags whether the cause of death was related to an accident while the deceased was working at their place of paid employment. The variable is assigned by coders based on information supplied in coroner’s reports or from media publications, and contains data from 2000 onwards. The consistency of this variable for monitoring work-related injury has not been assessed.

The Mortality Collection data relies on coronial findings, so there is often a two-year time lag in the availability of the data.

Quantifying the anticipated undercount in the fatal indicator

To determine if there was the anticipated undercount in fatal work-related injury events reported solely from the fatal ACC claims data, this data was compared with that from MBIE, CAA, and Maritime New Zealand fatal notifications data. The coronial and Mortality Collection datasets were not included in this comparison work. Coronal data is only available from 2007 onwards. Additionally, the Mortality Collection data relies on the time-lagged coronial findings.

Table 1 shows, for each data source, how many cases in each potential additional dataset cannot be identified in the fatal work-related ACC claims data. The period 2005 to 2010 was used as it is a period for which most agencies hold up-to-date and available data.
Table 1
Fatal work-related injuries not in the ACC data for the period 2005–10

<table>
<thead>
<tr>
<th>Additional data source</th>
<th>Fatal injuries not in the ACC data</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Annual average</td>
</tr>
<tr>
<td>MBIE</td>
<td>47</td>
<td>7.8</td>
</tr>
<tr>
<td>CAA</td>
<td>6</td>
<td>1.0</td>
</tr>
<tr>
<td>Maritime New Zealand</td>
<td>6</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Note: Maritime New Zealand data is only available from 2008. Data prior to this is contained in another database and is not easily accessible. The annual average presented here is based on data from 2008–10.

On average, each year, there are between seven and eight fatal work-related cases notified to MBIE (since December 2013, to WorkSafe NZ) that are not claimed for in the ACC system. However, for the CAA and MNZ data combined there are, on average, less than three cases a year that are not included in the ACC claims data.

**Base data for the redeveloped work-related injury indicators**

**Fatal work-related injury indicator**
With an average of seven to eight fatalities each year investigated by WorkSafe NZ, but not contained in the ACC claims data, it is clear the inclusion of WorkSafe NZ notifications data improves the quality of the work-related injury indicators. However, due to the lack of a systematically defined work-related variable in the CAA and MNZ data, these two data sources will not be included in the redeveloped fatal work-related injury indicator.

As Injury Information Manager, Statistics NZ is committed to working with CAA and MNZ to improve this aspect of their data, and will track the improvements made with these data sources over time for their potential inclusion in the serious injury outcome indicators.

**Serious non-fatal work-related injury indicator**
The established base data for the production of the serious non-fatal work-related injury indicator will remain as in previous publications. The non-fatal indicator is based on a link of ACC claims and NMDS injury discharge data. It provides a measure of serious work-related injury hospitalisations. NMDS data provides the means to calculate the severity of the injury event, while ACC claim data provides the measure of work-relatedness.

The use of NMDS data is in line with all other priority area reporting and provides the best coverage for serious non-fatal injury, based on threat to life, currently available in New Zealand. A wider base of ACC data will be used to indicate work-relatedness in the redeveloped indicators.

**Definition of work-related injury**
The inter-agency redevelopment working group (Statistics NZ, MBIE, and ACC), has agreed a new definition of work-related injury for the serious injury outcome indicators. The working group agrees that this definition most accurately and consistently captures work-related injury for monitoring purposes from within the current administrative datasets available.

For the purposes of the serious injury outcome indicators, work-related injury has been defined as: **all fatal and serious non-fatal injuries that occur while a person is at work in New Zealand.**
This definition excludes some injury events that are of interest to agencies such as MBIE, but for reasons of data quality are not appropriate for monitoring in the serious injury outcome indicators. These include:

- injuries classified as occupational disease, illness, or gradual process
- injuries to bystanders (members of the public, customers, or clients injured as a result of someone else’s work activity)
- injuries to unpaid workers and volunteers
- injuries to workers commuting to and from work
- injuries to workers as a result of suicide or intentional self-harm
- injuries to workers resulting from natural causes
- injuries to workers who are working outside of New Zealand for a New Zealand organisation (for example, defence forces and New Zealand Police)
- injury claims made to ACC where the scene is on a farm but the claim cannot be systematically identified as occurring while at work.

This definition of work-related injury is consistent with the relevant resolution outlined by the International Labour Organization (ILO, 1998). We recognise that some of these excluded injury events are of interest for overall workplace health and safety reporting in New Zealand, and we will work with the relevant agencies to make data available outside of the serious injury outcome indicator publications.

This definition differs from the previous indicator definition of work-related injury, which only included work-related injury claims that were classified into the ACC work account. For example, motor-vehicle traffic crash injury claims that occur while a person is working are prioritised into the ACC motor-vehicle account, so would previously have been excluded. A review of the data found that the ACC work-related indicator variable for a motor-vehicle road traffic crash is more reliably applied than when the indicators were first developed. Additionally, identifying whether an injury was work-related can be difficult where the workplace is also a home. Farms are one such example and are included in the new definition. The differences in the data are outlined below in table 2.

---

2 The relevant resolution concerned the statistics of occupational injuries (resulting from occupational accidents), which was adopted by the Sixteenth International Conference of Labour Statisticians in October 1998.
Table 2

Summary of work-related injury definition

<table>
<thead>
<tr>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td><strong>Fatal work-related injury indicator</strong></td>
</tr>
<tr>
<td>Linked ACC fatal claims and MBIE fatal harm notifications</td>
</tr>
<tr>
<td>- ACC claims from the work account</td>
</tr>
<tr>
<td>- ACC claims in the motor-vehicle and earners’ accounts with the at-work</td>
</tr>
<tr>
<td>flag set to ‘Yes’</td>
</tr>
<tr>
<td>- ACC claims with location ‘farm’ by people with an agricultural occupation</td>
</tr>
<tr>
<td>and not involved in a sport or recreational activity</td>
</tr>
<tr>
<td><strong>Serious non-fatal work-related injury indicator</strong></td>
</tr>
<tr>
<td>Linked NMDS and ACC claims</td>
</tr>
<tr>
<td>- NMDS records that meet the criteria for ‘serious’</td>
</tr>
<tr>
<td>- ACC claims from the work account</td>
</tr>
<tr>
<td>- ACC claims in the motor-vehicle and earners’ accounts with the at-work</td>
</tr>
<tr>
<td>flag set to ‘Yes’</td>
</tr>
<tr>
<td>- ACC claims with location ‘farm’ by people with an agricultural occupation</td>
</tr>
<tr>
<td>and not involved in a sport or recreational activity</td>
</tr>
</tbody>
</table>

The difference between fatal and non-fatal indicators

Ideally the fatal and non-fatal work-related injury events would be identified in the same way, but there is no optimal single method of identifying them. It was decided that the best available data-selection logic differs between fatal and non-fatal injury.

Fatal injury events include:
- all claims in the ACC work account that meet the agreed definition
- all claims in the ACC motor-vehicle account or the ACC earners’ account that have a work-related flag set to ‘Y’ and meet the agreed definition
- an ACC claim with location ‘farm’ by people with agricultural occupations (excluding non-earners and those involved in a sport or recreational activity) that meet the definition
- all Worksafe NZ fatal work-related notifications that are not identified in the ACC data and that meet the agreed definition.

This currently provides the most complete picture available for work-related fatalities, considering data quality and resource requirements.

Serious non-fatal injury events include links to an NMDS injury discharge record where the case is defined as ‘serious’, and is also one of the following:
- a claim in the ACC work account that meets the agreed definition
- a claim in the ACC motor-vehicle account or the ACC earners’ account with a work-related flag set to ‘Y’ that meets the agreed definition
- an ACC claim with location ‘farm’ by people with agricultural occupations (excluding non-earners and those involved in a sport or recreational activity) that meet the definition.

Identifying gradual process claims in the ACC data

Gradual process claims are those for a personal injury that develops progressively over time, such as the effects of exposure to noise at a workplace. The Accident Compensation Act 2001 only provides cover for work-related gradual process claims. Gradual process injuries only include occupational disease or illness that are the result of exposure over an extended period of time.
Serious injury outcome indicators – technical report 2014

Occupational disease or illness was included in the NZIPS as an important aspect of workplace injury. However, occupational disease or illness is not included in the serious injury outcome indicators. This is because these diagnoses are not included in the ‘Injury’ chapter of the ICD-10-AM and also because the nature of these injuries makes them difficult to include in the measures that monitor injury events over time and by calendar year. Consequently, occupational disease or illness (gradual process claims), need to be identified in the ACC claims data so that they can be excluded from the work-related injury indicator counts.

From 2008 onwards, gradual process claims can be identified using a flag variable in the ACC dataset. Before 2008, this variable is not consistently present and reliable. For the years 2002–07, gradual process claims are identified using the diagnosis codes provided to ACC as part of the claim information. ACC provides Statistics NZ with the algorithm used by ACC’s actuarial services to identify gradual process claims based on diagnosis codes.
4 Updates and improvements to the indicator series

This chapter provides detail about process improvements and updates completed by Statistics NZ for the serious injury outcome indicators. They are listed under the calendar year in which the improvement was first published, with the most recent year first.

4.1 Changes made in 2014

Data update cycle
ACC data: From 2014, only data from the most recent three years are received from ACC. The first of these three years is not used, but is compared with the previously received data and any significant changes are investigated. Previously published provisional data are updated using the second year of the supplied data, and the third year provides the provisional estimates for the most current year.

4.2 Updates published in 2013

Work-related injury and fatality indicators updated

As a result of redevelopment work carried out in 2013, the work-related indicator series was completely revised. The changes made were detailed in chapter 3. In brief:

- The data source for the fatal work-related injury indicators now includes fatal harm notification made to WorkSafe NZ, along with ACC claims.
- The definition of work-related injury now includes ACC claims when the person can be identified as at work at the time; this includes claims in the motor-vehicle and earners’ accounts.
- ACC claims with location ‘farm’ by people with an agricultural occupation (not involved in a sport or recreational activity) are now included.
- The process for identifying and removing occupational disease, illness, and gradual process injury was updated.

4.3 Updates published in 2012

Definition of serious non-fatal injury updated

From 2012 onwards, a serious non-fatal injury is defined as an injury to a patient who is hospitalised and has a probability of death (at admission) of at least 6.9 percent. This change results from a revision to the diagnosis-specific survival probabilities (see below). Previously, a serious non-fatal injury was defined as a hospitalised injury with a probability of death (at admission) of at least 5.9 percent. There are two parts to the update of this definition.

1. Updating the diagnosis-specific survival probabilities

Severity calculations for the serious injury outcome indicators are based on diagnosis-specific survival probabilities (DSPs). In 2012, the DSPs were updated and recalculated using 2000–10 NMDS data.

When the original serious injury outcome indicators were produced, New Zealand had been coding hospital discharge data to the Australian Modification of the 10th revision of the ICD coding scheme (ICD-10-AM) for only 30 months. This was the only data available
on which to base the DSPs. There are now 10 years of ICD-10-AM NMDS-coded data available (2000–10) for these calculations.

2. Revising the severity threshold for non-fatal injuries

The probability of death (or severity threshold) is applied to the non-fatal injury data to quantify the level at which a non-fatal injury is classified as 'serious'. This is done by calculating a survival probability. The severity threshold is based on the DSP estimates, so needs to be revised relative to the new series of DSPs.

The goal in setting the severity threshold is to capture as many serious injuries as possible, without compromising the requirement that they have a high likelihood of admission to hospital. This includes the fractured neck of femur diagnoses, which have been shown to have a very high probability of admission. With the change in severity threshold (from a probability of death of at least 5.9 percent to 6.9 percent), some diagnoses that met the original threshold do not meet the revised threshold, and vice versa.

The 6.9 percent threshold was chosen because it was found to produce a similar probability of admission to hospital as in other countries using the ICD-10 coding classification (Canada, Denmark, and Greece). It was also chosen because it includes most of the diagnoses with a high probability of admission, in particular the fractured neck of femur diagnoses.

3. Confirming the exclusion of Emergency Department admissions

Short-stay Emergency Department-only admissions were excluded from the serious injury outcome indicators in 2011 (see below). The decision to exclude these cases was made by Statistics NZ in conjunction with the Ministry of Health (MoH), ACC, and IPRU. It was acknowledged that more research was required to better understand the impacts of short-stay Emergency Department (ED) reporting over time. The update of the definition for serious non-fatal injury provided the opportunity to look at these cases in more detail.

This work confirmed the decision to exclude short-stay ED-only admissions from the serious injury outcome indicators, for two reasons:

- although the reporting of ED-only events was mandated for in 2007, the reporting of these events remains variable across District Health Boards
- the quality of diagnosis codes from ED-only admissions may be less reliable than the diagnosis data from an inpatient admission record.

MoH has confirmed the inconsistency of case capture. The quality of diagnosis coding for ED-only events remains a concern with the current NMDS data, but MoH anticipates these issues will improve with time.

DSP update affects motor-vehicle traffic crash data

Of all the priority areas, the motor-vehicle area has been affected the most by the updates to the DSPs. This is for two reasons.

Firstly, the method for calculating DSPs now follows the patient through to the last hospital discharge for the injury event. Patients who are transferred to another hospital for treatment may die at the destination hospital; previously such a case would have been treated as an injury when calculating DSPs, whereas now it is classified (more accurately) as a death. Because motor-vehicle crashes often result in multiple and complex injuries, patients are frequently transferred to other hospitals for treatment.

Secondly, the nature of a serious motor-vehicle crash means that the patient is more likely to have multiple injuries. Now that 10 years of data are available, more accurate DSPs are calculated for these events.
Statistics NZ using updated NMDS extract

The NMDS is a dynamic database. Data within it changes with time as it is updated or corrected. Extracts from it at different points in time will show different information. At any one point in time the NMDS holds the most accurate data available.

Until 2011, the NMDS data used in the serious injury outcome indicators was updated for only the two most recent years of data available (one new year of data and a final extract of the previous year’s provisional data).

For the publications that cover the period 2000–11, we used an updated extract of the NMDS database, from 2000 to 2011. This was extracted in April 2012. Therefore, the data in the publications that cover the period 2000–11 uses the most up-to-date historical data available at the time of production.

As a result of using a newly updated extract, there are some changes to the number and rates of injury. These changes are mostly to the number of injury events in a given year, rather than the underlying trends, and have a bigger impact on years following the transition from one edition of ICD-10-AM to the next. These cover the coding classification changes to ICD-10-AM third edition, in July 2004, and ICD-10-AM sixth edition, in July 2008. The impact on the data is variable over this time.

Before the publication of the indicators in November 2013, the NMDS injury events data will be further analysed to better understand its stability over time and determine how to best update the indicators on an annual basis.

Data now presented from 2000 onwards

Indicator reporting will now begin from 2000, the first full calendar year of ICD-10 coding in New Zealand. This excludes the ICD-9 coded data for 1994–99 previously included in the indicators.

In the late 1990s, the ICD classification was substantially revised, and a new version (ICD-10) was introduced. For more detail, refer to Serious injury outcome indicators – technical report (Statistics NZ, 2011). The change from ICD-9 to ICD-10 resulted in differences in the number of deaths and hospitalisations attributable to injury (Anderson, Minino, Hoyert, & Rosenberg, 2001), and meant that the years before 1999 could not be compared with the years after 1999.

Ten years of data with ICD-10 coding are now available. This provides enough directly comparable data points to show trends with the ICD-10 data alone.

Discharge codes ‘ED’ and ‘DO’ excluded from serious non-fatal definition

By definition, the serious non-fatal indicators exclude people who die in hospital. The majority of people who die in hospital have the NMDS discharge code ‘DD’. On the advice of the Ministry of Health, from 2012, cases with the discharge codes ‘ED’ (died in the emergency department) and ‘DO’ (discharge for organ donation) were also excluded from the serious non-fatal indicators. This resulted in the removal of 13 cases from the serious non-fatal ‘all’ injury indicator for the provisional 2011 count.

Work-related indicators redeveloped

The work-related injury indicators have been redeveloped to ensure they remain the most robust and reliable measures of work-related injury in New Zealand. This work has been completed by a joint project group including Statistics NZ, ACC, and the Ministry of Business, Innovation and Employment (MBIE). The complex nature and significant development for this priority area means that this work is best described in a separate chapter. See chapter 3 for more information.
Serious non-fatal indicators, Māori now report NMDS ethnicity

All serious non-fatal indicators for Māori now show ethnicity as the ethnic group recorded on the NMDS record.

In publications prior to 2012, these indicators reported ethnicity using the ever-Māori method. This method allocates Māori ethnicity to an individual according to whether or not any previous admission, as identified by their unique National Health Identifier, recorded them as Māori. For the indicators, this included any NMDS admission record (1982 onwards), cancer registry record (1948 onwards), or a record on the Mortality Collection (1988 onwards). The ever-Māori calculations could not be carried out for the 2012 publication.

When using the NMDS records alone, compared with the ever-Māori method, there appears to be an undercount in some years and an overcount in other years. However, the direction and slope of injury trends are consistent. The Ministry of Health has endorsed reporting NMDS ethnicity as currently the most appropriate alternative to the ever-Māori method.

4.4 Updates published in 2011

2011 was the first year that Statistics NZ published the serious injury outcome indicators. To ensure that we could incorporate both the processes and methodology developed by the IPRU, it was agreed that only those changes essential to the quality of the publication would be implemented in 2011. Because of this, there was limited change to the indicator series in 2011.

Change in publication name

Prior to 2011, the serious injury outcome indicators publications were known as the Chartbooks of the New Zealand Injury Prevention Strategy serious injury outcome indicators.

Emergency Department admissions excluded

Emergency Department-only admissions are excluded from the serious injury outcome indicators. Emergency Department (ED) admissions are hospital events in which the patient is seen in ED and discharged without admission to hospital as an inpatient. Historically, these events were not included in the NMDS. However, from 1999 the reporting of these events steadily increased until 2007, when reporting ED events to the NMDS became compulsory.

This change in reporting practice has occurred gradually over the time period reported on in the indicators. It affects the trends by showing an increase in the number and rate that may not be reflective of a real change in injury, but an artefact of the difference in reporting. To address this, the NMDS-based indicators in this report exclude all injury cases where an ED admission was the only admission. The exclusion of ED events in the indicator estimates results in smaller numbers of serious non-fatal injury compared with those published before 2011, but has little impact on the trends. Further research is required to better understand the impact of short-stay ED reporting over time.
This chapter explains the specific methods used to produce the graphs shown in the serious injury outcome indicator reports.

5.1 Data sources for the serious injury outcome indicators

The two main data sources for the serious injury outcome indicators are the Ministry of Health’s (MoH) Mortality Collection and the National Minimum Dataset (NMDS) of hospital discharges. In addition to these, data from the Accident Compensation Corporation (ACC), the Ministry of Transport, WorkSafe NZ, and Water Safety New Zealand are used to provide counts for the relevant injury priority areas.

Fatal injury indicators
The Mortality Collection (Ministry of Health, nd(a)) contains information on all deaths registered in New Zealand, and is the primary data source for the fatal indicators. The majority of indicators are based on Mortality Collection data, with the exception of the following indicators:

- fatal work-related injury indicators W12 and W14, which are based on ACC fatal claims data and MBIE fatal notifications
- provisional fatal motor-vehicle traffic crash indicators M15–M18, which are based on Police Traffic Crash Report data supplied by the Ministry of Transport
- provisional fatal drowning indicators D13 and D14, which are based on Water Safety New Zealand DrownBase data.

Serious non-fatal injury indicators
The MoH’s NMDS is the primary data source for the serious non-fatal injury indicators (Ministry of Health, nd(b)). The NMDS is a national administrative database that records information on all publicly funded hospital discharges in New Zealand. Although the NMDS only reports on public hospital discharges, research has shown that only a small number of relevant cases are not identified in the serious injury outcome indicators because of the exclusion of privately funded cases (Langley, 1995).

Alternative data sources are used for the work-related injury indicators W01 and W02. These indicators are based on ACC work related entitlement claims data linked to the NMDS data. This data linkage is required as work-relatedness is not comprehensively recorded in the NMDS, and severity cannot be calculated from the ACC data.

Serious (fatal and serious non-fatal) injury indicators
The separate fatal and serious non-fatal indicators are supplemented by the serious (fatal and serious non-fatal) injury indicators. The data for these indicators is the sum of the relevant fatal and serious non-fatal indicator counts.

The serious indicators are included to present a more comprehensive picture of serious injury trends in New Zealand. Examining fatal and serious non-fatal injury events together allows an understanding of the potential impact of independent factors, such as improved medical treatment, to be accounted for. For example, improvements in treatment may mean that more people are surviving their injuries than before, resulting in a decline in the number or rate of fatal injuries. However, the result would be a shift of cases from fatal to serious non-fatal, rather than an overall reduction in injury cases.
Rates and denominator data sources
Denominator data provide counts for the population of interest and are used to estimate
injury rates. For the serious injury outcome indicators, age standardised rates are used to
provide an estimate of an individual's risk of injury, as well as to allow for changes in the
population age structure over time. Adjusting for the change in age structure over time
means that trends independent of this change in the population can be presented.

Population data are obtained from national population estimates (Statistics NZ, 2011).
These are mid-year estimated resident population values, and include only the usually
resident population. This excludes short-term overseas visitors, which may create a small
difference between some numerator and denominator rates, as the NMDS will include
tourists hospitalised with any injury. However, this is unlikely to have a significant impact
on the indicators and trends.

There are a few exceptions to the use of whole population estimates for the
denominators. These include:
- Motor-vehicle traffic crash indicators M13, M14, M17, and M18. These indicators
  are based on Ministry of Transport data and are expressed as either rate per billion vehicle kilometres,
  or per 100,000 registered vehicles.
- Work-related injury indicators W02, W14, and W22. These indicators are based
  on Statistics NZ’s Household Labour Force Survey data, which collects
  information on full-time and part-time workers aged 15 years and older. These
  indicators are expressed as a rate per 100,000 workers.

Injury rates are expressed as per 100,000 person-years at risk (or per 100,000 population
per year of exposure). Person-years are the natural units used when presenting rates,
and where an indicator is based on moving averages (refer to chapter 7), person-years
easily take into account the effect of using multiple years to construct the rate estimates.

5.2 The serious non-fatal injury severity threshold
As outlined in chapter 2, a serious non-fatal injury case is defined as one that is
hospitalised and has a probability of death (at admission) of at least 6.9 percent. By
applying the severity threshold of 6.9 percent the level at which an injury is classified as
’serious’ can be quantified. This is achieved by calculating an estimate for survival
probability or an Injury Severity Score for each NMDS injury case.

The International Classification of Disease (ICD)-based Injury
Severity Score
The ICD-based Injury Severity Score (ICISS) is a survival probability measure. It is a
useful tool for estimating injury severity from administrative data (Cryer et al., 2004).

The ICISS method
ICISS methodology involves estimating the probability of surviving an injury. This is
calculated by estimating a survival probability score for each injury event, which is based
on the ICD injury diagnosis code. This is known as the diagnosis-specific survival
probability (DSP). The individual DSPs are calculated by dividing the number of people
who survive with a specific diagnosis by the total number of people assigned that
diagnosis over a defined time period. (The term diagnosis-specific survival probability
replaces the previously used term survival risk ratios (SRR), to reflect international
standard terminology).

\[
DSP = \frac{\text{Number of times a given diagnosis code occurs in a surviving patient}}{\text{Total number of occurrences of that injury diagnosis code in the dataset}}
\]
The ICISS is the product of all the DSPs associated with the injury diagnoses listed for a hospital event. For example, a patient admitted with a diagnosis of concussion alone (ICD-10 code S0600) will have an ICISS equal to the DSP for that diagnosis (DSP = 0.993). However, the ICISS for a patient admitted with the diagnoses of concussion and a skull fracture (ICD-10 code S021, ICISS = 0.903) will be the product of the DSPs for each of these diagnoses. In this case, the ICISS is 0.897 (0.993 x 0.903).

For the serious injury indicators a hospitalised patient is identified as having a serious non-fatal injury if they have an estimated ICISS of ≤ 0.931. This ICISS equates to a risk of death of 6.9 percent or greater, as stated in the definition of serious non-fatal injury. From the example above, the patient with the concussion diagnosis alone would not meet the threshold for a serious non-fatal injury (ICISS of 0.993 is greater than 0.931), However, the patient with a concussion and skull fracture has an ICISS estimate that is less than the threshold, and so this injury event is considered a serious non-fatal event (ICISS of 0.897 is less than 0.931).

Injury events that are more serious in nature will have a low DSP and probability of survival, together resulting in a low ICISS. This is outlined below.

↑ serious injury → ↓ DSP → ↓ probability of survival → ↓ ICISS

For a discussion of the merits of ICISS relative to other severity scales, please see appendix 1 of Developing valid injury indicators (Cryer et al, 2004).

ICISS and the serious injury outcome indicators

In the NMDS all diagnoses are coded according to the World Health Organization’s ICD. The serious injury outcome indicators present serious injury counts and rates from 2000 to the most current annual data available. During this time, NMDS diagnoses have been classified using the International Statistical Classification of Diseases and Health Related Problems, 10th Revision, Australian Modification (ICD-10-AM).

This publication is referred to throughout this report as the ICD-10.

Injury events are identified using the principal diagnosis (main reason for the hospital event) and the first listed e-code. Currently the ICD-10 based DSPs are calculated using NMDS discharge data for the period 2000 to 2010. The DSPs are then applied to all hospitalisations coded with a diagnosis code in the range S00–T78. From here the severity threshold of 6.9 percent or greater probability of death (ICISS of ≤ 0.931) is applied to define which non-fatal injury events are classified as serious.

5.3 Work-related injury cases in more than one priority area

Serious non-fatal work-related status is defined using data from the ACC claims dataset (refer to chapter 6 for more details). These claims are then linked to the NMDS to obtain more accurate diagnostic information. Because the cause of injury (work-relatedness) is obtained from an external data source (ACC), and there may be another cause of injury listed in the NMDS (e.g., fall) some work-related injuries will also be assigned to other priority groups. These cases appear in both sets of graphs and tables. They are counted only once in the ‘all injury’ indicators. Work-related cases are not excluded from this process on the basis that they may have already been categorised into another priority group.

There were 400 serious non-fatal work-related injuries in the 2013 calendar year. Of these, 141 (35 percent) were also assigned to the falls priority group, 54 (14 percent) to motor-vehicle traffic crashes, and 9 (2 percent) to assault.

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6 Scope of the serious injury outcome indicators

This chapter outlines the scope of the serious injury outcome indicators published in the report *Serious injury outcome indicators*, which presents indicators for the New Zealand population as a whole. A detailed specification for each indicator presented in this chapter can be found in chapter 10.

For an outline of the serious injury outcome indicators in the reports for Māori, and for children (0–14 years), refer to chapters 11 and 12, respectively.

6.1 All injury

The indicators for ‘all injury’ include all deaths where the underlying cause of death is an external cause code in the range V01–Y36 or a hospital event with codes in the following ranges:

- principal diagnosis in the range S00–T78
- first external cause code in the range V01–Y36.

The all injury indicators include the total injury deaths or hospitalisations recorded in the Mortality Collection and NMDS respectively, in a calendar year. It includes recorded injury events not included as one of the original NZIPS injury priority areas.

**Table 3**

<table>
<thead>
<tr>
<th>Indicator ID</th>
<th>Description of indicator</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I11</td>
<td>Number of fatal injuries</td>
<td>MoH Mortality Collection</td>
</tr>
<tr>
<td>I12</td>
<td>Age standardised fatal injury rate, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection; Statistics NZ</td>
</tr>
<tr>
<td>I01</td>
<td>Number of serious non-fatal injuries</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>I02</td>
<td>Age standardised serious non-fatal injury rate, per 100,000 person-years at risk</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>I21</td>
<td>Number of serious (fatal and non-fatal) injuries</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>I22</td>
<td>Age standardised serious (fatal and non-fatal) injury rate, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
</tbody>
</table>

6.2 Assault

The term ‘assault’ describes interpersonal violence used with the intent of causing harm, injury, or death to another. In the serious injury outcome indicators, ‘assault’ is used to describe both fatal and non-fatal injuries.

The assault indicators are based on ICD-10 codes in the range X85–Y09. These include homicide (death due to injuries inflicted by another person with the intent to injure or kill, by any means) sexual assault and acts of omission (failure to do something, which causes harm). Injuries due to legal intervention or operations of war are excluded.

Before 2009, the serious non-fatal assault indicators were provisional, because there was concern about the validity of the indicator. The concern was around case ascertainment and how the identification of assault injury events is likely to be influenced by changing social norms. For example, it is possible that health promotion campaigns to reduce
domestic violence may increase the acceptability of reporting such events. This would impact the trends reported in the serious non-fatal assault injury indicator. Additionally, unlike fatal injury events there is not a comprehensive and independent verification process by a Coroner of the intent of all injuries that require admission to hospital.

In 2009 the Injury Prevention Research Unit (IPRU) investigated the provisional status of the serious non-fatal assault indicator. They found no systematic change in the recording of serious non-fatal assault cases between 2001 and 2007. As such, the provisional status of this indicator has been lifted (Gulliver, Cryer, & Davie, 2009).

### Table 4

<table>
<thead>
<tr>
<th>Indicator ID</th>
<th>Description of indicator</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A11</td>
<td>Number of fatal assault injuries</td>
<td>MoH Mortality Collection</td>
</tr>
<tr>
<td>A12</td>
<td>Age standardised fatal assault injury rate, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection; Statistics NZ</td>
</tr>
<tr>
<td>A01</td>
<td>Number of serious non-fatal assault injuries</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>A02</td>
<td>Age standardised serious non-fatal assault injury rate, per 100,000 person-years at risk</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>A21</td>
<td>Number of serious (fatal and non-fatal) assault injuries</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>A22</td>
<td>Age standardised serious (fatal and non-fatal) assault injury rate, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
</tbody>
</table>

### 6.3 Work-related injury

This priority area is called ‘workplace injuries (including occupational diseases)’. The phrase ‘workplace’ puts the focus on the location. However, injuries that occur at a workplace are not necessarily work-related. For example, the road can be a workplace, but non-work-related injuries can also occur on the road. So, while the priority area specifies workplace, the indicators for this area focus on work-related injury.

For the purposes of the serious injury outcome indicators, work-related injury has been defined as: all fatal and serious non-fatal injuries that occur while a person is ‘at work’ in New Zealand. This includes all claims from any ACC account where the claimant can be identified as ‘at work’ at the time of the injury. For the fatal indicator, this also includes fatal harm notifications to the Ministry of Business, Innovation and Employment (MBIE), for cases where ACC claims cannot be identified.

The scope for this priority area includes unintentional and assault injury. There are a number of exclusions, including:

- injuries classified as occupational disease, illness, or gradual process
- injuries to bystanders (members of the public, customers, or clients injured as a result of someone else’s work activity)
- injuries to unpaid workers and volunteers
- injuries to workers commuting to and from work
- injuries to workers as a result of suicide or intentional self-harm
- injuries to workers resulting from natural causes
- injuries to workers who are working outside of New Zealand for a New Zealand organisation (for example, defence forces and New Zealand Police)
- injury claims made to ACC where the scene is on a farm but the claim cannot be systematically identified as occurring while at work.
This definition is consistent with the resolution outlined by the International Labour Organization (ILO).

Table 5
Serious injury outcome indicators for work-related injury

<table>
<thead>
<tr>
<th>Indicator ID</th>
<th>Description of indicator</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>W12</td>
<td>Number of fatal work-related injuries</td>
<td>ACC and WorkSafe NZ</td>
</tr>
<tr>
<td>W14</td>
<td>Age standardised fatal work-related injury rate, per 100,000 person-years at risk</td>
<td>ACC and WorkSafeNZ; Statistics NZ</td>
</tr>
<tr>
<td>W01</td>
<td>Number of serious non-fatal work-related injuries</td>
<td>ACC and MoH NMDS</td>
</tr>
<tr>
<td>W02</td>
<td>Age standardised serious non-fatal work-related injury rate, per 100,000 person-years at risk</td>
<td>ACC and MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>W21</td>
<td>Number of serious (fatal and non-fatal) work-related injuries</td>
<td>ACC, WorkSafe NZ and MoH NMDS</td>
</tr>
<tr>
<td>W22</td>
<td>Age standardised serious (fatal and non-fatal) work-related injury rate, per 100,000 person-years at risk</td>
<td>ACC, WorkSafe NZ and MoH NMDS; Statistics NZ</td>
</tr>
</tbody>
</table>

6.4 Intentional self-harm

Acts of ‘intentional self-harm’ can result in death or non-fatal injury. In the serious injury outcome indicators intentional self-harm refers to self-harm that is purposely inflicted and results in death or non-fatal injury.

The intentional self-harm indicators are based on ICD-10 codes in the range X60–X84. These include purposely self-inflicted poisoning or injury, or suicide and attempted suicide.

Before 2009, the serious non-fatal intentional self-harm indicator was considered provisional, because there was a concern about the validity of the indicator. The concern was around case ascertainment and how the identification of non-fatal intentional self-harm injury events is likely to be influenced by changing social norms. For example, changing attitudes to mental health may influence the recording of such events over time. This may impact the trends reported in the serious non-fatal intentional self-harm injury indicator. Additionally, unlike fatal injury events there is not a comprehensive and independent verification process by a Coroner of the intent of all injuries that require admission to hospital.

In 2009 the Injury Prevention Research Unit (IPRU) investigated the provisional status of the serious non-fatal intentional self-harm indicator. They found no systematic change in the recording of serious non-fatal intentional self-harm cases between 2001 and 2007. As such, the provisional status of this indicator has been lifted (Gulliver, Cryer, & Davie, 2009).
Table 6

<table>
<thead>
<tr>
<th>Indicator ID</th>
<th>Description of indicator</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S11</td>
<td>Number of intentional self-harm injury deaths</td>
<td>MoH Mortality Collection</td>
</tr>
<tr>
<td>S12</td>
<td>Age standardised fatal intentional self-harm injury rate, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection; Statistics NZ</td>
</tr>
<tr>
<td>S01</td>
<td>Number of serious non-fatal intentional self-harm injuries</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>S02</td>
<td>Age standardised serious non-fatal intentional self-harm injury rate, per 100,000 person-years at risk</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>S21</td>
<td>Number of serious (fatal and non-fatal) intentional self-harm injuries</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>S22</td>
<td>Age standardised serious (fatal and non-fatal) intentional self-harm injury rate (per 100,000 person-years at risk)</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
</tbody>
</table>

6.5 Falls

The indicators for ‘falls’ focus on unintentional injury, so the scope excludes both intentional self-harm and purposely inflicted injury events. Cases in which the intent is undetermined are also excluded. The exclusion of intentional falls injury events is in line with international coding conventions (World Health Organization, 1992).

The falls indicators are based on ICD codes in the range W00–W19. These exclude the collapse of a building or structure, and falls into or from:

- an animal
- a burning building
- fire
- water (with drowning or submersion)
- machinery (in operation)
- a transport vehicle.

An injury event for the serious injury outcome indicators is based on principal diagnosis and first external cause of injury codes at first discharge from hospital. This excludes late effects of injuries (see chapter 2) and means that falls occurring in hospital are unlikely to be included in the indicator counts.

The indicators for falls are presented in three groups: all ages, 0–74 years, and 75 years and over. Separate indicators for people aged 75 and over are presented because the numbers and rates of death and hospitalisation for falls in people aged 75 years and over are high. This is especially true in comparison to younger people and means that identifying falls injury cases is more difficult in this older age group, compared to younger age groups (Connor, Langley, & Cryer, 2007).
Table 7
Serious injury outcome indicators for falls
For all ages

<table>
<thead>
<tr>
<th>Indicator ID</th>
<th>Description of indicator</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F11a</td>
<td>Number of fatal fall-related injuries</td>
<td>MoH Mortality Collection</td>
</tr>
<tr>
<td>F12a</td>
<td>Age standardised fatal fall-related injury rate per 100,000 person-years at risk</td>
<td>MoH Mortality Collection; Statistics NZ</td>
</tr>
<tr>
<td>F01a</td>
<td>Number of serious non-fatal fall-related injuries</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>F02a</td>
<td>Age standardised serious non-fatal fall-related injury rate, per 100,000 person-years at risk</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>F21a</td>
<td>Number of serious (fatal and non-fatal) fall-related injuries</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>F22a</td>
<td>Age standardised serious (fatal and non-fatal) fall-related injury rate, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
</tbody>
</table>

Table 8
Serious injury outcome indicators for falls
For people aged 0–74 years

<table>
<thead>
<tr>
<th>Indicator ID</th>
<th>Description of indicator</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F11b</td>
<td>Number of fatal fall-related injuries among people aged 0–74</td>
<td>MoH Mortality Collection</td>
</tr>
<tr>
<td>F12b</td>
<td>Age standardised fatal fall-related injury rate per 100,000 person-years at risk, for people aged 0–74</td>
<td>MoH Mortality Collection; Statistics NZ</td>
</tr>
<tr>
<td>F01b</td>
<td>Number of serious non-fatal fall-related injuries for people aged 0–74</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>F02b</td>
<td>Age standardised serious non-fatal fall-related injury rate per 100,000 person-years at risk, for people aged 0–74</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>F21b</td>
<td>Number of serious (fatal and non-fatal) fall-related injuries for people aged 0–74</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>F22b</td>
<td>Age standardised serious (fatal and non-fatal) fall-related injury rate for people aged 0–74, 100,000 person-years at risk</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
</tbody>
</table>
Table 9

Serious injury outcome indicators for falls
For people 75 years and over

<table>
<thead>
<tr>
<th>Indicator ID</th>
<th>Description of indicator</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F11c</td>
<td>Number of fatal fall-related injuries for people aged 75 and over</td>
<td>MoH Mortality Collection</td>
</tr>
<tr>
<td>F12c</td>
<td>Age standardised fatal fall-related injury rate per 100,000 person-years for people aged 75 and over</td>
<td>MoH Mortality Collection; Statistics NZ</td>
</tr>
<tr>
<td>F01c</td>
<td>Number of serious non-fatal fall-related injuries for people aged 75 and over</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>F02c</td>
<td>Age standardised serious non-fatal fall-related injury rate per 100,000 person-years at risk, for people aged 75 and over</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>F21c</td>
<td>Number of serious (fatal and non-fatal) fall-related injuries for people aged 75 and over</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>F22c</td>
<td>Age standardised serious (fatal and non-fatal) fall-related injury rate per 100,000 person-years at risk, for people aged 75 and over</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
</tbody>
</table>

6.6 Motor-vehicle traffic crashes

A ‘motor-vehicle traffic crash’ (MVTC) 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 (World Health Organization, 1992).

The MVTC indicators are based on ICD-10 codes in the ranges:

- V02–V04 (with a fourth 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).

These exclude injuries that are purposely self-inflicted, due to assault, or in which the intent is undetermined. It also excludes all cases in which there is no motor-vehicle involvement, for example, crashes involving pedal cycles only.

To account for changes in the driving environment over time, additional fatal MVTC indicators were developed. These are based on vehicle kilometres travelled and the number of registered vehicles. These additional indicators are outlined in tables 10 and 11 along with all the other indicators presented for MVTC injury.
Table 10

Serious injury outcome indicators for motor-vehicle traffic crashes

<table>
<thead>
<tr>
<th>Indicator ID</th>
<th>Description of indicator</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M11</td>
<td>Number of MVTC-related injury deaths</td>
<td>MoH Mortality Collection</td>
</tr>
<tr>
<td>M12</td>
<td>Age standardised fatal MVTC-related injury rate, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection; Statistics NZ</td>
</tr>
<tr>
<td>M13</td>
<td>MVTC-related mortality rate per billion vehicle kilometres</td>
<td>MoH Mortality Collection; Ministry of Transport (MoT)</td>
</tr>
<tr>
<td>M14</td>
<td>MVTC-related mortality rate per 10,000 registered vehicles</td>
<td>MoH Mortality Collection; MoT Motor Vehicle Register</td>
</tr>
<tr>
<td>M01</td>
<td>Number of serious non-fatal MVTC-related injuries</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>M02</td>
<td>Age standardised serious non-fatal MVTC-related injury rate, per 100,000 person-years at risk</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>M21</td>
<td>Number of serious (fatal and non-fatal) MVTC-related injuries</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>M22</td>
<td>Age standardised serious (fatal and non-fatal) MVTC-related injury rate, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
</tbody>
</table>

There is a lag of about two years between the end of a given year and the release of MoH Mortality Collection data for that year. To provide more timely data, serious injury outcome indicators based on the Ministry of Transport's Traffic Crash Reports were developed.

The indicators based on Ministry of Transport data are presented as provisional indicators for the most recently available year and are superseded by the Mortality Collection based indicators when the data for that year becomes available.

Table 11

Provisional serious injury outcome indicators for motor-vehicle traffic crashes

<table>
<thead>
<tr>
<th>Indicator ID</th>
<th>Description of indicator</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M15</td>
<td>Number of MVTC-related injury deaths</td>
<td>MoT Traffic Crash Report Database</td>
</tr>
<tr>
<td>M16</td>
<td>Age standardised fatal MVTC-related injury rate, per 100,000 person-years at risk</td>
<td>MoT Traffic Crash Report Database; Statistics NZ</td>
</tr>
<tr>
<td>M17</td>
<td>MVTC-related fatal injury rate per billion vehicle kilometres</td>
<td>MoT Traffic Crash Report Database; MoT vehicle km estimates</td>
</tr>
<tr>
<td>M18</td>
<td>MVTC-related fatal injury rate per 10,000 registered vehicles</td>
<td>MoT Traffic Crash Report Database; MoT Motor Vehicle Register</td>
</tr>
</tbody>
</table>
6.7 Drowning

Delegates at the 2003 World Congress on Drowning defined ‘drowning’ as “the process of experiencing respiratory impairment from submersion/immersion in liquid” (World Congress on Drowning, 2003).

Drowning includes fatal and non-fatal events, known as near-drowning. Since the MoH introduced the ICD-10 to code external cause and nature of injury in both the Mortality Collection and NMDS of hospital discharges, it has been possible to identify drowning and near-drowning cases classified in the ICD.

Drowning is the only injury priority area in which a diagnostic code is used to identify a case for the serious injury outcome indicators. The diagnostic code T75.1 is used in favour of the external cause codes because the external cause codes exclude a number of relevant cases. For example, non-traffic MVTCs where the vehicle is submerged and a person drowns.

There are insufficient numbers of injuries from near-drowning to produce meaningful serious non-fatal indicators. The serious injury outcome indicators for drowning are restricted to fatal unintentional drowning.

**Table 12**

<table>
<thead>
<tr>
<th>Indicator ID</th>
<th>Description of indicator</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D11</td>
<td>Number of fatal drowning cases</td>
<td>MoH Mortality Collection</td>
</tr>
<tr>
<td>D12</td>
<td>Age standardised drowning rate, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection; Statistics NZ</td>
</tr>
</tbody>
</table>

There is a lag of about two years between the end of a given year and the release of MoH Mortality Collection data for that year. To provide more timely data serious injury outcome indicators based on Water Safety New Zealand’s (WSNZ) database of drowning cases (DrownBase database) were developed.

The indicators based on DrownBase data are presented as provisional indicators for the most recently available year and are replaced by the Mortality Collection based indicators when the data for that year becomes available.

**Table 13**

<table>
<thead>
<tr>
<th>Indicator ID</th>
<th>Description of indicator</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D13</td>
<td>Number of fatal drowning cases</td>
<td>WSNZ DrownBase</td>
</tr>
<tr>
<td>D14</td>
<td>Age standardised drowning rate, per 100,000 person-years at risk</td>
<td>WSNZ DrownBase; Statistics NZ</td>
</tr>
</tbody>
</table>
7 Interpreting the graphs and trends

This chapter describes the features of the indicator graphs. It is designed to help you understand them and interpret the serious injury trends they present.

The serious injury outcome indicators present a high-level overview of serious injury trends over time. Because of this, only brief comments on each graph are provided. The graphs are intended to tell the story without detailed explanation, so it is important they are interpreted correctly.

7.1 The baseline

The baseline is the horizontal line halfway up the vertical axis of each graph. It is used as a point from which to compare the frequencies and rates of injury. It is calculated as the average number or rate of injury for the three years leading up to the launch of the NZIPS (2001–2003) for all indicators except those based on three-year moving averages. Where moving averages are used, the baseline is calculated as the average number or rate of injury for the five years closest to the launch of the NZIPS (2000–2004). The baseline extends across the graphs to provide an easy point of reference for the description of any injury trends. It is this line on which the commentary in each of the serious injury outcome indicator reports is based.

7.2 Error bars

The vertical black lines in each graph are error bars.

These represent 95 percent confidence intervals and take account of the random nature of accidents. We assume that accidents follow a Poisson process, that is, accidents are independent random events that occur at some average rate. The actual number of accidents is an observation from this process and an error bar indicates our uncertainty about the underlying process.

The more two error bars overlap the less confidence we have that there is a real difference between the time periods. If there is no overlap then there is a very strong indication that there is a difference between the underlying rates. We should not claim there is a difference if the overlap is more than one third of the length of the bars. Note that a significant difference tells us nothing about its cause – there could be many causes: safety campaigns, weather etc.

The Poisson model depends on the independence assumption. This holds for most accidents, but not for motor accidents as they often involve more than one person. The confidence intervals in this case should be a little longer than shown on the charts.

Error bars for age standardised rates were calculated by combining the independent errors for each age group.

7.3 Three-year moving averages

For some priority areas the number of injuries falls below 100 per year, and may fluctuate substantially on a yearly basis. Fluctuations may hide trends in the numbers and rates of injury. To overcome this effect, data from three years is used to produce an average value, which becomes the estimate for the year in the middle. For example, data from 2004, 2005, and 2006 could be used to estimate an indicator value for 2005.
7.4 Colours used in the graphs

The colours used in the graphs have been chosen to signal the status of the indicator (provisional or validated).

<table>
<thead>
<tr>
<th>Colour</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aqua</td>
<td>validated</td>
</tr>
<tr>
<td>Light green</td>
<td>provisional</td>
</tr>
</tbody>
</table>

7.5 Provisional data

In graphs and tables based on the MoH Mortality Collection the two most recent years’ data are provisional. In graphs and tables which use NMDS data, the most recent year’s data are provisional. This is because these data will be updated for the following publication in the next calendar year. The term ‘provisional’ in this instance refers to data that will be updated in the following publication, which differs from its use when referring to a ‘provisional indicator’ which is an indicator that does not meet the criteria for validity (refer to chapter 1 for more details).
8 Serious injury outcome indicators for Māori

The serious injury outcome indicators for Māori present data about the Māori population using, where viable, the same indicators published for the whole population. The methods used for the calculation of the Māori indicators are similar to those described in chapter 5. This chapter outlines the background for the development of the serious injury outcome indicators for Māori. It also explains any variations in the methods or issues specifically related to reporting ethnic data.

8.1 Background

The Treaty of Waitangi

The Treaty of Waitangi is the founding document of New Zealand. The Treaty provides the foundation for a working relationship between Māori and the Government. Implementation of this relationship is based on the guiding principles of partnership, participation, and protection. For the monitoring of injury, this is affirmed with the publication of the Serious injury outcome indicators for Māori. Statistics NZ intends that this publication will contribute to positive health gains in Māori injury prevention through the measurement and reporting of serious injury incidence for Māori.

Changes in ethnicity measurement over time

In New Zealand over the last 20 years, the way ethnicity has been measured and classified has changed. Some of these changes include:

- a lack of, or inconsistency in, the official definition of ethnicity and the assumptions that underpin this definition
- changes to the census ethnicity question, from race to self-identified ethnicity
- changes in how ethnicity is classified
- changes to the way ethnicity is coded and output, because of the inclusion of multiple ethnicities (Cormack & Harris, 2009).

These changes have had a significant impact on the capture of ethnicity data in national datasets used for both numerator and denominator measurement.

Methods of reporting ethnicity

There are several methods of reporting ethnicity data, including prioritised, single, single/combination, and total response. Increasing demand for, and use of, multiple response ethnicity questions or code categories has driven the development of many of these output methods. For more information on each of the output methods refer to the Statistical Standard for Ethnicity (Statistics NZ, 2005).

Numerator-denominator bias

Historically in New Zealand there has been an undercount of Māori in death registrations and hospitalisations data. This has meant that calculating rates for Māori is problematic because of difficulties with the comparability of numerators and denominators – which leads to what is known as numerator-denominator bias.

The New Zealand Census–Mortality Study (NZCMS) (Blakely, Atkinson, Sporle, & Kiro, 2002), which uses linked census (denominator) and mortality (numerator) data, quantified this bias for mortality data. From 1991 to 1994 death registration data in the Mortality Collection reported 29 percent less Māori than the self-identified 1991 Census data.
Then in 2008, the NZCMS published adjustment ratios to account for undercounting Māori deaths in the New Zealand death records for the 2001–2004 NZCMS linked data. These adjustment ratios showed that ethnicity recorded in the Mortality Collection was now similar to that of the census, and adjustment for ethnicity in this data was no longer required (Fawcett, Atkinson, Herd, & Blakely, 2008).

However, at this time, there was a continued undercount for Māori in the NMDS. So the numerator-denominator bias remained for hospitalisation data. As there were no weights derived for hospital data, and the Mortality Collection weights were not validated for the MNDS data, the NZCMS weights were not appropriate for hospitalisation data.

8.2 Ethnicity in the source data

Accident Compensation Corporation (ACC) claims management system

When an injured person makes a claim with ACC for compensation, they must complete the ACC45 form. As a part of the personal details section there is an ethnicity question with 16 options. More than one option per claimant is allowed. Once ACC receives the ACC45, the responses are coded according to the Statistical Standard for Ethnicity (Statistics NZ, 2005) and entered into ACC’s claimant information database. Each claimant can have up to six different ethnic group categories in their record. However, data supplied for the serious injury outcome indicators is categorised by single ethnic group method. In addition, no information is currently available on the reliability of ACC ethnicity data so there are no indicators for Māori presented for fatal work-related injury. Indicators for serious non-fatal injury are presented, as these indicators are based on linked ACC-NMDS data.

National Minimum Dataset

Ethnicity in the NMDS is self-identified where possible, so for an individual it may change over time. Because of this the MoH collects ethnicity information for each reported health event. From July 1996, up to three ethnic group codes can be collected for each event. Where more than three ethnic group codes are reported, the Statistics NZ prioritisation algorithm is used to report only three ethnic groups.

Mortality Collection

Ethnic group is coded from the Births, Deaths, and Marriages death registration form (BDM 28). The information on the BDM 28 is supplied to the funeral director by the deceased’s family or representative. Up to 10 ethnic group codes can be recorded on the BDM 28; these are prioritised when loaded into the Mortality Collection using the Statistics NZ algorithm, and only three ethnic group codes are stored. The Mortality Collection also has a variable that identifies the source of the ethnic group information. If there is no ethnic group information on the BDM 28 form, the information held on the National Health Index database is recorded in the mortality data.

Ministry of Transport – Traffic Crash Reports

This data does not include a reliable indicator for ethnicity. There are no indicators for Māori based on this data.

Water Safety New Zealand – DrownBase Database

This data does not include a reliable indicator for ethnicity. There are no indicators for Māori based on this data.

Statistics New Zealand population estimates

The estimated total Māori population and the estimated total Māori working population are calculated as at 30 June of the relevant year. They are based on New Zealand
census and post-enumeration surveys, and are 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. The ethnicity question in the New Zealand census changed for each census from 1976 until 2001. The 2006 Census retained the 2001 Census ethnicity question. Multiple responses have been allowed since the 1986 Census.

8.3 Ethnicity in the serious injury outcome indicators

**Fatal injury indicators for Māori**

The fatal indicators are based on MoH Mortality Collection data. Research has shown that mortality data for the period 2000 onwards does not require adjustment to correct the undercount for Māori (Fawcett et al, 2008). Consequently, the serious injury outcome indicators for Māori are derived directly from the Mortality Collection data using the total response method.

**Serious non-fatal injury indicators for Māori**

The serious non-fatal indicators are based on MoH NMDS hospital discharge data. The NZCMS adjustment ratios have not been derived for hospital data and so they are not appropriate to correct for the undercount of Māori.

The Ministry of Health has endorsed reporting NMDS ethnicity as currently the most appropriate method of identifying ethnicity.

8.4 Viable serious injury outcome indicators for Māori

The serious injury outcome indicators for Māori include 34 indicators in total, two of which are work-related indicators, based on linked ACC-NMDS data. Due to the small number of injuries for Māori in some priority areas, or because of a lack of a reliable indicator for ethnicity in some data sources (for example, in Traffic Crash Reports), there are no, or limited, indicators presented for some injury priority areas. In other cases a serious (fatal and non-fatal) indicator was calculated to overcome the difficulty posed by few numbers. The viability of an indicator for Māori, for each of the injury priority areas is outlined below in table 14.
Table 14

Viability of serious injury outcome indicators for Māori

<table>
<thead>
<tr>
<th>Injury priority area</th>
<th>Type of indicator</th>
<th>Fatal</th>
<th>Serious non-fatal</th>
<th>Serious (fatal and non-fatal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All injury</td>
<td>✓ (2)</td>
<td>✓ (2)</td>
<td>✓ (2)</td>
<td></td>
</tr>
<tr>
<td>Assault</td>
<td>X</td>
<td>✓ (2)</td>
<td>✓ (2)</td>
<td></td>
</tr>
<tr>
<td>Work-related injury</td>
<td>X</td>
<td></td>
<td>✓ (2)</td>
<td></td>
</tr>
<tr>
<td>Intentional self-harm</td>
<td>✓ (2)</td>
<td>X</td>
<td>✓ (2)</td>
<td></td>
</tr>
<tr>
<td>Falls</td>
<td>X</td>
<td>✓ (6)</td>
<td>✓ (6)</td>
<td></td>
</tr>
<tr>
<td>Motor-vehicle traffic crashes</td>
<td>✓ (2)</td>
<td>✓ (2)</td>
<td>✓ (2)</td>
<td></td>
</tr>
<tr>
<td>Drowning</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Symbols:
✓ = number of cases per year makes the indicators viable
X = indicator not viable due to a small number of cases/no reliable ethnicity indicator
( ) = the number in brackets indicates the number of viable indicators

Table 15 provides a full list of the serious injury outcome indicators for Māori. It provides a description of each indicator and the data sources required.

Table 15

Serious injury outcome indicators for Māori

<table>
<thead>
<tr>
<th>Indicator ID</th>
<th>Description of indicator</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M(T)I11</td>
<td>Number of injury deaths for Māori</td>
<td>MoH Mortality Collection</td>
</tr>
<tr>
<td>M(T)I12</td>
<td>Age standardised fatal injury rate for Māori, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection; Statistics NZ</td>
</tr>
<tr>
<td>M(T)I01</td>
<td>Number of serious non-fatal injuries for Māori</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>M(T)I02</td>
<td>Age standardised serious non-fatal injury rate for Māori, per 100,000 person-years at risk</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>M(T)I21</td>
<td>Number of serious (fatal and non-fatal) injuries for Māori</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>M(T)I22</td>
<td>Age standardised serious (fatal and non-fatal) injury rate for Māori, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
<tr>
<td>M(T)A01</td>
<td>Number of serious non-fatal assault injuries for Māori</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>M(T)A02</td>
<td>Age standardised serious non-fatal assault injury rate for Māori, per 100,000 person-years at risk</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>M(T)A21</td>
<td>Number of serious (fatal and non-fatal) assault injuries for Māori</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>M(T)A22</td>
<td>Age standardised serious (fatal and non-fatal) assault injury rate for Māori, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
<tr>
<td>M(T)W01</td>
<td>Number of serious non-fatal work-related injuries for Māori</td>
<td>ACC and MoH NMDS</td>
</tr>
<tr>
<td>M(T)W02</td>
<td>Age standardised serious non-fatal work-related injury rate for Māori, per 100,000 person-years at risk</td>
<td>ACC and MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>Indicator ID</td>
<td>Description of indicator</td>
<td>Data source(s)</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>M(T)S11</td>
<td>Number of self-harm injury deaths for Māori</td>
<td>MoH Mortality Collection</td>
</tr>
<tr>
<td>M(T)S12</td>
<td>Age standardised fatal self-harm injury rate for Māori, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection; Statistics NZ</td>
</tr>
<tr>
<td>M(T)S21</td>
<td>Number of serious (fatal and non-fatal) self-harm injuries for Māori</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>M(T)S22</td>
<td>Age standardised serious (fatal and non-fatal) self-harm injury rate for Māori, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
<tr>
<td>M(T)F01a</td>
<td>Number of serious non-fatal fall-related injuries for Māori</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>M(T)F02a</td>
<td>Age standardised serious non-fatal fall-related injury rate for Māori, per 100,000 person-years at risk</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>M(T)F21a</td>
<td>Number of serious (fatal and non-fatal) fall-related injuries for Māori</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>M(T)F22a</td>
<td>Age standardised serious (fatal and non-fatal) fall-related injury rate for Māori, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
<tr>
<td>M(T)F01b</td>
<td>Number of serious non-fatal fall-related injuries among Māori people aged 0–74</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>M(T)F02b</td>
<td>Age standardised serious non-fatal fall-related injury rate per 100,000 person-years at risk, for Māori people aged 0–74</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>M(T)F21b</td>
<td>Number of serious (fatal and non-fatal) fall-related injuries for Māori people aged 0–74</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>M(T)F22b</td>
<td>Age standardised serious (fatal and non-fatal) fall-related injury rate per 100,000 person-years at risk, for Māori people aged 0–74</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
<tr>
<td>M(T)F01c</td>
<td>Number of serious non-fatal fall-related injuries for Māori people aged 75 and over</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>M(T)F02c</td>
<td>Age standardised serious non-fatal fall-related injury rate per 100,000 person-years for Māori people aged 75 and over</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>M(T)F21c</td>
<td>Number of serious (fatal and non-fatal) fall-related injuries for Māori people aged 75 and over</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>M(T)F22c</td>
<td>Age standardised serious (fatal and non-fatal) fall-related injury rate per 100,000 person-years at risk, for Māori people aged 75 and over</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
<tr>
<td>Indicator ID</td>
<td>Description of indicator</td>
<td>Data source(s)</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>M(T)M11</td>
<td>Number of MVTC-related injury deaths for Māori</td>
<td>MoH Mortality Collection</td>
</tr>
<tr>
<td>M(T)M12</td>
<td>Age standardised fatal MVTC-related injury rate for Māori, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection; Statistics NZ</td>
</tr>
<tr>
<td>M(T)M01</td>
<td>Number of serious non-fatal MVTC-related injuries for Māori</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>M(T)M02</td>
<td>Age standardised serious non-fatal MVTC-related injury rate for Māori, per 100,000 person-years at risk</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>M(T)M21</td>
<td>Number of serious (fatal and non-fatal) MVTC-related injuries for Māori</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>M(T)M22</td>
<td>Age standardised serious (fatal and non-fatal) MVTC-related injury rate for Māori, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
</tbody>
</table>
9 Serious injury outcome indicators for children

The serious injury outcome indicators for children present data about children aged 0–14 years using, where viable, the same indicators published for the whole population. The methods used for the calculation of the indicators for children are similar to those described in chapter 5.

This chapter outlines the development of the serious injury outcome indicators for children. It also explains any variations in the methods specifically related to reporting injury for children.

9.1 Background

Serious injury outcome indicators for children is produced specifically to report trends in the numbers and rates of serious injury for children aged 0–14 years. Where viable, the indicators for children were adapted from the serious injury indicators for the whole population, and cover four of the six national priority areas. The serious injury outcome indicators for children reports include 26 indicators. All of the indicators for children are based on the Ministry of Health’s (MoH) Mortality Collection and National Minimum Dataset (NMDS) of hospital discharge data.

9.2 Additional indicators for children

Two additional traffic-related indicators were developed for children: pedestrian injuries and car occupant injuries. Both of these indicators are subsets of the indicators for motor-vehicle traffic crashes. They provide more information about the role of children in motor-vehicle traffic crashes, recognising that children can disproportionately suffer injuries as car occupant and pedestrians. Additionally, the priority areas ‘assault’ and ‘intentional self-harm’ have been combined into one ‘intentional’ indicator. This is in addition to the assault indicator.

Because of the number of cases each year, the indicators for the pedestrian and car occupant injuries indicators are only presented for serious (fatal and non-fatal) injury. Intentional (assault and intentional self-harm) injury indicators are presented for both serious non-fatal and serious (fatal and non-fatal) injury (for more details refer to tables 16 and 17 below).

9.3 Viable indicators for children

For some priority areas there are only a small number of cases per year in the 0–14 year age group. As a result, the indicators are not reliable, and have not been produced. Indicators for work-related injury and drowning are excluded from the serious injury outcome indicators for children for this reason. Work-related indicators are excluded because children (0–14 years) are not included in the working age population (15 years and older).

In other cases, a serious (fatal and non-fatal) indicator was calculated to overcome the difficulty posed by few numbers. This combines the fatal injuries and the serious non-fatal injuries. The viability of indicators for children, for each of the injury priority areas, is outlined in table 16.
Table 16
Viability of serious injury outcome indicators for children aged 0–14 years
By injury priority area

<table>
<thead>
<tr>
<th>Injury priority area</th>
<th>Type of indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fatal</td>
</tr>
<tr>
<td>All injury</td>
<td>✓ (2)</td>
</tr>
<tr>
<td>Assault</td>
<td>X</td>
</tr>
<tr>
<td>Work-related</td>
<td>X</td>
</tr>
<tr>
<td>Intentional self-harm</td>
<td>X</td>
</tr>
<tr>
<td>Falls</td>
<td>X</td>
</tr>
<tr>
<td>Motor-vehicle traffic crashes</td>
<td>✓ (2)</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>X</td>
</tr>
<tr>
<td>Car occupant</td>
<td>X</td>
</tr>
<tr>
<td>Drowning and near-drowning</td>
<td>X</td>
</tr>
<tr>
<td>Intentional (assault and self-harm combined)</td>
<td>X</td>
</tr>
</tbody>
</table>

Symbols:
✓ = number of cases per year makes the indicators viable
X = indicator not viable because of the small numbers of cases each year
( ) = the number in brackets indicates the number of viable indicators

Table 17 provides a list of the indicators presented for children aged 0–14 years.

Table 17
Serious injury outcome indicators for children aged 0–14 years

<table>
<thead>
<tr>
<th>Indicator ID</th>
<th>Description of indicator</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I11</td>
<td>Number of injury deaths for children</td>
<td>MoH Mortality Collection</td>
</tr>
<tr>
<td>I12</td>
<td>Age standardised fatal injury rate for children, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection; Statistics NZ</td>
</tr>
<tr>
<td>I01</td>
<td>Number of serious non-fatal injuries for children</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>I02</td>
<td>Age standardised serious non-fatal injury rate for children, per 100,000 person-years at risk</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>I21</td>
<td>Number of serious (fatal and non-fatal) injuries for children</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>I22</td>
<td>Age standardised serious (fatal and non-fatal) injury rate for children, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
<tr>
<td>A21</td>
<td>Number of serious (fatal and non-fatal) assault injuries for children</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>A22</td>
<td>Age standardised serious (fatal and non-fatal) assault injury rate for children, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
<tr>
<td>F01</td>
<td>Number of serious non-fatal falls injuries for children</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>F02</td>
<td>Age standardised serious non-fatal falls injury rate for children, per 100,000 person-years at risk</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>F21</td>
<td>Number of serious (fatal and non-fatal) falls injuries for children</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>F22</td>
<td>Age standardised serious (fatal and non-fatal) falls injury rate for children, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
<tr>
<td>Indicator ID</td>
<td>Description of indicator</td>
<td>Data source(s)</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>M11</td>
<td>Number of fatal MVTC injuries for children</td>
<td>MoH Mortality Collection</td>
</tr>
<tr>
<td>M12</td>
<td>Age standardised fatal MVTC injury rate for children, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection; Statistics NZ</td>
</tr>
<tr>
<td>M01</td>
<td>Number of serious non-fatal MVTC injuries for children</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>M02</td>
<td>Age standardised serious non-fatal MVTC injury rate for children, per 100,000 person-years at risk</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>M21</td>
<td>Number of fatal and serious non-fatal MVTC injuries for children</td>
<td>MoH Mortality Collection</td>
</tr>
<tr>
<td>M22</td>
<td>Age standardised serious (fatal and non-fatal) MVTC injury rate for children, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
<tr>
<td>P21</td>
<td>Number of provisional serious (fatal and non-fatal) pedestrian injuries for children</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>P22</td>
<td>Age standardised provisional serious (fatal and non-fatal) pedestrian injury rate for children, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
<tr>
<td>C21</td>
<td>Number of provisional fatal and serious non-fatal car occupant injuries for children</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>C22</td>
<td>Age standardised provisional serious (fatal and non-fatal) car occupant injury rate for children, per 100,000 person-years at risk</td>
<td>MoH Mortality Collection and NMDS; Statistics NZ</td>
</tr>
<tr>
<td>In01</td>
<td>Number of serious non-fatal intentional injuries for children</td>
<td>MoH NMDS</td>
</tr>
<tr>
<td>In02</td>
<td>Age standardised serious non-fatal intentional injury rate for children, per 100,000 person-years at risk</td>
<td>MoH NMDS; Statistics NZ</td>
</tr>
<tr>
<td>In21</td>
<td>Number of serious (fatal and non-fatal) intentional injuries for children</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
<tr>
<td>In22</td>
<td>Age standardised serious (fatal and non-fatal) intentional injury rate for children</td>
<td>MoH Mortality Collection and NMDS</td>
</tr>
</tbody>
</table>
10 Whole population indicator specifications

ID I01

**Name**
All serious non-fatal injury, the number of injuries

**Concept of interest**
Societal burden of serious non-fatal injury

**Scope**
- **Area**: All injury
- **Sex**: Both sexes
- **Age**: All ages

**Source organisation**
Developed by IPRU for NZIPS

**Numerator**

**Description**
Cases hospitalised for an injury and discharged alive, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

**Source**
Ministry of Health, National Minimum Dataset (NMDS)

**Denominator**
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
Sex   Both sexes
Age   All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Cases hospitalised for an injury and discharged alive, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004) with modifications as described in chapter 5.

Source  Ministry of Health, National Minimum Dataset (NMDS)

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. They are 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.

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, pp399–403), Statistical methods in medical research.
ID I11

Name
All fatal injury, the number of injuries

Concept of interest
Societal burden of fatal injury

Scope
Area: All injury
Sex: Both sexes
Age: 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 for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Source: Ministry of Health, Mortality Collection

Denominator
N/A
ID I12

Name
All fatal injury rate

Concept of interest
Individuals' average annual risk of fatal injury

Scope
Area  All injury
Sex    Both sexes
Age    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 for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).
Source       Ministry of Health, Mortality Collection

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. They are 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.
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 Armitage and Berry (1987, pp399–403), Statistical methods in medical research.
ID I21

Name
All serious (fatal and non-fatal) injury, the number of injuries

Concept of interest
Societal burden of fatal and serious non-fatal injury

Scope
Area: All injury
Sex: Both sexes
Age: All ages

Source organisation
Developed by IPRIU for NZIPS

Numerator
Description
Injury fatalities and discharged hospitalised cases with an ICISS score of 0.931 or less, in a calendar year.

Details
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Hospitalisations are operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source
Ministry of Health, Mortality Collection and NMDS

Denominator
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
- **Sex**: Both sexes
- **Age**: All ages

**Source organisation**
Developed by IPRU for NZIPS

**Numerator**

**Description**
Injury fatalities and discharged hospitalised cases with an ICISS score of 0.931 or less, in a calendar year.

**Details**
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

**Source**
Ministry of Health, Mortality Collection and NMDS

**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. They are 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.

**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, pp399–403), Statistical methods in medical research.
ID A01

Name
Serious non-fatal assault injury, the number of injuries

Concept of interest
Societal burden of serious non-fatal injury from assault

Scope
Area  Assault
Sex    Both sexes
Age    All ages

Source organisation
Developed by IPRIU for NZIPS

Numerator
Description  Cases hospitalised for an assault injury and discharged alive, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source    Ministry of Health, NMDS,

Denominator
N/A
ID A02

Name
Serious non-fatal assault injury rate

Concept of interest
Individuals' average annual risk of serious non-fatal injury

Scope
Area Assault
Sex Both sexes
Age All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description Cases hospitalised for an assault injury and discharged alive, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source Ministry of Health, NMDS

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. They are 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.

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, pp399–403), Statistical methods in medical research.
ID A11

Name
Fatal assault injury, the number of injuries

Concept of interest
Societal burden of fatal assault injury

Scope
Area  Assault
Sex    Both sexes
Age    All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Assault injury fatalities in a calendar year.
Details  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Assault fatalities are injury fatalities with an underlying cause of death e-code in the range X85–Y09.

  The annual number of fatal assault injuries was less than 100, so three-year moving averages are presented.

Source  Ministry of Health, Mortality Collection

Denominator
N/A
ID A12

Name
Fatal assault injury rate

Concept of interest
Individuals' average annual risk of fatal injury from assault

Scope
Area Assault
Sex Both sexes
Age All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description Assault injury fatalities in a calendar year.
Details All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01-Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Assault fatalities are injury fatalities with an underlying cause of death e-code in the range X85-Y09.

The annual number of fatal assault injuries was less than 100, so three-year moving averages are presented.

Source Ministry of Health, Mortality Collection

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. They are 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.

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, pp399–403), Statistical methods in medical research.
ID A21

Name
Serious (fatal and non-fatal) assault injury, the number of injuries

Concept of interest
Societal burden of fatal and serious non-fatal assault injury

Scope
Area: Assault
Sex: Both sexes
Age: All ages

Source organisation
Developed by IPRIU for NZIPS

Numerator
Description: Assault injury fatalities and discharged hospitalised cases with an ICISS score of 0.931 or less, in a calendar year.

Details: All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Assault fatalities are injury fatalities with an underlying cause of death e-code in the range X85–Y09.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source: Ministry of Health, Mortality Collection and NMDS

Denominator
N/A
Serious injury outcome indicators – technical report 2014

ID A22

Name
Serious (fatal and non-fatal) assault injury rate

Concept of interest
Individuals’ average annual risk of fatal and serious non-fatal assault injury from assault

Scope
Area  Assault
Sex    Both sexes
Age    All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description
Assault injury fatalities and discharged hospitalised cases with an ICISS score of 0.931 or less, in a calendar year.

Details
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Assault fatalities are injury fatalities with an underlying cause of death e-code in the range X85–Y09.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source
Ministry of Health, Mortality Collection and NMDS

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. They are 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.

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, pp399–403), Statistical methods in medical research.
Serious injury outcome indicators – technical report 2014

ID W01

Name
Serious non-fatal work-related injury, the number of injuries

Concept of interest
Societal burden of serious non-fatal work-related injury

Scope
Area Work-related injury
Sex Both sexes
Age 15 years and older

Source organisation
Developed by IPRU for NZIPS. Redeveloped in 2013 by Statistics NZ, MBIE, and ACC.

Numerator

Description Work-related injury hospitalisations for people aged 15 years and older discharged alive, with an ICISS score of 0.931 or less.

Details
Non-fatal work-related injury is defined as all non-fatal injuries that occur while a person is 'at work' in New Zealand. This includes all injury hospitalisations with an associated non-fatal work-related ACC claim.

Serious non-fatal work-related ACC claims include:
- all non-fatal claims in the ACC work account
- all non-fatal claims in the ACC motor vehicle account and the ACC earners’ account that are flagged 'at work'
- all non-fatal claims with location 'farm' by people (excluding non-earners and those involved in a sport or recreational activity) with the level 1 occupation of agriculture and fishery workers, or level 5 occupation of veterinarian; veterinarian assistant; motorised farm machinery operator; fruit, vegetable, and nut processing machine operator; animal welfare workers; general labourer; and agricultural and natural resources scientists.

This excludes injuries to:
- unpaid workers or volunteers
- bystanders (persons injured as a result of someone else’s work)
- people commuting to and from work
- workers as a result of suicide or intentional self-harm
- workers where the injury is classified as occupational disease or illness (as defined by ACC)
- New Zealand workers employed outside of New Zealand (for example, defence forces).

Non-fatal claims arising from a gradual process or occupational disease (for example, asbestos exposure, or hearing loss due to noise exposure) are excluded.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).
ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

**Source**  
ACC, and Ministry of Health, NMDS

**Denominator**  
N/A
ID W02

Name
Serious non-fatal work-related injury rate

Concept of interest
Individuals’ average annual risk of serious non-fatal work-related injury

Scope
Area Work-related injury
Sex Both sexes
Age 15 years and older

Source organisation
Developed by IPRU for NZIPS. Redeveloped in 2013 by Statistics NZ, MBIE, and ACC.

Numerator
Description Work-related injury hospitalisations for people aged 15 years and older discharged alive, with an ICISS score of 0.931 or less.

Details
Non-fatal work-related injury is defined as all non-fatal injuries that occur while a person is ‘at work’ in New Zealand. This includes all injury hospitalisations with an associated non-fatal work-related ACC claim.

Non-fatal work-related ACC claims include:
- all non-fatal claims in the ACC work account
- all non-fatal claims, in the ACC motor vehicle account and the ACC earners’ account that are flagged ‘at work’
- all non-fatal claims with location ‘farm’ by people (excluding non-earners and those involved in a sport or recreational activity) with the level 1 occupation of agriculture and fishery workers, or level 5 occupation of veterinarian; veterinarian assistant; motorised farm machinery operator; fruit, vegetable, and nut processing machine operator; animal welfare workers; general labourer; and agricultural and natural resources scientists.

This excludes injuries to:
- unpaid workers or volunteers
- bystanders (persons injured as a result of someone else’s work)
- people commuting to and from work
- workers as a result of suicide or intentional self-harm
- workers where the injury is classified as occupational disease or illness (as defined by ACC)
- New Zealand workers employed outside of New Zealand (for example, defence forces).

Non-fatal claims arising from a gradual process or occupational disease (for example asbestos exposure, or hearing loss due to noise exposure) are excluded.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).
ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

**Source**
ACC claims and Ministry of Health, NMDS

**Denominator**

**Description**
Estimated 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.

**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, pp399–403), *Statistical methods in medical research*. 

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61
ID W12

Name
Work-related fatal injury, the number of injuries

Concept of interest
Societal burden of work-related fatal injury

Scope
Area Work-related injury
Sex Both sexes
Age 15 years and older

Source organisation
Developed by IPRU for NZIPS. Redeveloped in 2013 by Statistics NZ, MBIE, and ACC.

Numerator
Description Work-related injury fatalities for people aged 15 years and older registered to the ACC claims database, or notified to the WorkSafe NZ Serious Harm Notification Database in a calendar year.

Details Fatal work-related injury is defined as all fatal injuries that occur while a person is ‘at work’ in New Zealand.

Fatal work-related injury cases include:
- fatal claims in the ACC work account
- fatal claims in the ACC motor vehicle account and the ACC earners’ account that are flagged ‘at work’
- fatal claims with location ‘farm’ by people (excluding non-earners and those involved in a sport or recreational activity) with the level 1 occupation of agriculture and fishery workers, or level 5 occupation of veterinarian; veterinarian assistant; motorised farm machinery operator; fruit, vegetable, and nut processing machine operator; animal welfare workers; general labourer; and agricultural and natural resources scientists.
- WorkSafe NZ fatal work-related notifications.

This definition excludes injuries to:
- unpaid workers or volunteers
- bystanders (persons injured as a result of someone else’s work)
- people commuting to and from work
- workers as a result of suicide or intentional self-harm
- workers where the injury is classified as occupational disease or illness (as defined by ACC)
- New Zealand workers employed outside of New Zealand (for example, defence forces).

Fatal injuries arising from a gradual process or occupational disease (for example, asbestos exposure) are excluded.

The annual number of fatal work-related injuries is less than 100, so three-year moving averages are presented.

Source database ACC claims database and WorkSafe NZ Fatal Harm Notifications

Denominator
N/A
ID W14

Name
Work-related fatal injury rate

Concept of interest
Individuals’ average annual risk of work-related fatal injury

Scope
Area Work-related injury
Sex Both sexes
Age 15 years and older

Source organisation
Developed by IPRU for NZIPS. Redeveloped in 2013 by Statistics NZ, MBIE, and ACC.

Numerator

Description
Work-related injury fatalities for people aged 15 years and older registered to the ACC claims database, or notified to the WorkSafe NZ Serious Harm Notification Database in a calendar year.

Details
Fatal work-related injury is defined as all fatal injuries that occur while a person is ‘at work’ in New Zealand.

Fatal work-related injury cases include:

- fatal claims in the ACC work account
- fatal claims in the ACC motor vehicle account and the ACC earners’ account that are flagged ‘at work’
- fatal claims with location ‘farm’ by people (excluding non-earners and those involved in a sport or recreational activity) with the level 1 occupation of agriculture and fishery workers, or level 5 occupation of veterinarian; veterinarian assistant; motorised farm machinery operator; fruit, vegetable, and nut processing machine operator; animal welfare workers; general labourer; and agricultural and natural resources scientists.
- WorkSafe NZ fatal harm notifications.

This excludes injuries to:

- unpaid workers or volunteers
- bystanders (persons injured as a result of someone else’s work)
- people commuting to and from work
- workers as a result of suicide or intentional self-harm
- workers where the injury is classified as occupational disease or illness (as defined by ACC)
- New Zealand workers employed outside of New Zealand (for example, defence forces).

Fatal injuries arising from a gradual process or occupational disease (for example, asbestos exposure) are excluded.

The annual number of fatal work-related injuries is less than 100, so three-year moving averages are presented.

Source database
ACC claims database and WorkSafe NZ Fatal Harm Notifications
### Denominator

**Description**
Estimated 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.

**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, pp399–403), *Statistical methods in medical research*. 
ID W21

Name
Work-related serious (fatal and non-fatal) injury, the number of injuries

Concept of interest
Societal burden of work-related serious (fatal and non-fatal) injury

Scope
Area Work-related injury
Sex Both sexes
Age 15 years and older

Source organisation
Developed by IPRU for NZIPS. Redeveloped in 2013 by Statistics NZ, MBIE, and ACC.

Numerator
Description Work-related fatalitities and discharged hospitalisations for people aged 15 years and older, with an ICISS score of 0.931 or less, in a calendar year.

Details
Work-related injury is defined as all fatal and non-fatal injuries that occur while a person is ‘at work’ in New Zealand. For non-fatal events this includes all injury hospitalisations with an associated non-fatal work-related ACC claim.

Fatal work-related injury events include:
- fatal claims in the ACC work account
- fatal claims in the ACC motor vehicle account and the ACC earners’ account that are flagged ‘at work’
- fatal claims with location ‘farm’ by people (excluding non-earners and those involved in a sport or recreational activity) with the level 1 occupation of agriculture and fishery workers, or level 5 occupation of veterinarian; veterinarian assistant; motorised farm machinery operator; fruit, vegetable, and nut processing machine operator; animal welfare workers; general labourer; and agricultural and natural resources scientists.
- WorkSafe NZ fatal work-related notifications.

Non-fatal work-related injury events include:
- non-fatal claims in the ACC work account
- non-fatal claims in the ACC motor vehicle account and the ACC earners’ account that are flagged ‘at work’
- non-fatal claims with location ‘farm’ by people (excluding non-earners and those involved in a sport or recreational activity) with the level 1 occupation of agriculture and fishery workers, or level 5 occupation of veterinarian; veterinarian assistant; motorised farm machinery operator; fruit, vegetable, and nut processing machine operator; animal welfare workers; general labourer; and agricultural and natural resources scientists.

For fatal and non-fatal work-related injuries the following events are excluded:
- unpaid workers or volunteers
- bystanders (persons injured as a result of someone else’s work)
- people commuting to and from work
- workers as a result of suicide or intentional self-harm
- workers where the injury is classified as occupational disease or illness (as defined by ACC)
- New Zealand workers employed outside of New Zealand (for example, defence forces).

Injuries arising from a gradual process or occupational disease (for example, asbestos exposure, or hearing loss from noise exposure) are excluded.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

**Source**
ACC claims database, WorkSafe NZ Fatal Harm Notifications database and Ministry of Health, NMDS

**Denominator**
N/A
ID W22

Name
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 Work-related injury
Sex Both sexes
Age 15 years and older

Source organisation
Developed by IPRU for NZIPS. Redeveloped in 2013 by Statistics NZ, MBIE, and ACC.

Numerator

Description Work-related fatalities and discharged hospitalisations for people aged 15 years and older, with an ICISS score of 0.931 or less, in a calendar year.

Details Work-related injury is defined as all fatal and non-fatal injuries that occur while a person is ‘at work’ in New Zealand. For non-fatal events this includes all injury hospitalisations with an associated non-fatal work-related ACC claim.

Fatal work-related injury events include:
- fatal claims in the ACC work account
- fatal claims in the ACC motor vehicle account and the ACC earners’ account that are flagged ‘at work’
- fatal claims with location ‘farm’ by people (excluding non-earners and those involved in a sport or recreational activity) with the level 1 occupation of agriculture and fishery workers, or level 5 occupation of veterinarian; veterinarian assistant; motorised farm machinery operator; fruit, vegetable, and nut processing machine operator; animal welfare workers; general labourer; and agricultural and natural resources scientists.
- WorkSafe NZ fatal work-related notifications.

Non-fatal work-related injury events include:
- non-fatal claims in the ACC work account
- non-fatal claims in the ACC motor vehicle account and the ACC earners’ account that are flagged ‘at work’
- non-fatal claims with location ‘farm’ by people (excluding non-earners and those involved in a sport or recreational activity) with the level 1 occupation of agriculture and fishery workers, or level 5 occupation of veterinarian; veterinarian assistant; motorised farm machinery operator; fruit, vegetable, and nut processing machine operator; animal welfare workers; general labourer; and agricultural and natural resources scientists.

For fatal and non-fatal work-related injuries the following events are excluded:
- unpaid workers or volunteers
- bystanders (persons injured as a result of someone else’s work)
- people commuting to and from work
- workers as a result of suicide or intentional self-harm
- workers where the injury is classified as occupational disease or illness (as defined by ACC)
• New Zealand workers employed outside of New Zealand (for example, defence forces).

Injuries arising from a gradual process or occupational disease (for example, asbestos exposure, or hearing loss from noise exposure) are excluded.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source
ACC claims database, WorkSafe NZ Fatal Harm Notifications database and Ministry of Health, NMDS

Denominator

Description
Estimated 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.

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, pp399–403), Statistical methods in medical research.
ID S01

Name
Serious non-fatal self-harm injury, the number of injuries

Concept of interest
Societal burden of serious non-fatal self-harm injury

Scope
Area  Intentional self-harm
Sex    Both sexes
Age    All ages

Source organisation
Developed by IPRU for NZIPS

Numerator

Description
Cases hospitalised for a self-harm injury and discharged alive, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source
Ministry of Health, NMDS

Denominator

N/A
ID S02

Name
Serious non-fatal self-harm injury rate

Concept of interest
Individuals’ average annual risk of serious non-fatal injury from self-harm

Scope
Area: Intentional self-harm
Sex: Both sexes
Age: All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description
Cases hospitalised for a self-harm injury and discharged alive, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source
Ministry of Health, NMDS

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. They are 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.

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, pp399–403), *Statistical methods in medical research.*
ID S11

Name
Fatal self-harm injury, the number of injuries

Concept of interest
Societal burden of fatal self-harm injury

Scope
Area  Intentional self-harm
Sex   Both sexes
Age   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 for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Self-harm fatalities are injury fatalities with an underlying cause of death code in the range X60–X84.

Source  Ministry of Health, Mortality Collection

Denominator
N/A
ID S12

Name
Fatal self-harm injury rate

Concept of interest
Individuals' average annual risk of fatal self-harm injury

Scope
Area  Intentional self-harm
Sex  Both sexes
Age  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 for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Self-harm fatalities are injury fatalities with an underlying cause of death e-code in the range X60–X84.
Source  Ministry of Health, Mortality Collection

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. They are 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.
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, pp399–403), Statistical methods in medical research.
ID S21

**Name**
Serious (fatal and non-fatal) self-harm injury, the number of injuries

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

**Scope**

<table>
<thead>
<tr>
<th>Area</th>
<th>Intentional self-harm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Both sexes</td>
</tr>
<tr>
<td>Age</td>
<td>All ages</td>
</tr>
</tbody>
</table>

**Source organisation**
Developed by IPRU for NZIPS

**Numerator**

**Description**
Self-harm injury fatalities and discharged hospitalised cases with an ICISS score of 0.931 or less, in a calendar year.

**Details**
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Self-harm fatalities are injury fatalities with an underlying cause of death code in the range X60–X84.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

**Source**
Ministry of Health, Mortality Collection and NMDS

**Denominator**
N/A
ID S22

Name
Serious (fatal and 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 Intentional self-harm
Sex Both sexes
Age All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description Self-harm injury fatalities and discharged hospitalised cases with an ICISS score of 0.931 or less, in a calendar year.

Details
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Self-harm fatalities are injury fatalities with an underlying cause of death code in the range X60–X84.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source
Ministry of Health, Mortality Collection and NMDS

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. They are 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.

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, pp399–403), *Statistical methods in medical research*. 
ID F01a

Name
Serious non-fatal falls injury, the number of injuries

Concept of interest
Societal burden of serious non-fatal injury from falls

Scope
Area  Falls
Sex    Both sexes
Age    All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Cases hospitalised for a fall injury and discharged alive, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, NMDS

Denominator
N/A
ID F02a

Name
Serious non-fatal falls injury rate

Concept of interest
Individuals' average annual risk of serious non-fatal falls injury

Scope
Area  Falls
Sex    Both sexes
Age    All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Cases hospitalised for a fall injury and discharged alive, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, NMDS

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. They are 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.

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, pp399–403), Statistical methods in medical research.
ID F11a

Name
Fatal falls injury, the number of injuries

Concept of interest
Societal burden of fatal falls injury

Scope
Area  Falls
Sex    Both sexes
Age    All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Fall injury fatalities in a calendar year.
Details      All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

Source  Ministry of Health, Mortality Collection

Denominator
N/A
ID F12a

Name
Fatal falls injury rate

Concept of interest
Individuals' average annual risk of fatal injury from falls

Scope
Area  Falls
Sex   Both sexes
Age   All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Fall injury fatalities in a calendar year.
Details  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

Source  Ministry of Health, Mortality Collection

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. They are 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.

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, pp399–403), Statistical methods in medical research.
ID F21a

Name
Serious (fatal and non-fatal) falls injury, the number of injuries

Concept of interest
Societal burden of fatal and serious non-fatal falls injury

Scope
Area: Falls
Sex: Both sexes
Age: All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description
Fall injury fatalities and discharged hospitalised cases with an ICISS score of 0.931 or less, in a calendar year.

Details
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source
Ministry of Health, Mortality Collection and NMDS

Denominator
N/A
ID F22a

Name
Serious (fatal and non-fatal) falls injury rate

Concept of interest
Individuals’ average annual risk of fatal and serious non-fatal injury from falls

Scope
Area  Falls
Sex   Both sexes
Age   All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Fall injury fatalities and discharged hospitalised cases with an ICISS score of 0.931 or less, in a calendar year.

Details
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, Mortality Collection and NMDS

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. They are 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.

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, pp399–403), *Statistical methods in medical research*. 
ID F01b

Name
Serious non-fatal falls injury among people aged 0–74 years, the number of injuries

Concept of interest
Societal burden of serious non-fatal injury from falls among people aged 0–74 years

Scope
Area  Falls
Sex    Both sexes
Age   0–74 years

Source organisation
Developed by IPRU for NZIPS

Numerator

Description  Fall injury cases hospitalised and discharged alive, aged 0–74 years, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, NMDS

Denominator

N/A
**ID F02b**

**Name**
Serious non-fatal falls injury rate among people aged 0–74 years

**Concept of interest**
Individuals' average annual risk of serious non-fatal falls injury among people aged 0–74 years

**Scope**
Area  Falls  
Sex    Both sexes  
Age    0–74 years

**Source organisation**
Developed by IPRU for NZIPS

**Numerator**

**Description**  Fall injury cases hospitalised and discharged alive, aged 0–74 years, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

**Source**  Ministry of Health, NMDS

**Denominator**

**Description**  Estimated New Zealand population, aged 0–74 years, 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. They are 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

**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, pp399–403), *Statistical methods in medical research*. 

84
ID F11b

**Name**  
Fatal falls injury among people aged 0–74 years, the number of injuries

**Concept of interest**  
Societal burden of fatal falls injury among people aged 0–74 years.

**Scope**  
Area: Falls  
Sex: Both sexes  
Age: 0–74 years

**Source organisation**  
Developed by IPRU for NZIPS

**Numerator**  
**Description**  
Fall injury fatalities among people aged 0–74 years, in a calendar year.

**Details**  
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

The annual number of fatal fall injuries among people 0–74 years is less than 100, so three-year moving averages are presented.

**Source**  
Ministry of Health, Mortality Collection

**Denominator**  
N/A
ID F12b

Name
Fatal falls injury rate among people aged 0–74 years

Concept of interest
Individuals’ average annual risk of fatal injury from falls among people aged 0–74 years

Scope
Area  Falls
Sex    Both sexes
Age    0–74 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Fall injury fatalities among people aged 0–74 years, in a calendar year.
Details  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

The annual number of fatal fall injuries among people 0–74 years is less than 100, so three-year moving averages are presented.

Source  Ministry of Health, Mortality Collection

Denominator
Description  Estimated New Zealand population aged 0–74 years 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. They are 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.

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, pp399–403), *Statistical methods in medical research.*
ID F21b

Name
Serious (fatal and non-fatal) falls injury among people aged 0–74 years, the number of injuries

Concept of interest
Societal burden of fatal and serious non-fatal falls injury among people aged 0–74 years

Scope
Area  Falls
Sex    Both sexes
Age   0–74 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Fall injury fatalities and discharged hospitalised cases, aged 0–74 years, with an ICISS score of 0.931 or less, in a calendar year.

Details  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, Mortality Collection and NMDS

Denominator
N/A
ID F22b

Name
Serious (fatal and non-fatal) falls injury rate among people aged 0–74 years

Concept of interest
Individuals’ average annual risk of fatal and serious non-fatal injury from falls among people aged 0–74 years

Scope
Area Falls
Sex Both sexes
Age 0–74 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description Fall fatalities and hospitalised cases, aged 0–74 years, with an ICISS score of 0.931 or less, in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those for which 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 (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source Ministry of Health, Mortality Collection and NMDS

Denominator
Description Estimated New Zealand population aged 0–74 years 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. They are 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.

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, pp399–403), Statistical methods in medical research.
ID F01c

Name
Serious non-fatal falls injury among people aged 75 years and over, the number of injuries

Concept of interest
Societal burden of serious non-fatal injury from falls among people aged 75 years and over

Scope
Area  Falls
Sex  Both sexes
Age  75 years and over

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Fall injury cases hospitalised and discharged alive, 75 years and over, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, NMDS

Denominator
N/A
ID F02c

Name
Serious non-fatal falls injury rate among people aged 75 years and over

Concept of interest
Individuals' average annual risk of serious non-fatal falls injury among people aged 75 years and over

Scope
Area Falls
Sex Both sexes
Age 75 years and over

Source organisation
Developed by IPRU for NZIPS

Numerator
Description Fall injury cases hospitalised and discharged alive, aged 75 years and over, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source Ministry of Health, NMDS

Denominator
Description Estimated New Zealand population aged 75 years and over 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. They are 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.

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, pp399–403), Statistical methods in medical research.
ID F11c

Name
Fatal falls injury among people aged 75 years and over, the number of injuries

Concept of interest
Societal burden of fatal falls injury among people aged 75 years and over

Scope
Area  Falls
Sex   Both sexes
Age   75 years and over

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Fall fatalities among people aged 75 years and over, in a calendar year.
Details  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

Source  Ministry of Health, Mortality Collection

Denominator
N/A
ID F12c

Name
Fatal falls injury rate among people aged 75 years and over

Concept of interest
Individuals' average annual risk of fatal injury from falls among people aged 75 years and over

Scope
Area Falls
Sex Both sexes
Age 75 years and over

Source organisation
Developed by IPRU for NZIPS

Numerator
Description Fall fatalities among people aged 75 years and over, in a calendar year.
Details All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.
Source Ministry of Health, Mortality Collection

Denominator
Description Estimated New Zealand population aged 75 years and over 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. They are 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.
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, pp399–403), *Statistical methods in medical research*.  

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ID F21c

Name
Serious (fatal and non-fatal) falls injury among people aged 75 years and over, the number of injuries

Concept of interest
Societal burden of fatal and serious non-fatal falls injury among people aged 75 years and over

Scope
Area  Falls
Sex    Both sexes
Age    75 years and over

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Fall fatalities and discharged hospitalised cases, aged 75 years and over with an ICISS score of 0.931 or less, in a calendar year.

Details  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, Mortality Collection and NMDS

Denominator
N/A
ID F22c

Name
Serious (fatal and non-fatal) falls injury rate among people aged 75 years and over

Concept of interest
Individuals' average annual risk of fatal and serious non-fatal injury from falls among people aged 75 years and over

Scope
Area  Falls
Sex    Both sexes
Age    75 years and over

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Fall fatalities and discharged hospitalised cases, aged 75 years and over with an ICISS score of 0.931 or less, in a calendar year.

Details
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, Mortality Collection and NMDS

Denominator
Description  Estimated New Zealand population aged 75 years and over 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. They are 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.

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, pp399–403), *Statistical methods in medical research*. 
ID M01

Name
Serious non-fatal MVTC injury, the number of injuries

Concept of interest
Societal burden of serious non-fatal injury from MVTCs

Scope
Area  Motor-vehicle traffic crash
Sex    Both sexes
Age    All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Cases hospitalised following an MVTC injury and discharged alive, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC hospitalisations are injury hospitalisations with a first external cause code in the range V02–V04 (with a fourth 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, NMDS

Denominator
N/A
ID M02

Name
Serious non-fatal MVTC injury rate

Concept of interest
Individuals’ average annual risk of serious non-fatal MVTC injury

Scope
Area  Motor-vehicle traffic crash
Sex    Both sexes
Age    All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  MVTC injury cases hospitalised and discharged alive, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC hospitalisations are injury hospitalisations with a first external cause code in the range V02–V04 (with a fourth 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, NMDS

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. They are 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.

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, pp399–403), Statistical methods in medical research.
ID M11

Name
Fatal MVTC injury, the number of injuries

Concept of interest
Societal burden of fatal MVTC injury

Scope
Area  Motor-vehicle traffic crash
Sex    Both sexes
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 for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC fatalities are injury fatalities with an underlying cause of death e-code in the range V02–V04 (with a fourth 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).

Source  Ministry of Health, Mortality Collection

Denominator

N/A
ID M12

Name
Fatal MVTC injury rate

Concept of interest
Individuals’ average annual risk of fatal MVTC injury

Scope
Area  Motor-vehicle traffic crash
Sex    Both sexes
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 for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC fatalities are injury fatalities with a first external cause code in the range V02–V04 (with a fourth 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).

Source  Ministry of Health, Mortality Collection

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. They are 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.

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, pp399–403), Statistical methods in medical research.
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 Motor-vehicle traffic crash
Sex Both sexes
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 for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC fatalities are injury fatalities with an underlying cause of death external cause code in the range V02–V04 (with a fourth 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).

Source Ministry of Health, Mortality Collection

Denominator
Description Estimated total kilometres travelled by motor vehicles in New Zealand in the relevant year.
Details Estimates of vehicle kilometres travelled (VKT) are based on odometer readings from vehicle inspection records.

Source Ministry of Transport
ID M14

Name
MVTC fatal injury rate per vehicle

Concept of interest
Drivers’ average annual risk of fatal injury from MVTCs

Scope
Area  Motor-vehicle traffic crash
Sex  Both sexes
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 for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC fatalities are injury fatalities with an underlying cause of death external cause code in the range V02–V04 (with a fourth 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).

Source  Ministry of Health, Mortality Collection

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 exclude those with an exempt or restoration licence.

Source  Motor Vehicle Register, Ministry of Transport

Calculation
Ministry of Transport provides the total number of vehicles registered as at 31 December. Vehicle numbers include registered cars, vans, trucks, buses, motor caravans, motor cycles, and mopeds, but exclude those with an exempt or restoration licence.
ID M15

Name
Provisional MVTC fatal injury, the number of injuries

Concept of interest
Societal burden of fatal injury from MVTCs

Scope
Area  Motor-vehicle traffic crash
Sex    Both sexes
Age    All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  MVTC injury 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       Ministry of Transport, TCR database

Denominator
N/A
ID M16

Name
Provisional MVTC fatal injury rate

Concept of interest
Individuals’ average annual risk of fatal injury from MVTCs

Scope
Area  Motor-vehicle traffic crash
Sex  Both sexes
Age  All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  MVTC injury 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  Ministry of Transport, 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. They are 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.

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...75–79, and 80 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, pp399–403), Statistical methods in medical research.
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  Motor-vehicle traffic crash
Sex    Both sexes
Age    All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  MVTC injury 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  Ministry of Transport, TCR database

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

Details  Estimates of vehicle kilometres travelled (VKT) are based on odometer readings from vehicle inspection records.

Source  Ministry of Transport
ID M18

Name
Provisional MVTC fatal injury rate per vehicle

Concept of interest
Drivers’ average annual risk of fatal injury from MVTCs

Scope
Area  Motor-vehicle traffic crash
Sex    Both sexes
Age    All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  MVTC injury 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  Ministry of Transport, TCR database

Denominator
Description  Total motor vehicles registered in New Zealand as at 30 June of the relevant year.
Details  Ministry of Transport provide the total number of vehicles registered as at 31 December. Vehicle numbers include registered cars, vans, trucks, buses, motor caravans, motor cycles, and mopeds, but exclude those with an exempt or restoration licence.

Source  Ministry of Transport, Motor Vehicle Register
ID M21

Name
Serious (fatal and non-fatal) MVTC injury, the number of injuries

Concept of interest
Societal burden of fatal and serious non-fatal MVTC injury

Scope
Area  Motor-vehicle traffic crash
Sex    Both sexes
Age    All ages

Source organisation
Developed by IPRU for NZIPS

Numerator

Description
MVTC injury fatalities and discharged hospitalised cases with an ICISS score of 0.931 or less, in a calendar year.

Details
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC fatalities are injury fatalities with a first external cause code in the range V02–V04 (with a fourth 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).

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC hospitalisations are injury hospitalisations with external cause codes as above.

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source
Ministry of Health, Mortality Collection and NMDS

Denominator
N/A
ID M22

Name
Serious (fatal and non-fatal) MVTC injury rate

Concept of interest
Individuals’ average annual risk of fatal and serious non-fatal MVTC injury

Scope
Area: Motor-vehicle traffic crash
Sex: Both sexes
Age: All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description: MVTC injury fatalities and discharged hospitalised cases with an ICISS score of 0.931 or less, in a calendar year.

Details: All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC fatalities are injury fatalities with a first external cause code in the range V02–V04 (with a fourth 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).

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC hospitalisations are injury hospitalisations with external cause codes as above.

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source: Ministry of Health, Mortality Collection and NMDS

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. They are 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.
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, pp399–403), Statistical methods in medical research.
ID D11

Name
Fatal drowning injury, the number of injuries

Concept of interest
Societal burden of fatal injury from drowning

Scope
Area  Drowning
Sex    Both sexes
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 for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

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.

Source  Ministry of health, Mortality Collection

Denominator
N/A
ID D12

**Name**
Fatal drowning injury rate

**Concept of interest**
Individuals’ average annual risk of fatal injury from drowning

**Scope**
- **Area**: Drowning
- **Sex**: Both sexes
- **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 for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

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.

**Source**
Ministry of Health, Mortality Collection

### 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. They are 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.

**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, pp399–403), *Statistical methods in medical research*. 
ID D13

Name
Provisional fatal drowning injury, the number of injuries

Concept of interest
Societal burden of fatal injury from drowning

Scope
Area Drowning  
Sex Both sexes  
Age All ages

Source organisation
Developed by IPRU for NZIPS

Numerator
Description Drowning fatalities recorded in the DrownBase database in a calendar year.

Details  
- drowning is the primary cause of death
- drowning is a contributing cause of death and the primary cause was potentially survivable in the absence of the drowning, or
- multiple sources are used to identify potential drowning-related fatalities including police reports, media, and coroner’s files (Langley et al, 2001).

Source Water Safety New Zealand, DrownBase

Denominator
N/A
ID D14

Name
Provisional fatal drowning injury rate

Concept of interest
Individuals’ average annual risk of fatal injury from drowning

Scope
Area  Drowning
Sex   Both sexes
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
- drowning is a contributing cause of death and the primary cause was potentially survivable in the absence of the drowning, or
- multiple sources are used to identify potential drowning-related fatalities including police reports, media, and coroner’s files (Langley et al, 2001)

Source  Water Safety New Zealand, 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. They are 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.

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, pp399–403), Statistical methods in medical research.
11 Māori indicator specifications

ID M(T)I01

Name
All serious non-fatal injury, Māori, the number of injuries

Concept of interest
Societal burden of serious non-fatal injury, Māori

Scope
Area All injury
Sex Both sexes
Age All ages
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator

Description
All injury cases hospitalised and discharged alive, Māori, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source
Ministry of Health, NMDS

Denominator
N/A
**ID M(T)I02**

**Name**
All serious non-fatal injury rate, Māori

**Concept of interest**
Individuals’ average annual risk of serious non-fatal injury, Māori

**Scope**
- **Area**: All injury
- **Sex**: Both sexes
- **Age**: All ages
- **Ethnicity**: Māori

**Source organisation**
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

**Numerator**

**Description**
All injury cases hospitalised and discharged alive, Māori, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

**Source**
Ministry of Health, NMDS

**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 most recent New Zealand census and post-enumeration survey. They are 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.

**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, pp399–403), *Statistical methods in medical research.*
ID M(T)I11

Name
All fatal injury, Māori, the number of injuries

Concept of interest
Societal burden of fatal injury, Māori

Scope
Area All injury
Sex Both sexes
Age All ages
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description All injury fatalities, Māori, in a calendar year.
Details All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source Ministry of Health, Mortality Collection

Denominator
N/A
ID M(T)I12

Name
All fatal injury rate, Māori

Concept of interest
Individuals' average annual risk of fatal injury, Māori

Scope
Area All injury
Sex Both sexes
Age All ages
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description All injury fatalities, Māori in a calendar year.
Details All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source Ministry of Health, Mortality Collection

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 most recent New Zealand census and post-enumeration survey. They are 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.

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, pp399–403), Statistical methods in medical research.
ID M(T)I21

Name
All serious (fatal and non-fatal) injury, Māori, the number of injuries

Concept of interest
Societal burden of fatal and serious non-fatal injury, Māori

Scope
Area All injury
Sex Both sexes
Age All ages
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description All injury fatalities and discharged hospitalised cases, Māori, with an ICISS score of 0.931 or less, in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source Ministry of Health, Mortality Collection and NMDS

Denominator
N/A
ID M(T)I22

Name
All serious (fatal and non-fatal) injury rate, Māori

Concept of interest
Individuals’ average annual risk of fatal and serious non-fatal injury, Māori

Scope
Area All injury
Sex Both sexes
Age All ages
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description Injury fatalities and discharged hospitalised cases, Māori, with an ICISS score of 0.931 or less, in a calendar year.

Details
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source Ministry of Health, Mortality Collection and NMDS

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 most recent New Zealand census and post-enumeration survey. They are 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.

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, pp399–403), *Statistical methods in medical research.*
ID M(T)A01

Name
Serious non-fatal assault injury, Māori, the number of injuries

Concept of interest
Societal burden of serious non-fatal injury from assault, Māori

Scope
Area
Assault
Sex
Both sexes
Age
All ages
Ethnicity
Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description
Assault injury cases hospitalised discharged alive, Māori, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source
Ministry of Health, NMDS

Denominator
N/A
ID M(T)A02

Name
Serious non-fatal assault injury rate, Māori

Concept of interest
Individuals’ average annual risk of serious non-fatal injury, Māori

Scope
Area Assault
Sex Both sexes
Age All ages
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description Assault injury cases hospitalised and discharged alive, Māori, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source Ministry of Health, NMDS

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 most recent New Zealand census and post-enumeration survey. They are 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.

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, pp399–403), Statistical methods in medical research.
ID M(T)A21

Name
Serious (fatal and non-fatal) assault injury, Māori, number of injuries

Concept of interest
Societal burden of fatal and serious non-fatal assault injury, Māori

Scope
Area  Assault
Sex    Both sexes
Age    All ages
Ethnicity  Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator

Description  Assault injury fatalities and discharged hospitalised cases, Māori, with an ICISS score of 0.931 or less, in a calendar year.

Detail  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Assault fatalities are injury fatalities with an underlying cause of death e-code in the range X85–Y09.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source  Ministry of Health, Mortality Collection and NMDS

Denominator

N/A
### ID M(T)A22

**Name**
Serious (fatal and non-fatal) assault injury rate, Māori

**Concept of interest**
Individuals’ average annual risk of fatal and serious non-fatal assault injury from assault, Māori

**Scope**

<table>
<thead>
<tr>
<th>Area</th>
<th>Assault</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
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<tr>
<td>Ethnicity</td>
<td>Māori</td>
</tr>
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**Source organisation**
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

**Numerator**

**Description**
Assault injury fatalities and discharged hospitalised cases, Māori, with an ICISS score of 0.931 or less, in a calendar year.

**Details**
- All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Assault fatalities are injury fatalities with an underlying cause of death e-code in the range X85–Y09.
- Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).
- ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.
- Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

**Source**
Ministry of Health, Mortality Collection and NMDS

**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 most recent New Zealand census and post-enumeration survey. They are 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.

**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, pp399–403), *Statistical methods in medical research*. 


Serious injury outcome indicators – technical report 2014

ID M(T)W01

Name
Serious non-fatal work-related injury, Māori, number of injuries

Concept of interest
Societal burden of serious non-fatal work-related injury, Māori.

Scope
Area Work-related
Sex Both sexes
Age 15 years and older
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS. Redeveloped in 2013 by Statistics NZ, MBIE, and ACC.

Numerator
Description
ACC claims for work-related injury linked to discharged hospitalisations, Māori, with an ICISS score of 0.931 or less, in a calendar year.

Details
Non-fatal work-related injury is defined as all non-fatal injuries that occur while a person is ‘at work’ in New Zealand. This includes all injury hospitalisations with an associated non-fatal work-related ACC claim.

Serious non-fatal work-related ACC claims include:
• non-fatal claims in the ACC work account
• non-fatal claims, excluding those from the non-earners account, that are flagged ‘at work’
• non-fatal claims with location ‘farm’ by people with the level 1 occupation of agriculture and fishery workers, or level 5 occupation of veterinarian; veterinarian assistant; motorised farm machinery operator; fruit, vegetable, and nut processing machine operator; animal welfare workers; general labourer; and agricultural and natural resources scientists.

This excludes injuries to:
• unpaid workers or volunteers
• bystanders (persons injured as a result of someone else’s work)
• people commuting to and from work
• workers as a result of suicide or intentional self-harm
• workers where the injury is classified as occupational disease or illness (as defined by ACC)
• New Zealand workers employed outside of New Zealand (for example, defence forces).

Injuries arising from a gradual process or occupational disease (for example, asbestos exposure, or hearing loss from noise exposure) are excluded.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).
Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

**Source**
ACC claims and Ministry of Health, NMDS

**Denominator**
N/A
ID M(T)W02

Name
Serious non-fatal work-related injury, Māori

Concept of interest
Individuals’ average annual risk of serious non-fatal work-related injury for Māori

Scope
Area Work-related
Sex Both sexes
Age 15 years and older
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS. Redeveloped in 2013 by Statistics NZ, MBIE, and ACC.

Numerator
Description ACC claims for work-related injury, linked to discharged hospitalisations, Māori, with an ICISS score of 0.931 or less, in a calendar year.

Details
Non-fatal work-related injury is defined as all non-fatal injuries that occur while a person is ‘at work’ in New Zealand. This includes all injury hospitalisations with an associated non-fatal work-related ACC claim.

Serious non-fatal work-related ACC claims include:
- non-fatal claims in the ACC work account
- non-fatal claims, excluding those from the non-earners account, that are flagged ‘at work’
- non-fatal claims with location ‘farm’ by people with the level 1 occupation of agriculture and fishery workers, or level 5 occupation of veterinarian; veterinarian assistant; motorised farm machinery operator; fruit, vegetable, and nut processing machine operator; animal welfare workers; general labourer; and agricultural and natural resources scientists.

This excludes injuries to:
- unpaid workers or volunteers
- bystanders (persons injured as a result of someone else’s work)
- people commuting to and from work
- workers as a result of suicide or intentional self-harm
- workers where the injury is classified as occupational disease or illness (as defined by ACC)
- New Zealand workers employed outside of New Zealand (for example, defence forces).

Injuries arising from a gradual process or occupational disease (for example, asbestos exposure, or hearing loss from noise exposure) are excluded.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).
Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

**Source**  
ACC claims and Ministry of Health, NMDS

**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 most recent New Zealand census and post-enumeration survey. They are 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.

**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 years 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, pp399–403), *Statistical methods in medical research.*
ID M(T)S11

Name
Fatal self-harm injury, Māori, number of injuries

Concept of interest
Societal burden of fatal self-harm injury, Māori

Scope
Area  Intentional self-harm
Sex    Both sexes
Age    All ages
Ethnicity  Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description  Self-harm injury fatalities, Māori, in a calendar year.
Details  All fatalities are required to be registered. Injury fatalities are those for which 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 (National Centre for Classification in Health, 2000). Self-harm fatalities are injury fatalities with an underlying cause of death e-code in the range X60–X84.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source  Ministry of Health, Mortality Collection

Denominator
N/A
### ID M(T)S12

**Name**  
Fatal self-harm injury rate, Māori

**Concept of interest**  
Individuals’ average annual risk of fatal self-harm injury, Māori

**Scope**

<table>
<thead>
<tr>
<th>Area</th>
<th>Intentional self-harm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
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<td>All ages</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Māori</td>
</tr>
</tbody>
</table>

**Source organisation**  
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS.

**Numerator**

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

**Details**  
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Self-harm fatalities are injury fatalities with an underlying cause of death e-code in the range X60–X84.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

**Source**  
Ministry of Health, Mortality Collection

**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 most recent New Zealand census and post-enumeration survey. They are 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.

**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, pp399–403), *Statistical methods in medical research*. 
ID M(T)S21

**Name**
Serious (fatal and non-fatal) self-harm injury, Māori, number of injuries

**Concept of interest**
Societal burden of fatal and serious non-fatal self-harm injury, Māori

**Scope**
Area: Intentional self-harm  
Sex: Both sexes  
Age: All ages  
Ethnicity: Māori

**Source organisation**
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

**Numerator**

**Description**
Self-harm injury fatalities and discharged hospitalised cases, Māori, with an ICISS score of 0.931 or less, in a calendar year.

**Details**
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Self-harm fatalities are injury fatalities with an underlying cause of death code in the range X60–X84.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

**Source**
Ministry of Health. Mortality Collection and NMDS

**Denominator**
N/A
ID M(T)S22

Name
Serious (fatal and non-fatal) self-harm injury, Māori

Concept of interest
Individuals’ average annual risk of fatal and serious non-fatal injury from self-harm, Māori

Scope
Area    Intentional self-harm
Sex     Both sexes
Age     All ages
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description
Self-harm injury fatalities and discharged hospitalised cases, Māori, with an ICISS score of 0.931 or less, in a calendar year.

Details
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Self-harm fatalities are injury fatalities with an underlying cause of death e-code in the range X60–X84.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source
Ministry of Health, Mortality Collection and NMDS

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 most recent New Zealand census and post-enumeration survey. They are 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.

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, pp399–403), *Statistical methods in medical research.*
ID M(T)F01a

Name
Serious non-fatal falls injury, Māori, number of injuries

Concept of interest
Societal burden of serious non-fatal injury from falls, Māori

Scope
Area  Falls
Sex    Both sexes
Age    All ages
Ethnicity  Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description  Fall injury cases hospitalised and discharged alive, Māori, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source  Ministry of Health, NMDS

Denominator
N/A
ID M(T)F02a

Name
Serious non-fatal falls injury rate, Māori

Concept of interest
Individuals’ average annual risk of serious non-fatal falls injury, Māori

Scope
Area Falls
Sex Both sexes
Age All ages
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description Fall injury cases hospitalised and discharged alive, Māori, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source Ministry of Health, NMDS

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 most recent New Zealand census and post-enumeration survey. They are 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.

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, pp399–403), Statistical methods in medical research.
ID M(T)F21a

Name
Serious (fatal and non-fatal) falls injury, Māori, number of injuries

Concept of interest
Societal burden of fatal and serious non-fatal falls injury, Māori

Scope
Area  Falls
Sex    Both sexes
Age    All ages
Ethnicity  Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description  Fall injury fatalities and discharged hospitalised cases, Māori, with an ICISS score of 0.931 or less, in a calendar year.

Details  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source  Ministry of Health, Mortality Collection and NMDS

Denominator
N/A
Name
Serious (fatal and non-fatal) falls injury rate, Māori

Concept of interest
Individuals’ average annual risk of fatal and serious non-fatal injury from falls for Māori

Scope
<table>
<thead>
<tr>
<th>Area</th>
<th>Falls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Both sexes</td>
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<td>Age</td>
<td>All ages</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Māori</td>
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</tbody>
</table>

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description
Fall injury fatalities and discharged hospitalised cases, Māori, with an ICISS score of 0.931 or less, in a calendar year.

Details
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source
Ministry of Health, Mortality Collection and NMDS

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 most recent New Zealand census and post-enumeration survey. They are 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.

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, pp399–403), *Statistical methods in medical research.*
ID M(T)F01b

Name
Serious non-fatal falls injury, Māori, aged 0–74 years, number of injuries

Concept of interest
Societal burden of serious non-fatal injury from falls, Māori

Scope
Area Falls
Sex Both sexes
Age 0–74 years
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description Fall injury cases hospitalised and discharged alive, Māori aged 0–74 years, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source Ministry of Health, NMDS

Denominator
N/A
ID M(T)F02b

Name
Serious non-fatal falls injury rate, Māori aged 0–74 years.

Concept of interest
Individuals’ average annual risk of serious non-fatal falls injury, Māori aged 0–74 years.

Scope
Area  Falls
Sex   Both sexes
Age   0–74 years
Ethnicity  Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description  Fall injury cases hospitalised and discharged alive, Māori aged 0–74 years, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source  Ministry of Health, NMDS

Denominator
Description  Estimated Māori population aged 0–74 years 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. They are 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.

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, pp399–403), Statistical methods in medical research.
**ID M(T)F21b**

**Name**
Serious (fatal and non-fatal) falls injury, Māori aged 0–74 years, number of injuries

**Concept of interest**
Societal burden of fatal and serious non-fatal falls injury, Māori

**Scope**

<table>
<thead>
<tr>
<th>Area</th>
<th>Falls</th>
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</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Both sexes</td>
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<tr>
<td>Age</td>
<td>0–74 years</td>
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<tr>
<td>Ethnicity</td>
<td>Māori</td>
</tr>
</tbody>
</table>

**Source organisation**
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

**Numerator**

**Description**
Fall injury fatalities and discharged hospitalised cases, Māori aged 0–74 years, with an ICISS score of 0.931 or less, in a calendar year.

**Details**
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

**Source**
Ministry of Health, Mortality Collection and NMDS

**Denominator**

N/A
ID M(T)F22b

Name
Serious (fatal and non-fatal) falls injury rate, Māori aged 0–74 years

Concept of interest
Individuals’ average annual risk of fatal and serious non-fatal injury from falls, Māori

Scope
Area Falls
Sex Both sexes
Age 0–74 years
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description Fall injury fatalities and discharged hospitalised cases, Māori aged 0–74 years, with an ICISS score of 0.931 or less, in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source Ministry of Health, Mortality Collection and NMDS

Denominator
Description Estimated Māori population aged 0–74 years 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. They are 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.

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 55–74 years. 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, pp399–403), *Statistical methods in medical research*. 
ID M(T)F01c

Name
Serious non-fatal falls injury, Māori aged 75 years and over, number of injuries

Concept of interest
Societal burden of serious non-fatal injury from falls, Māori aged 75 years and over

Scope
Area    Falls
Sex     Both sexes
Age     75 years and over
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description  Fall injury cases hospitalised and discharged alive, Māori aged 75 years and over, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source  Ministry of Health, NMDS

Denominator
N/A
ID M(T)F02c

Name
Serious non-fatal falls injury rate, Māori aged 75 years and over

Concept of interest
Individuals’ average annual risk of serious non-fatal falls injury, Māori

Scope
Area   Falls
Sex    Both sexes
Age    75 years and over
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description   Fall injury cases hospitalised and discharged alive, Māori aged 75 years and over, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source   Ministry of Health, NMDS

Denominator
Description   Estimated Māori population aged 75 years and over 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. They are 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.

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, pp399–403), Statistical methods in medical research.
ID M(T)F21c

Name
Serious (fatal and non-fatal) falls injury, Māori aged 75 years and over, number of injuries

Concept of interest
Societal burden of fatal and serious non-fatal falls injury, Māori aged 75 years and over

Scope
Area Falls
Sex Both sexes
Age 75 years and over
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description Fall injury fatalities and discharged hospitalised cases, Māori aged 75 years and over, with an ICISS score of 0.931 or less, in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source Ministry of Health, Mortality Collection and NMDS

Denominator
N/A
ID M(T)F22c

Name
Serious (fatal and non-fatal) falls injury rate, Māori aged 75 years and over

Concept of interest
Individuals’ average annual risk of fatal and serious non-fatal injury from falls, Māori aged 75 years and over.

Scope
Area    Falls
Sex     Both sexes
Age     75 years and over
Ethnicity  Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description  Fall injury fatalities and discharged hospitalised cases, Māori aged 75 years and over, with an ICISS score of 0.931 or less, in a calendar year.

Details  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death e-code in the range W00–W19.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source  Ministry of Health, Mortality Collection and NMDS

Denominator
Description  Estimated Māori population aged 75 years and over 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. They are 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.
**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, pp399–403), *Statistical methods in medical research*. 
ID M(T)M01

Name
Serious non-fatal MVTC injury, Māori, number of injuries

Concept of interest
Societal burden of serious non-fatal injury from MVTCs, Māori

Scope
Area Motor-vehicle traffic crash
Sex Both sexes
Age All ages
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description MVTC injury cases hospitalised and discharged alive, Māori, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). MVTC hospitalisations are injury hospitalisations with a first external cause code in the range V02–V04 (with a fourth 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source Ministry of Health, NMDS

Denominator
N/A
ID M(T)M02

Name
Serious non-fatal MVTC injury rate, Māori

Concept of interest
Individuals’ average annual risk of serious non-fatal MVTC injury, Māori

Scope
Area Motor-vehicle traffic crash
Sex Both sexes
Age All ages
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description MVTC injury cases hospitalised and discharged alive, Māori, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC hospitalisations are injury hospitalisations with a first external cause code in the range V02–V04 (with a fourth 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source Ministry of Health, NMDS

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 most recent New Zealand census and post-enumeration survey. They are 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.

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, pp399–403), *Statistical methods in medical research.*
ID M(T)M11

Name
Fatal MVTC injury, Māori

Concept of interest
Societal burden of fatal MVTC injury, Māori

Scope
Area: Motor-vehicle traffic crash
Sex: Both sexes
Age: All ages
Ethnicity: Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description: MVTC injury fatalities, Māori, in a calendar year.
Details: All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC fatalities are injury fatalities with an underlying cause of death code in the range V02–V04 (with a fourth 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).

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source: Ministry of Health, Mortality Collection

Denominator
N/A
ID M(T)M12

Name
Fatal MVTC Injury rate, Māori

Concept of interest
Individuals’ average annual risk of fatal MVTC injury, Māori.

Scope
Area  Motor-vehicle traffic crash
Sex    Both sexes
Age    All ages
Ethnicity  Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description  MVTC injury fatalities, Māori, in a calendar year.
Details  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC fatalities are injury fatalities with a first external cause code in the range V02–V04 (with a fourth 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).

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source  Ministry of Health, Mortality Collection

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 most recent New Zealand census and post-enumeration survey. They are 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.

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, pp399–403), Statistical methods in medical research.
ID M(T)M21

**Name**
Serious (fatal and non-fatal) MVTC injury, Māori, number of injuries

**Concept of interest**
Societal burden of fatal and serious non-fatal MVTC injury, Māori

**Scope**

<table>
<thead>
<tr>
<th>Area</th>
<th>Motor-vehicle traffic crash</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Both sexes</td>
</tr>
<tr>
<td>Age</td>
<td>All ages</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Māori</td>
</tr>
</tbody>
</table>

**Source organisation**
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

**Numerator**

**Description**
MVTC injury fatalities and discharged hospitalised cases, Māori, with an ICISS score of 0.931 or less, in a calendar year.

**Details**
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC fatalities are injury fatalities with a first external cause code in the range V02–V04 (with a fourth 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).

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC hospitalisations are injury hospitalisations with an external cause code as above.

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

**Source**
Ministry of Health, Mortality Collection and NMDS

**Denominator**
N/A
ID M(T)M22

Name
Serious (fatal and non-fatal) MVTC injury rate, Māori

Concept of interest
Individuals’ average annual risk of fatal and serious non-fatal MVTC injury, Māori

Scope
Area  Motor-vehicle traffic crash
Sex    Both sexes
Age    All ages
Ethnicity Māori

Source organisation
Developed by IPRU and Ngāi Tahu Māori Health Research Unit for NZIPS

Numerator
Description  MVTC injury fatalities and discharged hospitalised cases, Māori, with an ICISS score of 0.931 or less, in a calendar year.

Details
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC fatalities are injury fatalities with a first external cause code in the range V02–V04 (with a fourth 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).

MVTC hospitalisations are injury hospitalisations with an external cause code as above.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Māori ethnicity was allocated to a case according to whether or not the patient had been recorded as Māori in the NMDS admission record.

Source  Ministry of Health, Mortality Collection and NMDS

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 most recent New Zealand census and post-enumeration survey. They are 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.

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, pp399–403), Statistical methods in medical research.
12 Children indicator specifications

ID I01

Name
All serious non-fatal injury, children, number of children

Concept of interest
Societal burden of serious non-fatal injury, children

Scope
Area All injury
Sex Both sexes
Age 0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator

Description All injury hospitalisations discharged alive, children, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source Ministry of Health, NMDS

Denominator

N/A
ID I02

Name
All serious non-fatal injury, children

Concept of interest
Individuals’ average annual risk of serious non-fatal injury, children

Scope
Area All injury
Sex Both sexes
Age 0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description Injury hospitalisations discharged alive, children, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source Ministry of Health, NMDS

Denominator
Description Estimated New Zealand population aged 14 and under 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. They are 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.

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, pp399–403), *Statistical methods in medical research.*
ID I11

Name
All fatal injury, children, number of injuries

Concept of interest
Societal burden of fatal injury, children

Scope
Area: All injury
Sex: Both sexes
Age: 0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description: Injury fatalities registered, children, in a calendar year.
Details: All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).
Source: Ministry of Health, Mortality Collection

Denominator
N/A
ID I12

**Name**
All fatal injury rate, children

**Concept of interest**
Individuals' average annual risk of fatal injury, children

**Scope**
- **Area**: All injury
- **Sex**: Both sexes
- **Age**: 0–14 years

**Source organisation**
Developed by IPRU for NZIPS

**Numerator**

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

**Details**
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

**Source**
Ministry of Health, Mortality Collection

**Denominator**

**Description**
Estimated New Zealand population aged 14 and under 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. They are 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.

**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, pp399–403), *Statistical methods in medical research.*
ID I21

Name
All serious (fatal and non-fatal) injury, children, number of injuries

Concept of interest
Societal burden of fatal and serious non-fatal injury, children

Scope
Area  All injury
Sex    Both sexes
Age    0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Injury fatalities and discharged hospitalisations, children, with an ICISS score of 0.931 or less in a calendar year.

Details  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those 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 (National Centre for Classification in Health, 2000).

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, Mortality Collection and NMDS

Denominator
N/A
ID 122

Name
All serious (fatal and non-fatal) injury rate, children

Concept of interest
Individuals’ average annual risk of fatal and serious non-fatal injury, children

Scope
Area  All injury
Sex  Both sexes
Age  0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Injury fatalities and discharged hospitalisations, children, with an ICISS score of 0.931 or less in a calendar year.

Details  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause code are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, Mortality Collection and NMDS

Denominator
Description  Estimated New Zealand population aged 14 and under 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. They are 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.

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, pp399–403), Statistical methods in medical research.
ID A21

Name
Assault serious (fatal and non-fatal) injury, children, number of injuries

Concept of interest
Societal burden of fatal and serious non-fatal injury from assault, children

Scope
Area  Assault
Sex    Both sexes
Age    0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Assault injury fatalities and discharged hospitalisations, children, with an ICISS score of 0.931 or less in a calendar year.

Details  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Assault fatalities are injury fatalities with an underlying cause of death e-code in the range X85–Y09.

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and e-codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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. (2002).

ICISS scores have been calculated using the methods described in Stephenson et al. (2002 and 2004), with modifications as described in chapter 5.

The annual number of assault fatalities and serious non-fatal injuries is less than 100, so three-year moving averages are presented.

Source  Ministry of Health, Mortality Collection and NMDS

Denominator
N/A
ID A22

Name
Assault serious (fatal and non-fatal) injury rate, children

Concept of interest
Individuals’ average annual risk of fatal and serious non-fatal injury from assault, children

Scope
Area: Assault
Sex: Both sexes
Age: 0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description
Assault injury fatalities and discharged hospitalisations, children, with an ICISS score of 0.931 or less in a calendar year.

Details
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification. Assault fatalities are injury fatalities with an underlying cause of death e-code in the range X85–Y09.

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first e-code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

The annual number of assault fatalities and serious non-fatal injuries is less than 100, so three-year moving averages are presented.

Source
Ministry of Health, Mortality Collection and NMDS

Denominator
Description
Estimated New Zealand population aged 14 and under 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. They are 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.

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, pp399–403), *Statistical methods in medical research.*
ID F01

Name
Falls serious non-fatal injury, children, number of injuries

Concept of interest
Societal burden of serious non-fatal injury from falls, children

Scope
Area  Falls
Sex    Both sexes
Age    0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Fall injury hospitalisations, discharged alive, children, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, NMDS

Denominator
N/A
ID F02

Name
Falls serious non-fatal injury rate, children

Concept of interest
Individuals' average annual risk of serious non-fatal injury from falls, children

Scope
Area  Falls
Sex    Both sexes
Age  0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Fall injury hospitalisations, discharged alive, children, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, NMDS

Denominator
Description  Estimated New Zealand population aged 14 and under 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. They are 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.

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, pp399–403), Statistical methods in medical research.
ID F21

Name
Falls serious (fatal and non-fatal) injury, children, number of injuries

Concept of interest
Societal burden of fatal and serious non-fatal injury from falls, children

Scope
Area  Falls
Sex    Both sexes
Age    0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Fall injury fatalities and discharged hospitalisations, children, with an ICISS score of 0.931 or less in a calendar year.

Details  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death external cause code in the range W00–W19.

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those 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 (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, Mortality Collection and NMDS

Denominator
N/A
ID F22

Name
Falls serious (fatal and non-fatal) injury rate, children

Concept of interest
Individuals’ average annual risk of fatal or serious non-fatal injury from falls, children

Scope
Area Falls
Sex Both sexes
Age 0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description
Fall injury fatalities and discharged hospitalisations, children, with an ICISS score of 0.931 or less in a calendar year.

Details
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Falls fatalities are injury fatalities with an underlying cause of death external cause code in the range W00–W19.

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source
Ministry of Health, Mortality Collection and NMDS

Denominator
Description
Estimated New Zealand population aged 14 and under 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. They are 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.

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, pp399–403), *Statistical methods in medical research*.
**ID M01**

**Name**
MVTC serious non-fatal injury, children, number of injuries

**Concept of interest**
Societal burden of serious non-fatal injury from MVTCs, children

**Scope**

<table>
<thead>
<tr>
<th>Area</th>
<th>Motor-vehicle traffic crash</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Both sexes</td>
</tr>
<tr>
<td>Age</td>
<td>0–14 years</td>
</tr>
</tbody>
</table>

**Source organisation**
Developed by IPRU for NZIPS

**Numerator**

**Description**
MVTC injury hospitalisations, discharged alive, children, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC hospitalisations are injury hospitalisations with a first e-code in the range V02–V04 (with a fourth 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

The annual number of injuries is less than 100, so three-year moving averages are presented.

**Source**
Ministry of Health, NMDS

**Denominator**

N/A
ID M02

Name
MVTC serious non-fatal injury rate, children

Concept of interest
Individuals’ average annual risk of serious non-fatal injury from MVTCs, children

Scope
Area  Motor-vehicle traffic crash
Sex  Both sexes
Age  0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  MVTC injury hospitalisations, discharged alive, children, with an ICISS score of 0.931 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 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 (National Centre for Classification in Health, 2000).

MVTC hospitalisations are injury hospitalisations with a first external cause code in the range V02–V04 (with a fourth 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, NMDS

Denominator
Description  Estimated New Zealand population aged 14 and under 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. They are 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.

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, pp399–403), Statistical methods in medical research.
ID M11

Name
MVTC fatal injury, children, number of injuries

Concept of interest
Societal burden of fatal injury from MVTCs, children

Scope
Area  Motor-vehicle traffic crash
Sex  Both sexes
Age  0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  MVTC injury fatalities in a calendar year, children.
Details  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC fatalities are injury fatalities with an underlying cause of death external cause code in the range V02–V04 (with a fourth 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).

The annual number of MVTC serious non-fatal injuries is less than 100, so three-year moving averages are presented.

Source  Ministry of Health, Mortality Collection

Denominator
N/A
ID M12

Name
MVTC fatal injury rate, children

Concept of interest
Individuals’ average annual risk of fatal injury from MVTCs, children

Scope
Area  Motor-vehicle traffic crash
Sex    Both sexes
Age    0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  MVTC injury fatalities in a calendar year, children.
Details  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC fatalities are injury fatalities with an underlying cause of death external cause code in the range V02–V04 (with a fourth 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).

The annual number of car occupant fatalities and serious non-fatal injuries is less than 100, so three-year moving averages are presented.

Source  Ministry of Health, Mortality Collection

Denominator
Description  Estimated New Zealand population aged 14 and under 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. They are 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.

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, pp399–403), Statistical methods in medical research.
ID M21

Name
MVTC serious (fatal and non-fatal) injury, children

Concept of interest
Societal burden of fatal and serious non-fatal injury from MVTCs, children

Scope
Area  Motor-vehicle traffic crash
Sex  Both sexes
Age  0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator

Description  MVTC injury fatalities and discharged hospitalisations, children, with an ICISS score of 0.931 or less in a calendar year.

Details  All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC fatalities are injury fatalities with an underlying cause of death external cause code in the range V02–V04 (with a fourth 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).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC hospitalisations are injury hospitalisations with an external cause code in the range above

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, Mortality Collection and NMDS

Denominator

N/A
ID M22

Name
MVTC serious (fatal and non-fatal) injury rate, children

Concept of interest
Individuals’ average annual risk of fatal and serious non-fatal injury from MVTCs, children

Scope
Area  Motor-vehicle traffic crash
Sex  Both sexes
Age  0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  MVTC injury fatalities and discharged hospitalisations, children, with an ICISS score of 0.931 or less in a calendar year.

Details
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

MVTC fatalities are injury fatalities with an underlying cause of death external cause code in the range V02–V04 (with a fourth 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)

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). MVTC hospitalisations are injury hospitalisations with an external cause code in the range above.

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

Source  Ministry of Health, Mortality Collection and NMDS

Denominator
Description  Estimated New Zealand population aged 14 and under 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. They are 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.

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, pp399–403), *Statistical methods in medical research.*
ID P21

Name
Pedestrian serious (fatal and non-fatal) injury, children, number of injuries

Concept of interest
Societal burden of fatal and serious non-fatal injury from pedestrian-related MVTCs, children

Scope
Area Pedestrian-related MVTC
Sex Both sexes
Age 0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description Pedestrian-related MVTC injury fatalities and discharged hospitalisations, children, with an ICISS score of 0.931 or less in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Pedestrian fatalities are injury fatalities with an underlying cause of death external cause code in the range V02–V04 (with a fourth digit in the range .1–.9).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Pedestrian hospitalisations are injury hospitalisations with a first external cause code in the range above.

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

The annual number of pedestrian fatalities and serious non-fatal injuries is less than 100, so three-year moving averages are presented.

Source Ministry of Health, Mortality Collection and NMDS

Denominator
N/A
### ID P22

#### Name
Pedestrian serious (fatal and non-fatal) injury rate, children

#### Concept of interest
Individuals’ average annual risk of fatal and serious non-fatal injury from pedestrian-related MVTCs, children

#### Scope
**Area**  
Pedestrian-related MVTC

**Sex**  
Both sexes

**Age**  
0–14 years

#### Source organisation
Developed by IPRU for NZIPS

#### Numerator

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedestrian-related MVTC injury fatalities and discharged hospitalisations, children, with an ICISS score of 0.931 or less in a calendar year.</td>
<td>All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Pedestrian fatalities are injury fatalities with an underlying cause of death external cause code in the range V02–V04 (with a fourth digit in the range .1–.9). Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). Pedestrian hospitalisations are injury hospitalisations with a first external cause code in the range above. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002). ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5. The annual number of pedestrian fatalities and serious non-fatal injuries is less than 100, so three-year moving averages are presented.</td>
</tr>
</tbody>
</table>

#### Source
Ministry of Health, Mortality Collection and NMDS

#### Denominator

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
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<tbody>
<tr>
<td>Estimated New Zealand population aged 14 and under as at 30 June of the relevant year.</td>
<td>The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand census and post-enumeration survey. They are adjusted for the estimated number of New Zealand</td>
</tr>
</tbody>
</table>
residents overseas on census night, estimated natural increase in population, and estimated net long-term and permanent migration.

**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, pp399–403), *Statistical methods in medical research.*
ID C21

Name
Car occupant serious (fatal and non-fatal) injury, children, number of injuries

Concept of interest
Societal burden of fatal and serious non-fatal injury from MVTCs in which children were car occupants, children

Scope
Area  
Car occupant in an MVTC
Sex  
Both sexes
Age  
0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  
Car occupant injury fatalities and discharged hospitalisations, children, with an ICISS score of 0.931 or less in a calendar year.

Details  
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Car occupant fatalities are injury fatalities with an underlying cause of death external cause code in the range V40–V49 (with a fourth digit in the range .4–.9).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Car occupant hospitalisations are injury hospitalisations with a first external cause code in the range above.

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

The annual number of car occupant fatalities and serious non-fatal injuries is less than 100, so three-year moving averages are presented.

Source  
Ministry of Health, Mortality Collection and NMDS

Denominator
N/A
ID C22

Name
Car occupant serious (fatal and non-fatal) injury rate, children

Concept of interest
Individuals' average annual risk of fatal and serious non-fatal injury from MVTCs in which children were car occupants, children

Scope
Area  Car occupant in an MVTC  
Sex  Both sexes  
Age  0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description  Car occupant injury fatalities and discharged hospitalisations, children, with an ICISS score of 0.931 or less in a calendar year.

Details  All fatalities are required to be registered. Injury fatalities are those for which 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 (National Centre for Classification in Health, 2000).

Car occupant fatalities are injury fatalities with an underlying cause of death external cause code in the range V40–V49 (with a fourth digit in the range .4–.9).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first external cause code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

The annual number of car occupant fatalities and serious non-fatal injuries was less than 100, so three-year moving averages are presented.

Source
Ministry of Health, Mortality Collection and NMDS

Denominator
Description  Estimated New Zealand population aged 14 and under 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 postEnumeration survey. They are 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.

**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, pp399–403), *Statistical methods in medical research*. 
ID In01

Name
Intentional serious non-fatal injury, children, number of injuries

Concept of interest
Societal burden of serious non-fatal injury from assault or self-harm, children

Scope
Area  Intentional (assault and self-harm)
Sex    Both sexes
Age    0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description
Intentional (assault and self-harm) injury hospitalisations discharged alive, children, with an ICISS score of 0.931 or less.

Details
Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those 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 (National Centre for Classification in Health, 2000).

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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

The annual number of serious non-fatal intentional injuries is less than 100, so three-year moving averages are presented.

Source
Ministry of Health, NMDS

Denominator
N/A
ID In02

Name
Intentional serious non-fatal injury rate, children

Concept of interest
Individuals’ average annual risk of serious non-fatal injury from assault or self-harm, children

Scope
Area Intentional (assault and self-harm)
Sex Both sexes
Age 0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator
Description Intentional (assault and self-harm) hospitalisations discharged alive, children, with an ICISS score of 0.931 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 with a principal diagnosis in the range S00–T78 and a first e-code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000). 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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

The annual number of serious non-fatal intentional injuries was less than 100 so three year moving averages are presented.

Source Ministry of Health, NMDS

Denominator
Description Estimated New Zealand population aged 14 and under 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. They are 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.

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, pp399–403), Statistical methods in medical research.
**ID In21**

**Name**
Intentional serious (fatal and non-fatal) injury, children, number of injuries

**Concept of interest**
Societal burden of fatal and serious non-fatal injury from assault and self-harm, children

**Scope**
Area: Intentional (assault and self-harm)
Sex: Both sexes
Age: 0–14 years

**Source organisation**
Developed by IPRU for NZIPS

**Numerator**

**Description**
Intentional (assault and self-harm) injury fatalities and discharged hospitalisations, children, with an ICISS score of 0.931 or less in a calendar year.

**Details**
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

Intentional fatalities are injury fatalities with an underlying cause of death e-code in the range X85–Y09 (assault) and X60–X84 (self-harm).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those with a principal diagnosis in the range S00–T78 and a first e-code in the range V01–Y36. Diagnoses and external cause codes are coded using the ICD-10-AM classification (National Centre for Classification in Health, 2000).

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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

The annual number of assault and self-harm fatalities and serious non-fatal injuries is less than 100, so three-year moving averages are presented.

**Source**
Ministry of Health, Mortality Collection and NMDS

**Denominator**
N/A
ID In22

Name
Intentional serious (fatal and non-fatal) injury rate, children

Concept of interest
Individual’s average annual risk of fatal or serious non-fatal injury from assault and self-harm, children

Scope
Area: Intentional (assault and self-harm)
Sex: Both sexes
Age: 0–14 years

Source organisation
Developed by IPRU for NZIPS

Numerator

Description
Intentional (assault and self-harm) injury fatalities and discharged hospitalisations, children, with an ICISS score of 0.931 or less in a calendar year.

Details
All fatalities are required to be registered. Injury fatalities are those for which the underlying cause of death is an external cause code in the range V01–Y36. External cause codes are coded using the ICD-10-AM classification.

Intentional fatalities are injury fatalities with an underlying cause of death e-code in the range X85–Y09 (assault) and X60–X84 (self-harm).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those 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 (National Centre for Classification in Health, 2000).

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 (2002).

ICISS scores have been calculated using the methods described in Stephenson et al (2002 and 2004), with modifications as described in chapter 5.

The annual number of assault and self-harm fatalities and serious non-fatal injuries is less than 100, so three-year moving averages are presented.

Source
Ministry of Health, Mortality Collection and NMDS

Denominator

Description
Estimated New Zealand population aged 14 and under 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. They are 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.

**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 New Zealand population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987, pp399–403), *Statistical methods in medical research.*
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