A Chartbook of the New Zealand Injury Prevention Strategy Serious Injury Outcome Indicators for Children; 1994-2004

New Zealand Injury Prevention Strategy
RAUTAKI ĀRAI WHARA O AOTEAROA

March 2006

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New Zealand Injury Prevention Strategy Secretariat
ACC
PO Box 242
Wellington
New Zealand
email: nzips@acc.co.nz

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A Chartbook of the New Zealand Injury Prevention Strategy Serious Injury Outcome Indicators for Children; 1994-2004

Gabrielle Davie
Colin Cryer
Pauline Gulliver
John Langley

Injury Prevention Research Unit
University of Otago

on behalf of the

New Zealand Injury Prevention Strategy Secretariat
Accident Compensation Corporation
Molesworth Street
Wellington
New Zealand

March 2006

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Contents

Part 1: Overview

1.1 The New Zealand Injury Prevention Strategy

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

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

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

Ten key objectives are identified which are designed to address the vision and goals of NZIPS.

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

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

This chartbook presents an adaptation of the NZIPS serious injury indicators, along with baselines, for four of these priority areas (workplace injuries and drowning and near drowning have been excluded, see section 1.2) for children aged 0-14 years, covering the period 1994-2004. The baselines give the injury experience in the year of, and immediately before, the launch of the NZIPS. Progress in the prevention of serious injury during the lifetime of the NZIPS will be judged against these baselines.

1.2 The indicators

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

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

These indicators are based on the New Zealand Health Information Service (NZHIS) Mortality data and National Minimum Dataset (NMDS - of hospital inpatient data), for absolute numbers and rates. Absolute numbers reflect the societal burden of injury[a], while rates reflect individual risk.

For children aged 0-14 years, there are practical limitations with regard to the number of cases (and so the precision of the indicators). To overcome some of these limitations a Serious (fatal + non-fatal) indicator that combines fatal injuries and serious non-fatal injuries has been calculated and two priority areas, Assault and Intentional Self-Harm have been combined into one Intentional indicator. Following input from SafeKids, two additional indicators have been included for children. Both of these indicators are subsets of motor vehicle traffic crashes; Pedestrian injuries and Car occupant injuries. Indicators presented in this report, for which there were considered to be adequate numbers, are presented in Table 1 below:

Table 1: Indicators for children aged 0-14 years

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

✓ = number of cases per year makes the indicators viable
X = small numbers of cases makes the indicators non-viable

Injuries were regarded as serious if they resulted in death or were associated with at least a 6% threat-to-life (ie. chance of death), estimated from historical NZHIS hospital discharge data. Amongst first discharges from hospital with a primary diagnosis of injury, approximately 15% of these exceed this threat-to-life severity threshold.

These indicators are used to produce trends over time. Such a high threshold was chosen for the non-fatal injury indicators to reduce the likelihood of misleading time trends for these indicators.

[a] Although NZHIS NMDS includes only publicly funded hospital event data, it still gives a very good indication of the societal burden.

The indicator specifications are presented in Appendix A. These specifications reflect the material presented in the report describing the rationale behind, and the development of, the indicators for the general population. [1]

1.3 What the Children's chartbook comprises

The remainder of the Children's chartbook presents the charts for the viable indicators presented in Table 1. These charts largely speak for themselves, and so no commentary has been provided.

Wherever possible, the range of years presented in each chart is 1994 to 2004. The indicators are derived from the NZHIS Mortality and NMDS databases. The coding system used for classifying injury diagnosis and external cause of injury in both of these data sources is the World Health Organisation (WHO) International Classification of Diseases (ICD). During the period considered in these charts, the ICD was substantially revised.

The colours used in the charts have been chosen in order to signal the different status of the indicators ('final' as opposed to 'provisional' indicators), and the different status of the information used to generate the bars in the charts (Table 2).

Table 2: Chart colour coding

Orange:	Serious injury indicator (eg. ICD10-based)
Yellow:	Serious injury indicator (eg. ICD-9-based).
Brown:	Provisional serious injury indicator
Light brown:	Provisional serious injury indicator, modified to take account of a previous coding change

The change from ICD version 9 (ICD-9) to ICD-10 took place on 1 January 2000 for NZHIS Mortality data, and predominantly during 1999 for the NZHIS NMDS data. An intermediate colour has been used for 1999, a transitional year for the hospitalisation data when both ICD-9 and ICD10 coding systems were used (gold or dark sand).

Each bar on each chart includes 95% confidence limits – shown in red. These give an indication of the amount of random variation associated with a single year's indicator value. Narrow confidence intervals indicate little random variability; wide confidence intervals much random variability. Where wide confidence intervals exist, little weight should be given to the variation from one year to the next.
In some circumstances, there will be an interest in the magnitude of the frequency or rate of serious injury in a given year. In many other circumstances, it is the trends

in the indicators that are of interest. For example, trends are of interest to gauge how well New Zealand is doing in reducing serious injury following the introduction of the NZIPS. When considering trends, the confidence intervals for individual bars are of lesser relevance and interest.

1.4 Summary of the methods

The indicators are calculated using NZHIS Mortality and NMDS (hospitalisation) data. Indicators based on the latter source include only publicly funded cases discharged from hospital. Deaths in hospital are excluded from the serious non-fatal injury indicators. The last year's data for both NZHIS Mortality (2002) and NMDS (2004) are provisional, with all previous data considered final.
For both of these data sets, diagnosis and external cause of injury are classified using ICD-10. The operational definition of injury, for these indicators, is given by the following ICD-10 code ranges:

Principal diagnosis: S00-T78, and
First external cause: V01-Y36.

For hospitalisations, only first admissions were counted.
Serious injury indicators were chosen to draw attention to 'important' injury as judged by their resulting in death, or because of their threat-to-life. [1] The definition of serious for the non-fatal injury indicators is based on a severity of injury threshold. The method used for measuring severity was the ICD-based Injury Severity Score (ICISS).

The ICISS method involves deriving, from a training set of cases, a Survival Risk Ratio (SRR), i.e. the probability of survival, for each individual injury diagnosis code, as the ratio of the number of patients with that injury code who have not died to the total number of patients diagnosed with that code. The training set for the ICD-10 based SRRs is hospital discharges for the period 2000-2002. Thus, a given SRR represents the likelihood that a patient will survive a particular injury, given they were admitted to hospital. Each patient's ICISS score (survival probability) is then the product of the probabilities of surviving each of their injuries individually. ICISS scores are calculated for all patients discharged during the period, based on the SRRs derived from the training data set.

The definition of serious non-fatal injury used for these indicators are hospitalised cases with an ICISS score of less than or equal to 0.941 (ICISS$\leq$0.941)[b]. This is equivalent to selecting patients whose injuries give the patient a survival probability of 94.1% or worse – in other words, a probability of death, given admission to hospital, of at least 5.9%.

[b] All hospital discharges from public hospital are considered, even ones with 0 days stay; however, only cases that satisfy the severity criteria of ICISS$\leq$0.941 are selected as cases.

Hospitalisations with ICISS scores less than or equal to 0.941 represent around 15% of all injury discharges. This included (but wasn't limited to) most cases with the following diagnoses:

S72	Fracture of the femur
S06.1 - .9	Intracranial injury (excluding concussion)
S14	Injuries of nerves and spinal cord at neck level
S22.4	Multiple fractures of ribs
T71	Asphyxiation
T68	Hypothermia

This represents a conservative approach to the definition of a case of serious non-fatal injury. A person sustaining any of these serious injury diagnoses would be admitted to hospital in the vast majority of instances. This high threshold reduces the likelihood of significant threats to the validity of these serious non-fatal injury outcome indicators (see Cryer 2004 report for further details). [1]

In most instances, rates are expressed per 100,000 person-years (i.e. per 100,000 population per year of exposure). Person-years have been used as denominators for the rates since:

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

Population data were obtained from Statistics New Zealand population estimates (see www.stats.govt.nz). Rates were age-adjusted to compensate for societal changes in the age distribution of the population over time.

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

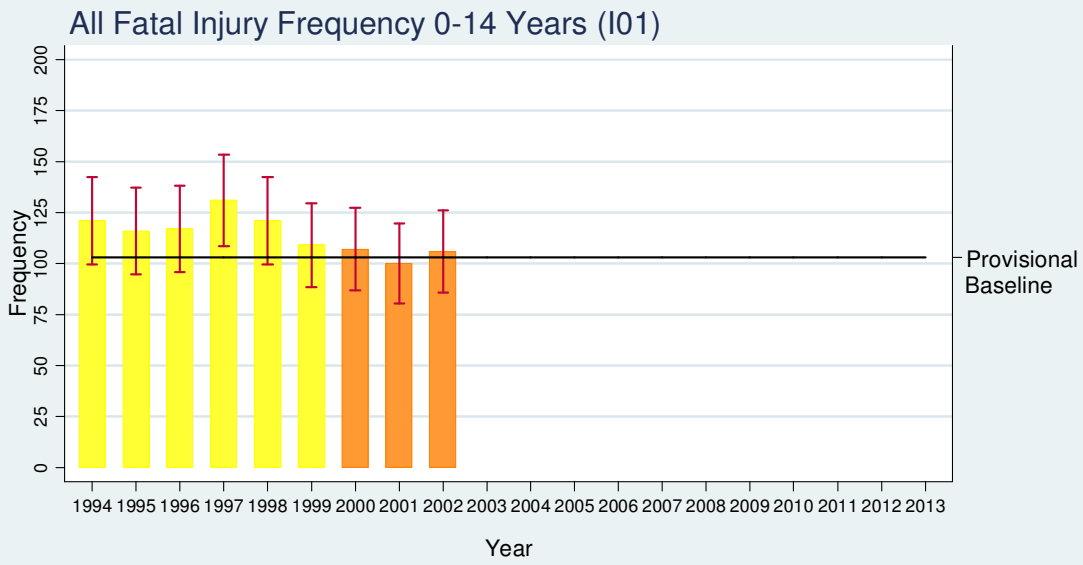
- 95% confidence intervals for counts assume Poisson error – standard errors were derived as the square root of the count.
- 95% confidence intervals for age-standardised rates were produced using the method described in Clayton and Hills. [2]

Baselines are calculated using the data from the three years 2001-2003 – where the data is available. Where moving averages are used, the baselines are calculated using data for the years 2000-2004 – again, where the data is available. When all the required years of data were not available, provisional baselines were calculated and presented using the available data from the baseline period.

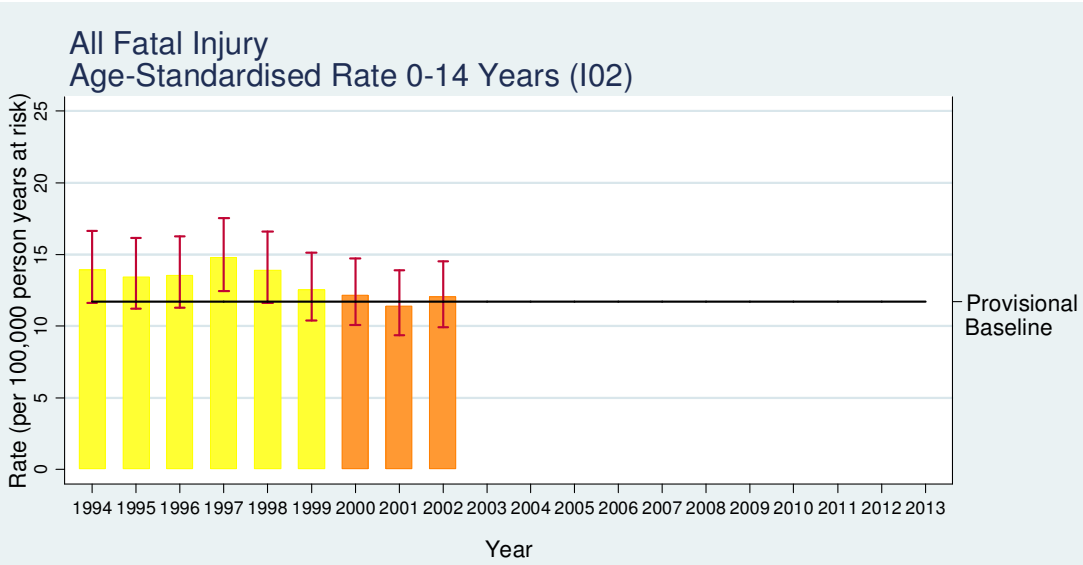
Part 2: The Charts

2.1 All injury

For each of these charts, any apparent trend over the transition from ICD-9 to ICD-10 (1999 to 2000) should be viewed with caution.

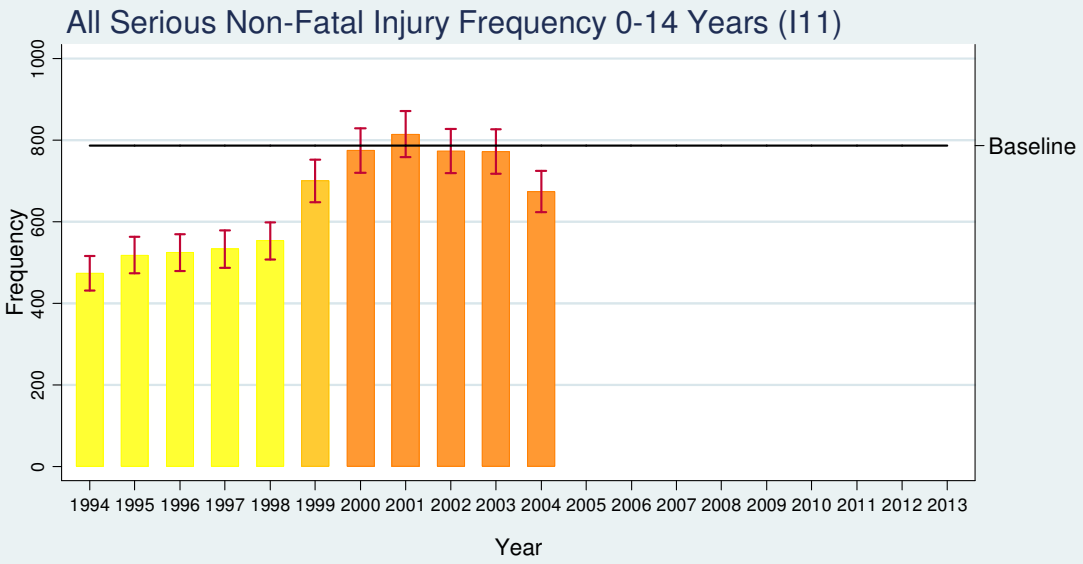


Note: 2002 data are provisional.
Source: New Zealand Health Information Service, Mortality Collection.

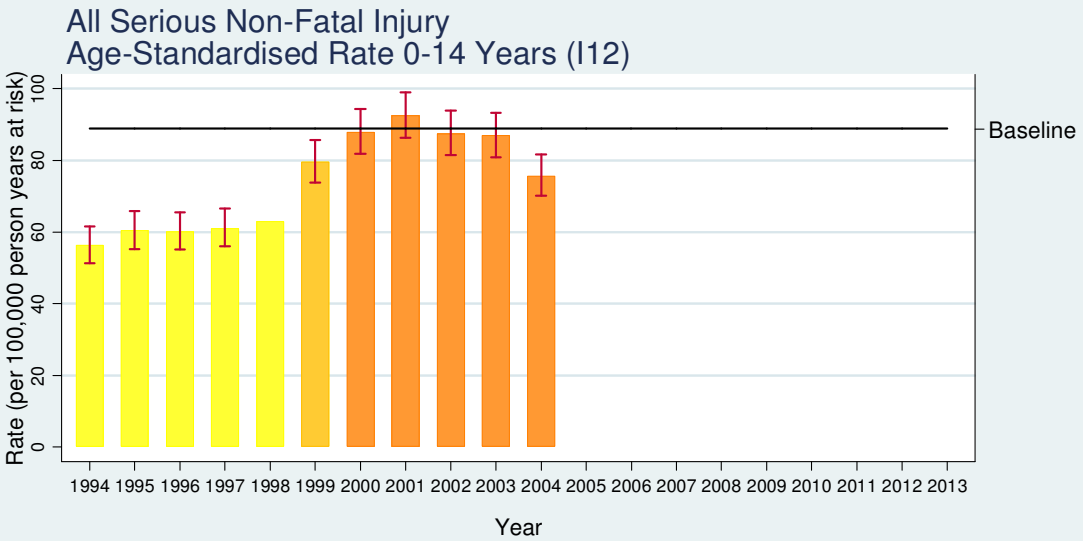


Note: 2002 data are provisional.
Numerator Source: New Zealand Health Information Service Mortality Collection.
Denominator Source: Statistics New Zealand.

For these charts, any apparent trend over the transition from ICD-9 to ICD-10 (1998 to 2000) should be viewed with caution.

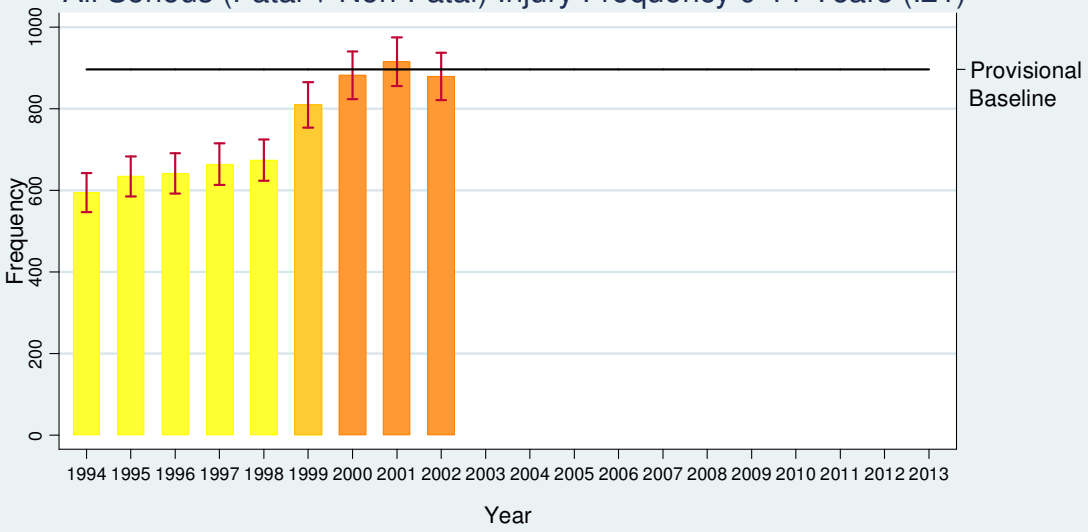


Note: 1999 data are affected by the changeover from ICD-9 to ICD-10. 2004 data are provisional.
Source: New Zealand Health Information Service, National Minimum Data Set.



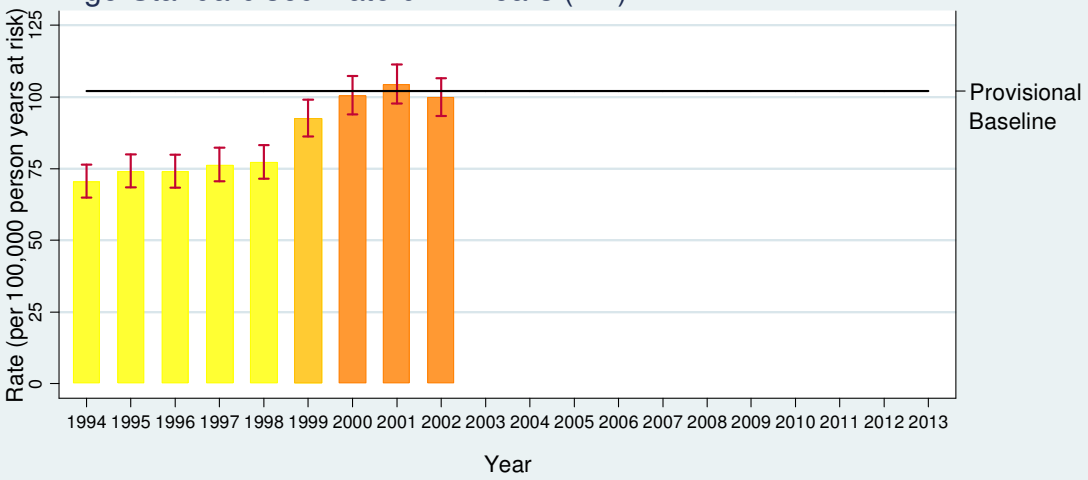
Note: 1999 data are affected by the changeover from ICD-9 to ICD-10. 2004 data are provisional.
Numerator Source: New Zealand Health Information Service, National Minimum Data Set
Denominator Source: Statistics New Zealand.

All Serious (Fatal + Non-Fatal) Injury Frequency 0-14 Years (I21)



Note: 1999 data are affected by the changeover from ICD-9 to ICD-10. 2002 data are provisional.
Source: New Zealand Health Information Service, National Minimum Data Set and Mortality Collection.

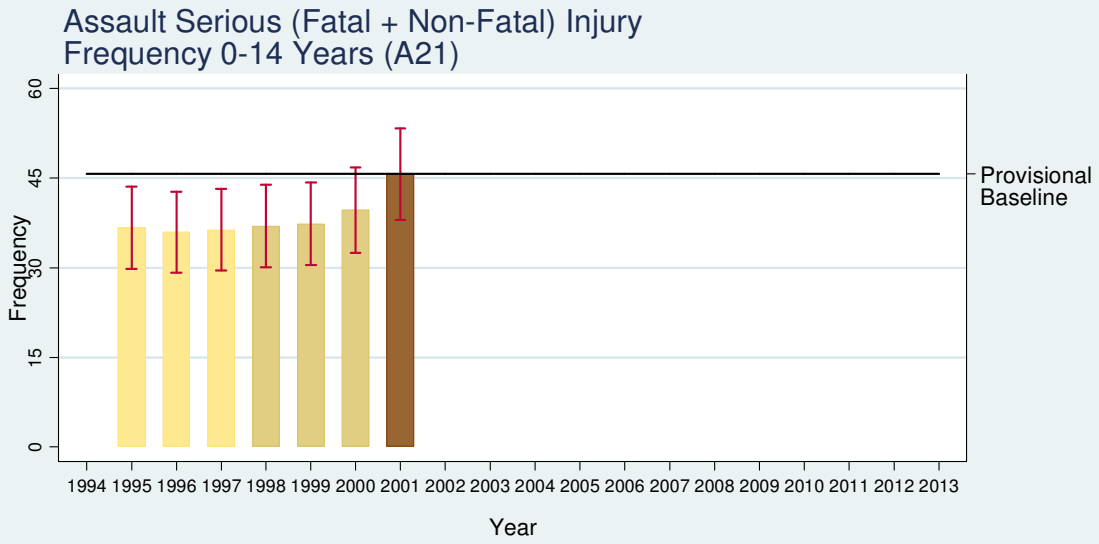
All Serious (Fatal + Non-Fatal) Injury Age-Standardised Rate 0-14 Years (I22)



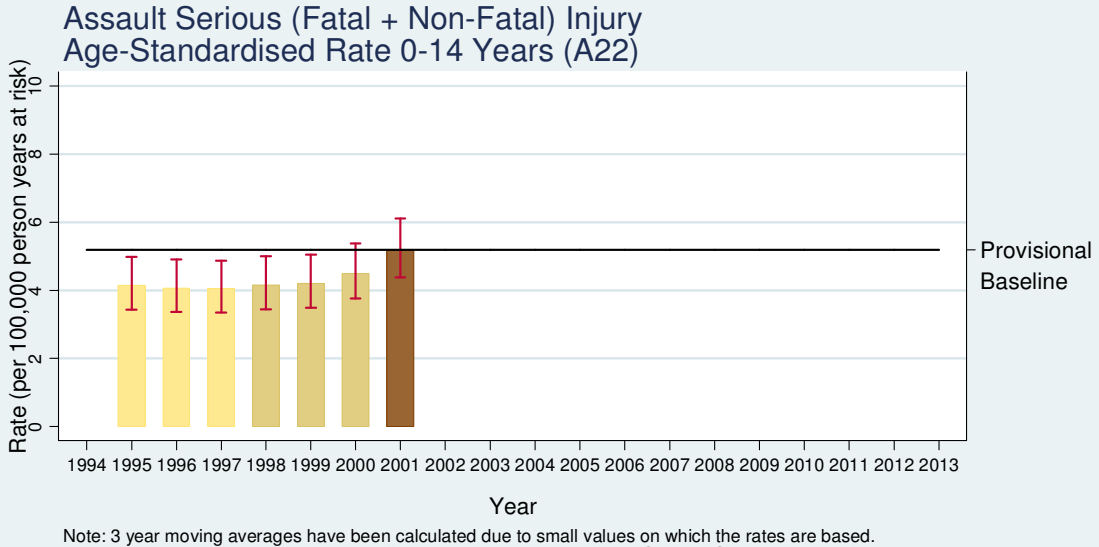
Note: 1999 data are affected by the changeover from ICD-9 to ICD-10. 2002 data are provisional.
Numerator Source: New Zealand Health Information Service, National Minimum Data Set and Mortality Collection.
Denominator Source: Statistics New Zealand.

2.2 Assault

For each of these charts, any apparent trend over the transition from ICD-9 to ICD-10 (1997 to 2001) should be viewed with caution. Since 3-year moving averages are used, the most recent year shown below is 2001 (based on data from 2000, 2001 and 2002).



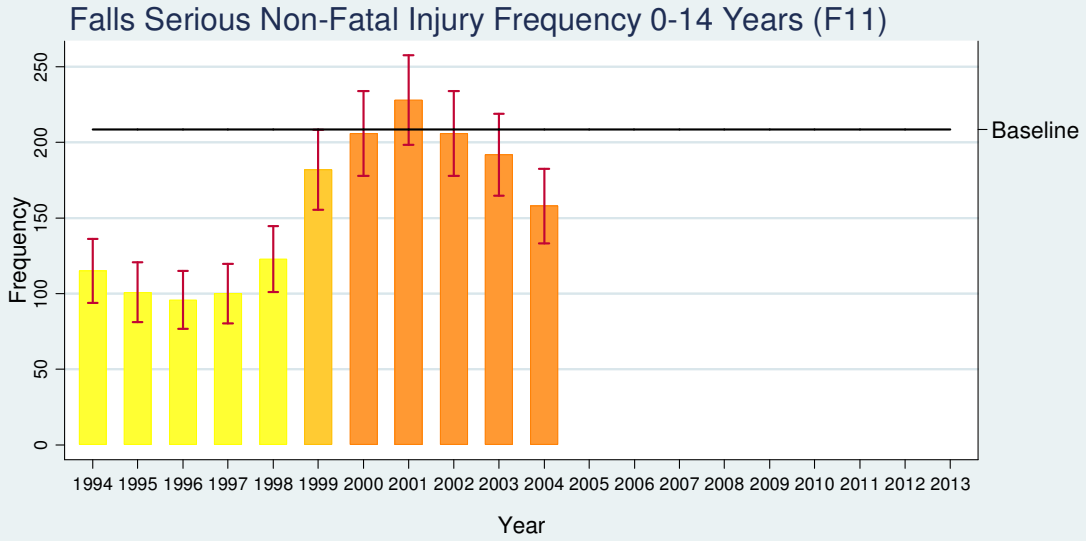
Note: 3 year moving averages have been calculated due to small frequencies.
Note: 1998-2000 moving averages are affected by the changeover from ICD-9 to ICD-10. Estimate for 2001 is provisional.
Source: Zealand Health Information Service, National Minimum Data Set and Mortality Collection.



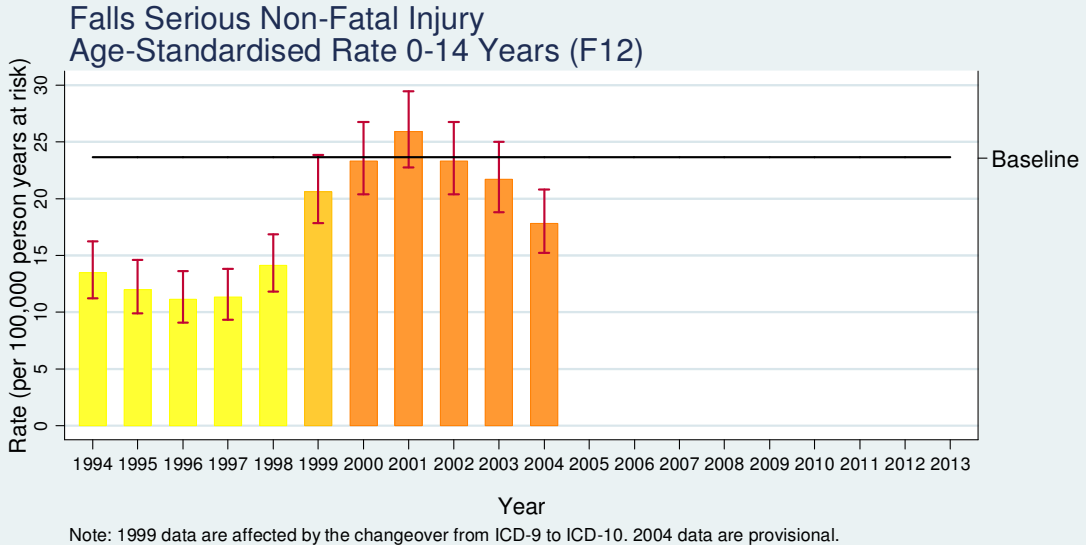
Note: 3 year moving averages have been calculated due to small values on which the rates are based.
Note: 1998-2000 moving averages are affected by the changeover from ICD-9 to ICD-10. Estimate for 2001 is provisional.
Numerator Source: Zealand Health Information Service, National Minimum Data Set and Mortality Collection.
Denominator Source: Statistics New Zealand.

2.3 Falls

For these charts, any apparent trend over the transition from ICD-9 to ICD-10 (1998 to 2000) should be viewed with caution.

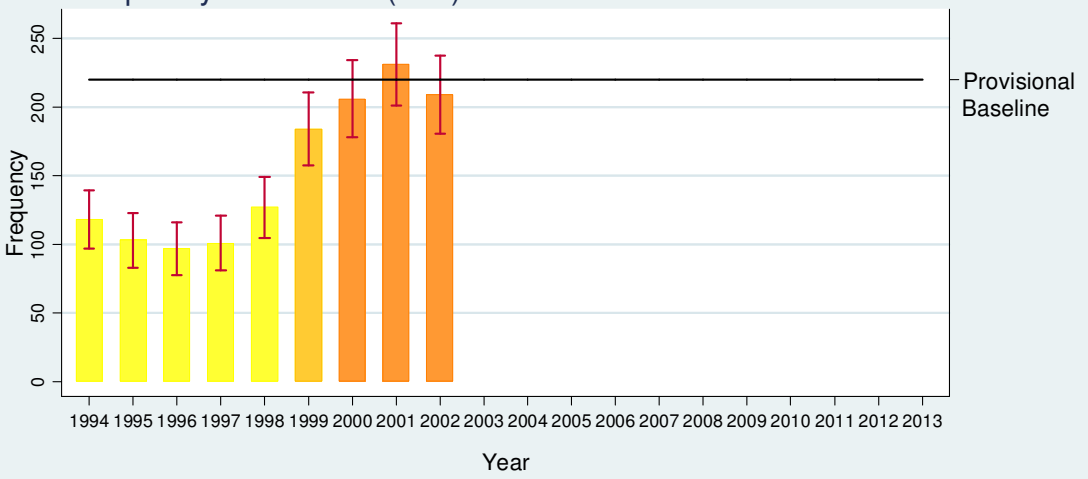


Note: 1999 data are affected by the changeover from ICD-9 to ICD-10. 2004 data are provisional.
Note: E887 (Fracture; cause unspecified) has been excluded from ICD-9 estimates.
Source: New Zealand Health Information Service, National Minimum Data Set.



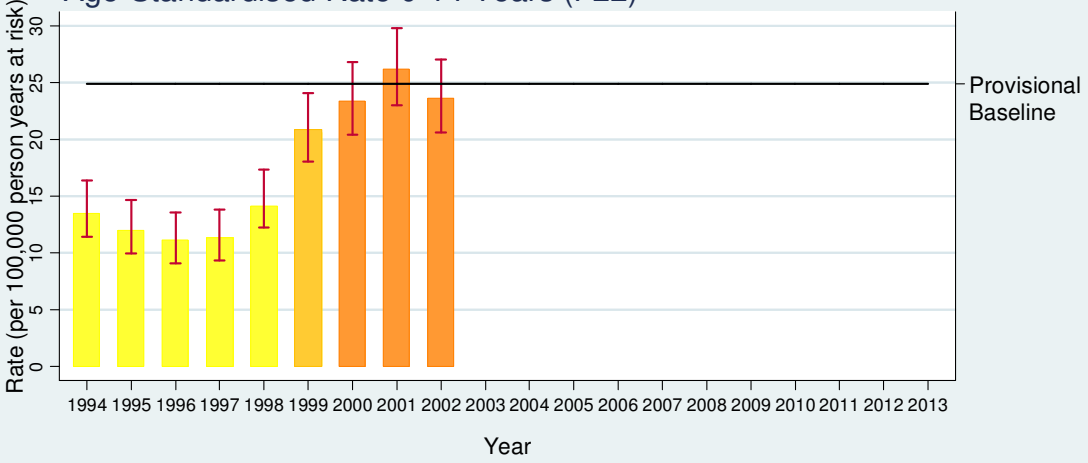
Note: 1999 data are affected by the changeover from ICD-9 to ICD-10. 2004 data are provisional.
Note: E887 (Fracture; cause unspecified) has been excluded from ICD-9 estimates.
Numerator Source: New Zealand Health Information Service, National Minimum Data Set.
Denominator Source: Statistics New Zealand.

Falls Serious (Fatal + Non-Fatal) Injury Frequency 0-14 Years (F21)



Note: 1999 data are affected by the changeover from ICD-9 to ICD-10. 2002 data are provisional.
Note: E887 (Fracture; cause unspecified) has been excluded from ICD-9 estimates.
Source: New Zealand Health Information Service, National Minimum Data Set and Mortality Collection.

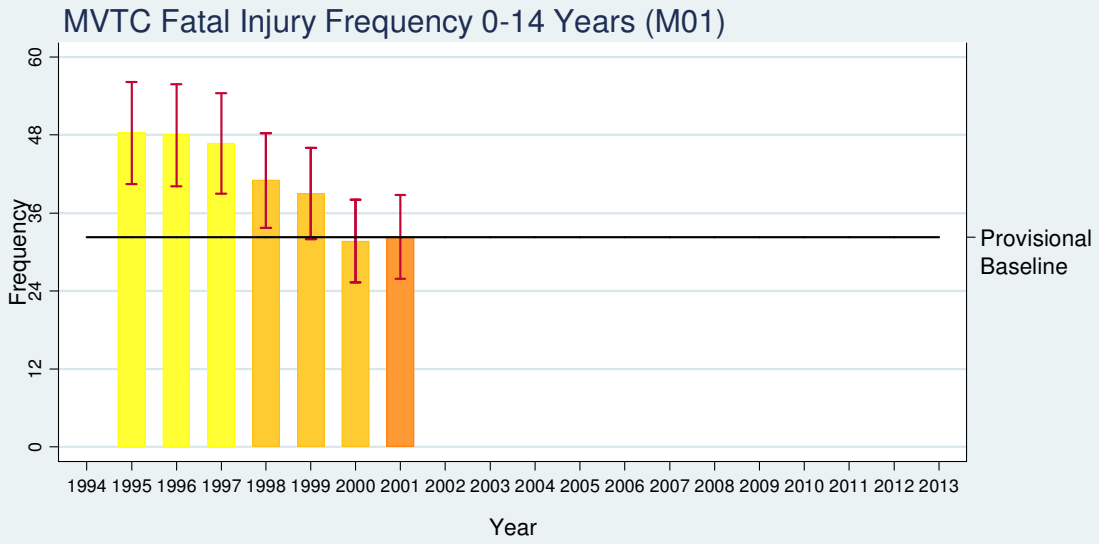
Falls Serious (Fatal + Non-Fatal) Injury Age-Standardised Rate 0-14 Years (F22)



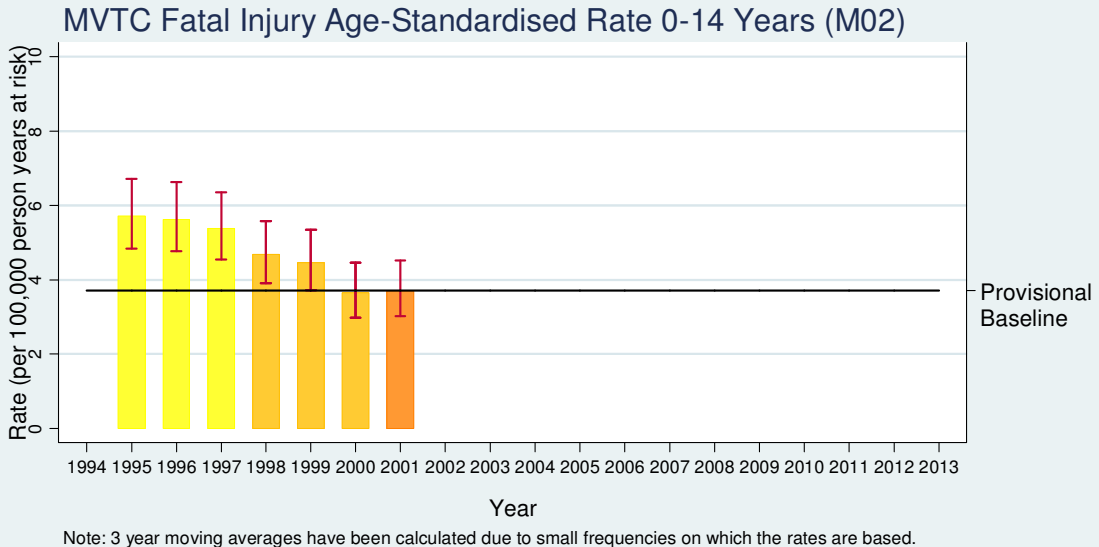
Note: 1999 data are affected by the changeover from ICD-9 to ICD-10. 2002 data are provisional.
Note: E887 (Fracture; cause unspecified) has been excluded from ICD-9 estimates.
Numerator Source: New Zealand Health Information Service, National Minimum Data Set and Mortality Collection
Denominator Source: Statistics New Zealand.

2.4 Motor Vehicle Traffic Crashes

For each of these charts, any apparent trend over the transition from ICD-9 to ICD-10 (1998 to 2001) should be viewed with caution. Since 3-year moving averages are used, the most recent year shown below is 2001 (based on data from 2000, 2001 and 2002).

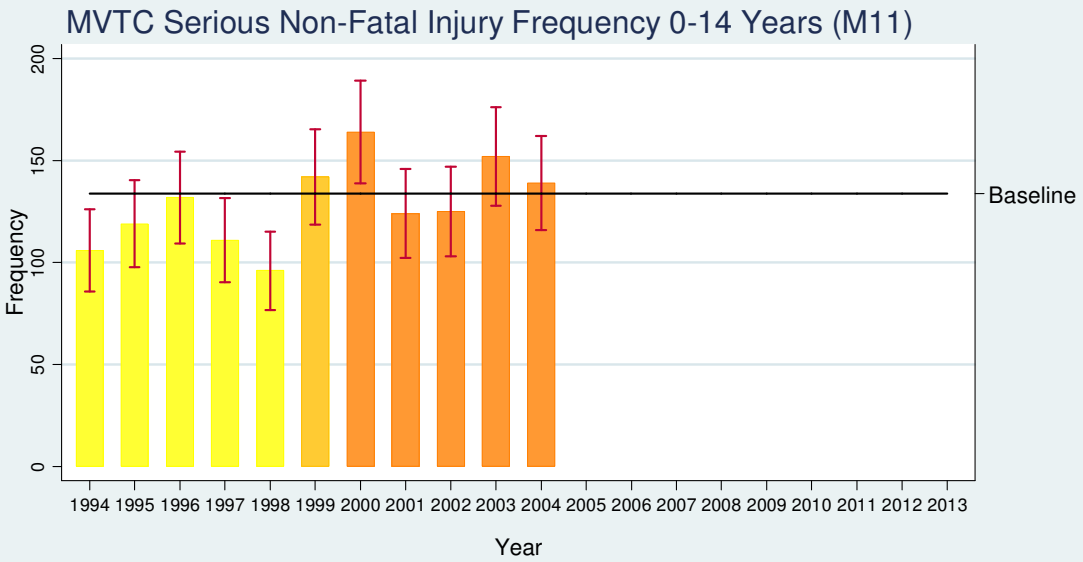


Note: 3 year moving averages have been calculated due to small frequencies on which the rates are based.
Note: 1999-2000 moving averages are affected by the changeover from ICD-9 to ICD-10. Estimate for 2001 is provisional.
Source: New Zealand Health Information Service, Mortality Collection.

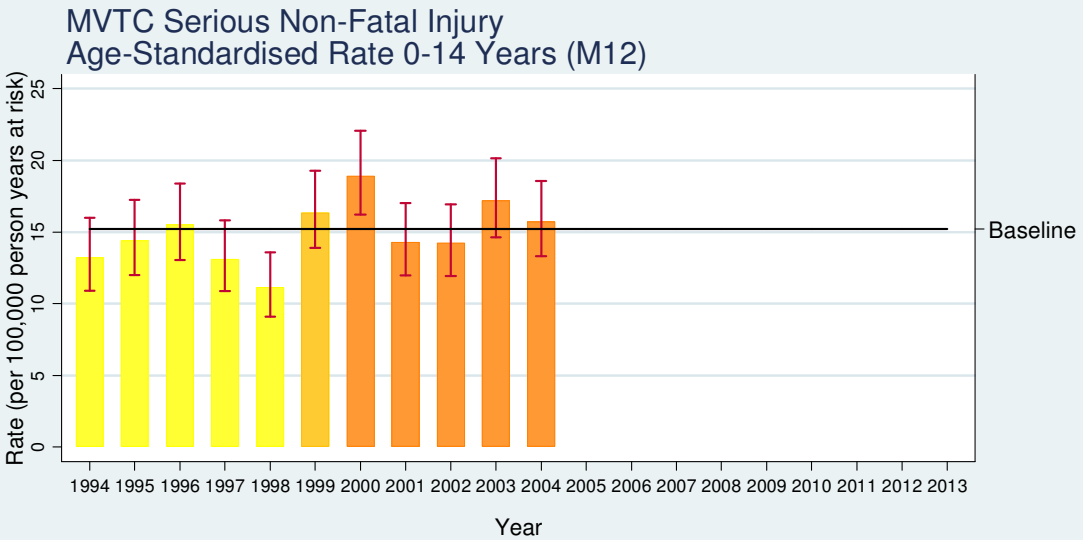


Note: 3 year moving averages have been calculated due to small frequencies on which the rates are based.
Note: 1999-2000 moving averages are affected by the changeover from ICD-9 to ICD-10. Estimate for 2001 is provisional.
Numerator Source: New Zealand Health Information Service, Mortality Collection
Denominator Source: Statistics New Zealand.

For these charts, any apparent trend over the transition from ICD-9 to ICD-10 (1998 to 2000) should be viewed with caution.

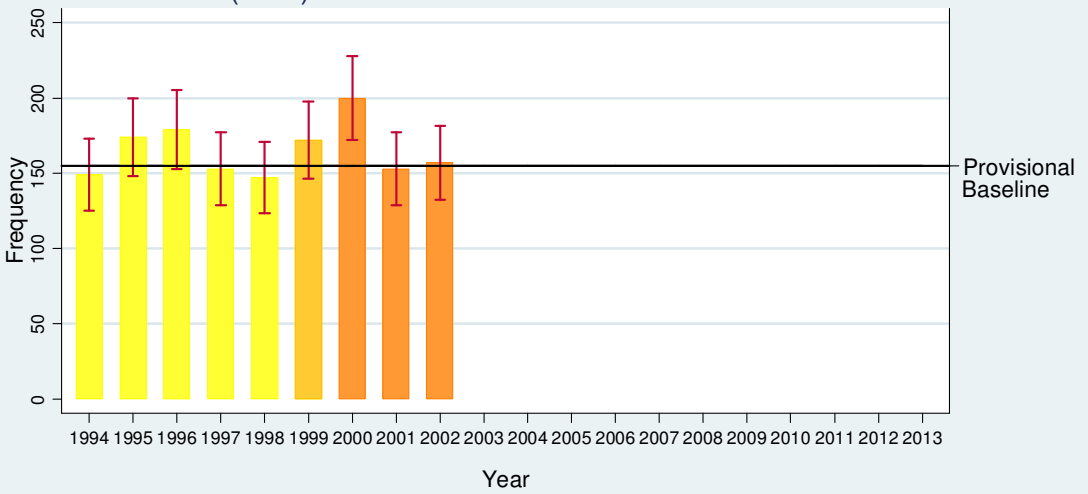


Note: 1999 data are affected by the changeover from ICD-9 to ICD-10. 2004 data are provisional.
Source: New Zealand Health Information Service, National Minimum Data Set.



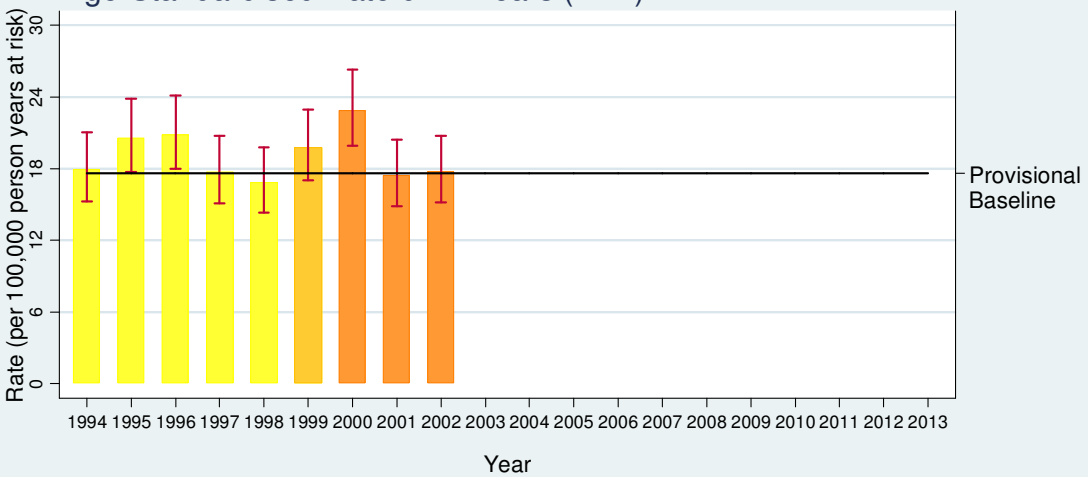
Note: 1999 data are affected by the changeover from ICD-9 to ICD-10. 2004 data are provisional.
Numerator Source: New Zealand Health Information Service, National Minimum Data Set.
Denominator Source: Statistics New Zealand.

MVTC Serious (Fatal + Non-Fatal) Injury Frequency 0-14 Years (M21)



Note: 1999 data are affected by the changeover from ICD-9 to ICD-10. 2002 data are provisional.
Source: New Zealand Health Information Service, National Minimum Data Set and Mortality Collection.

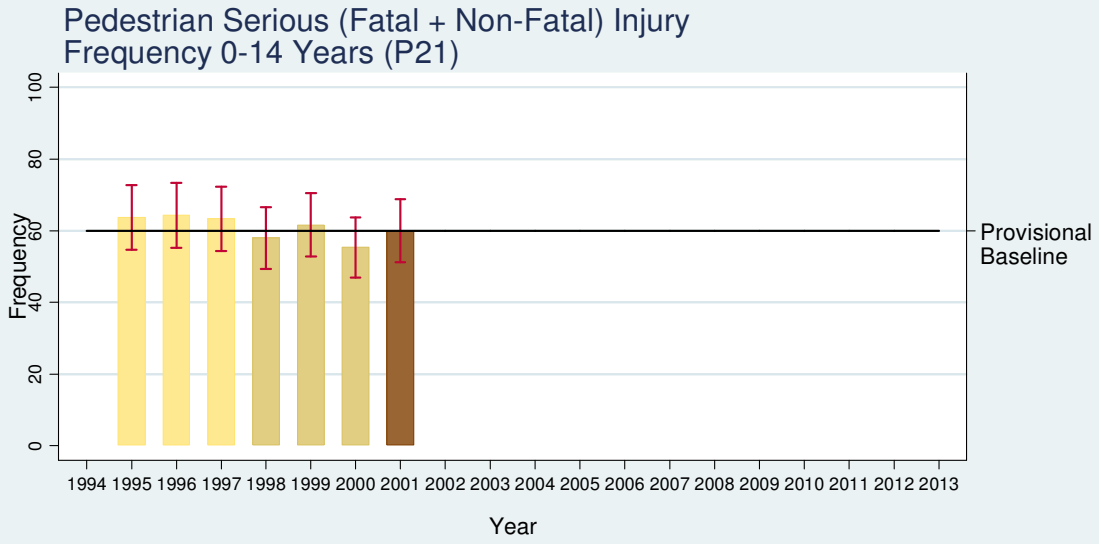
MVTC Serious (Fatal + Non-Fatal) Injury Age-Standardised Rate 0-14 Years (M22)



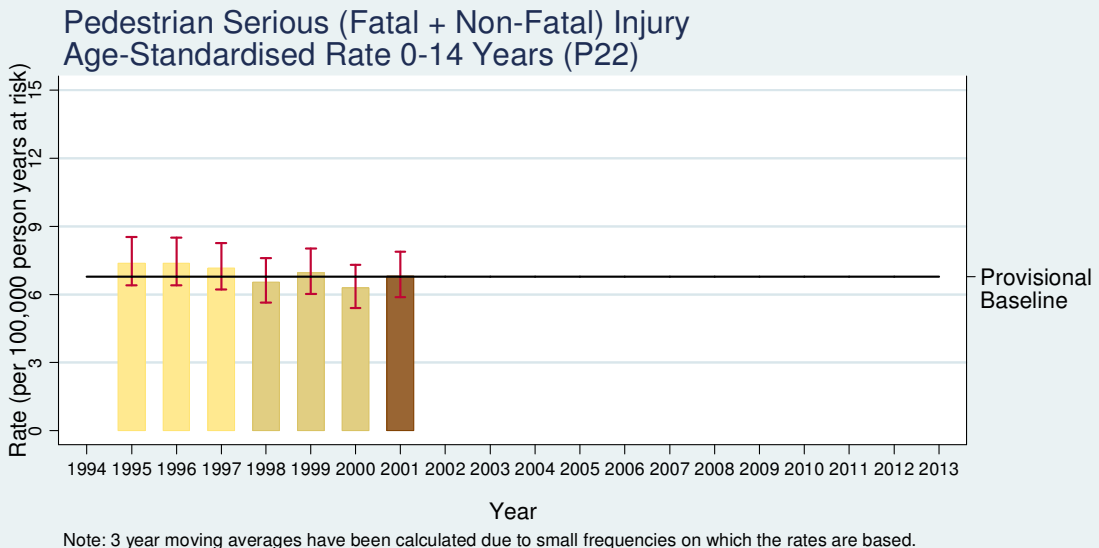
Note: 1999 data are affected by the changeover from ICD-9 to ICD-10. 2002 data are provisional.
Numerator Source: New Zealand Health Information Service, National Minimum Data Set and Mortality Collection
Denominator Source: Statistics New Zealand.

2.4.1 Pedestrian

For each of these charts, any apparent trend over the transition from ICD-9 to ICD-10 (1997 to 2001) should be viewed with caution. Since 3-year moving averages are used, the most recent year shown below is 2001 (based on data from 2000, 2001 and 2002).



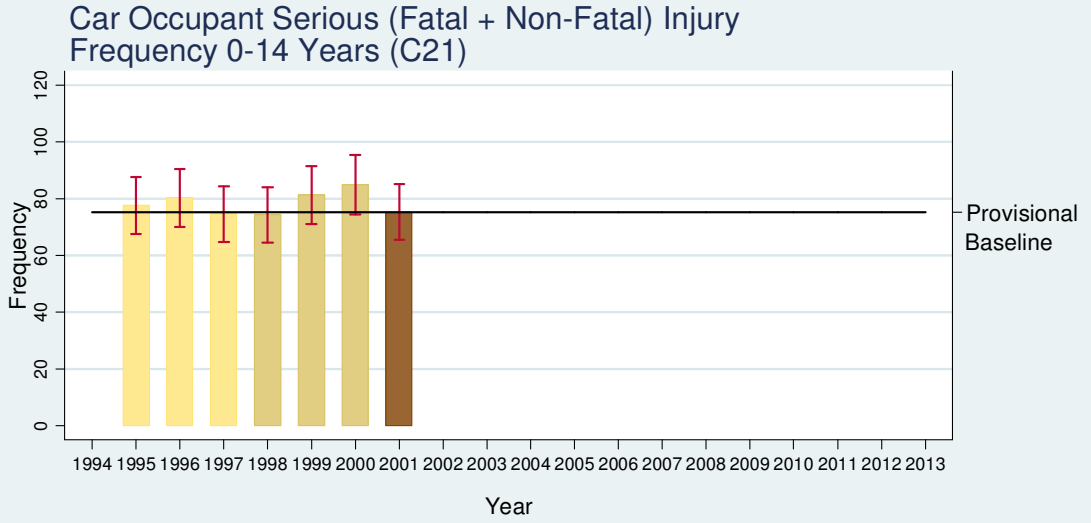
Note: 3 year moving averages have been calculated due to small frequencies on which the rates are based.
Note: 1998-2000 moving averages are affected by the changeover from ICD-9 to ICD-10. Estimate for 2001 is provisional.
Source: New Zealand Health Information Service, National Minimum Data Set and Mortality Collection.



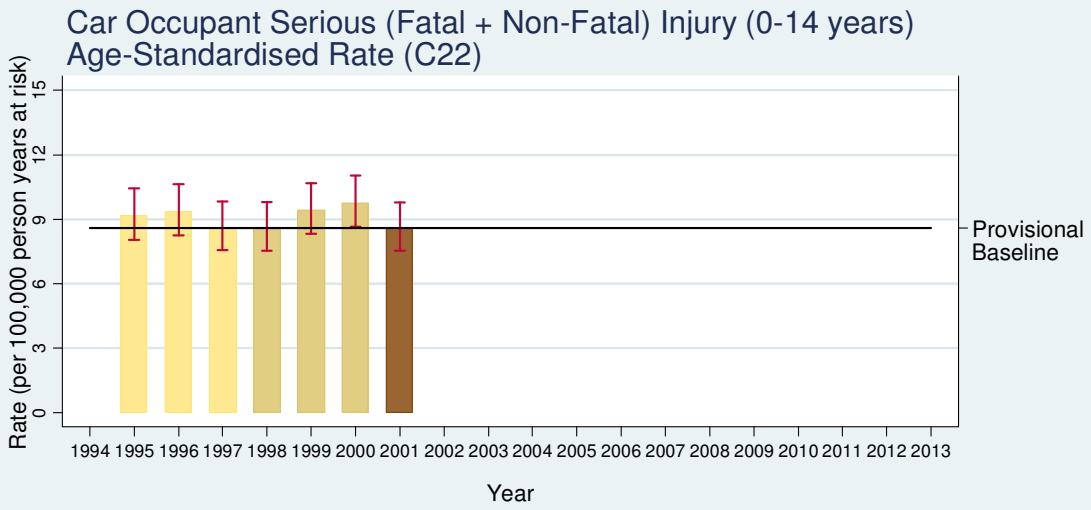
Note: 3 year moving averages have been calculated due to small frequencies on which the rates are based.
Note: 1998-2000 moving averages are affected by the changeover from ICD-9 to ICD-10. Estimate for 2001 is provisional.
Numerator Source: New Zealand Health Information Service, National Minimum Data Set and Mortality Collection
Denominator Source: Statistics New Zealand.

2.4.2 Car Occupant

For each of these charts, any apparent trend over the transition from ICD-9 to ICD-10 (1997 to 2001) should be viewed with caution. Since 3-year moving averages are used, the most recent year shown below is 2001 (based on data from 2000, 2001 and 2002).



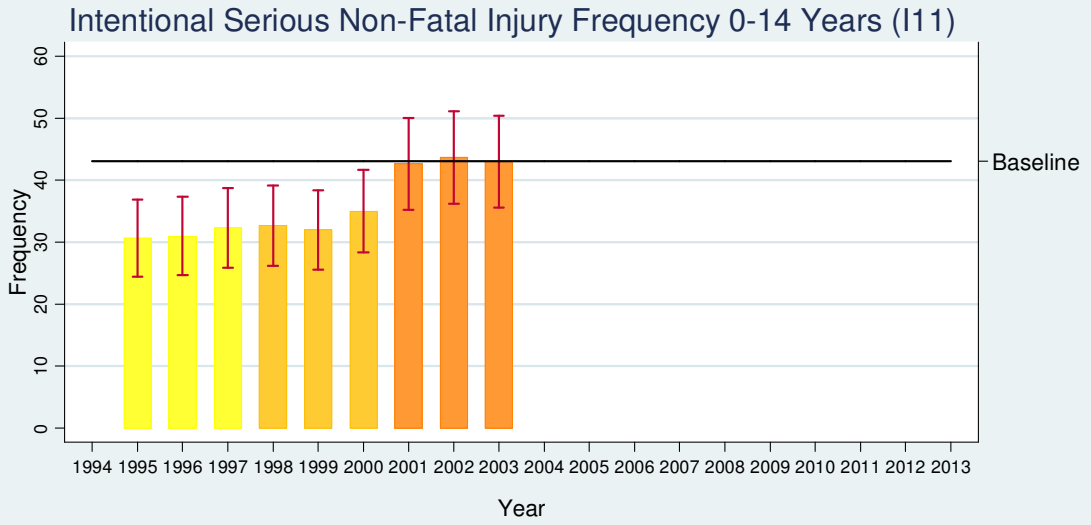
Note: 3 year moving averages have been calculated due to small frequencies on which the rates are based.
Note: 1998-2000 moving averages are affected by the changeover from ICD-9 to ICD-10.
Note: Estimate for 2001 is provisional.
Source: New Zealand Health Information Service, National Minimum Data Set and Mortality Collection.



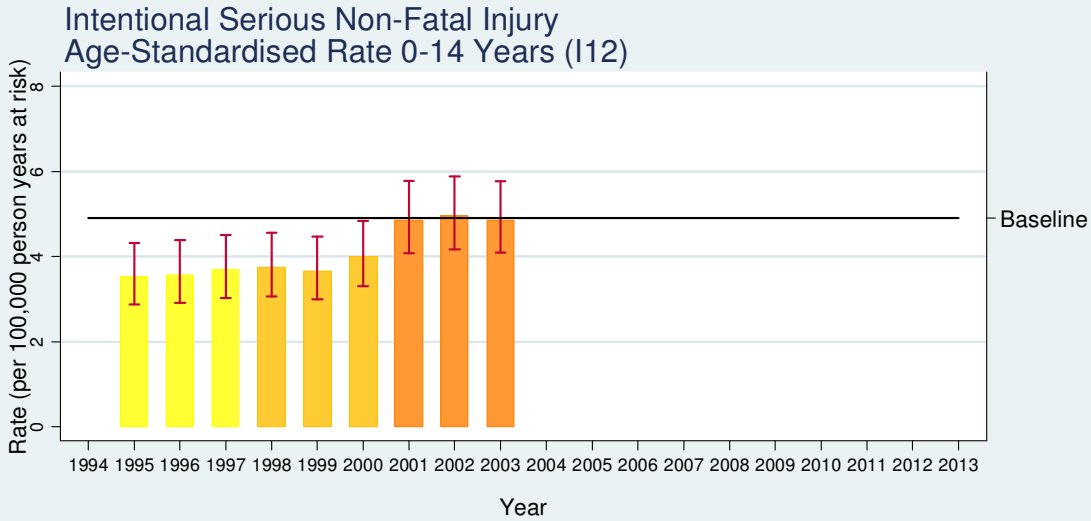
Note: 3 year moving averages have been calculated due to small frequencies on which the rates are based.
Note: 1998-2000 moving averages are affected by the change over from ICD-9 to ICD-10.
Note: Estimate for 2001 is provisional.
Numerator Source: New Zealand Health Information Service, National Minimum Data Set and Mortality Collection
Denominator Source: Statistics New Zealand.

2.5 Intentional (Assault and Self-Harm)

For each of these charts, any apparent trend over the transition from ICD-9 to ICD-10 (1997 to 2001) should be viewed with caution. Since 3-year moving averages are used, the most recent year shown below is 2003 (based on data from 2002, 2003 and 2004).

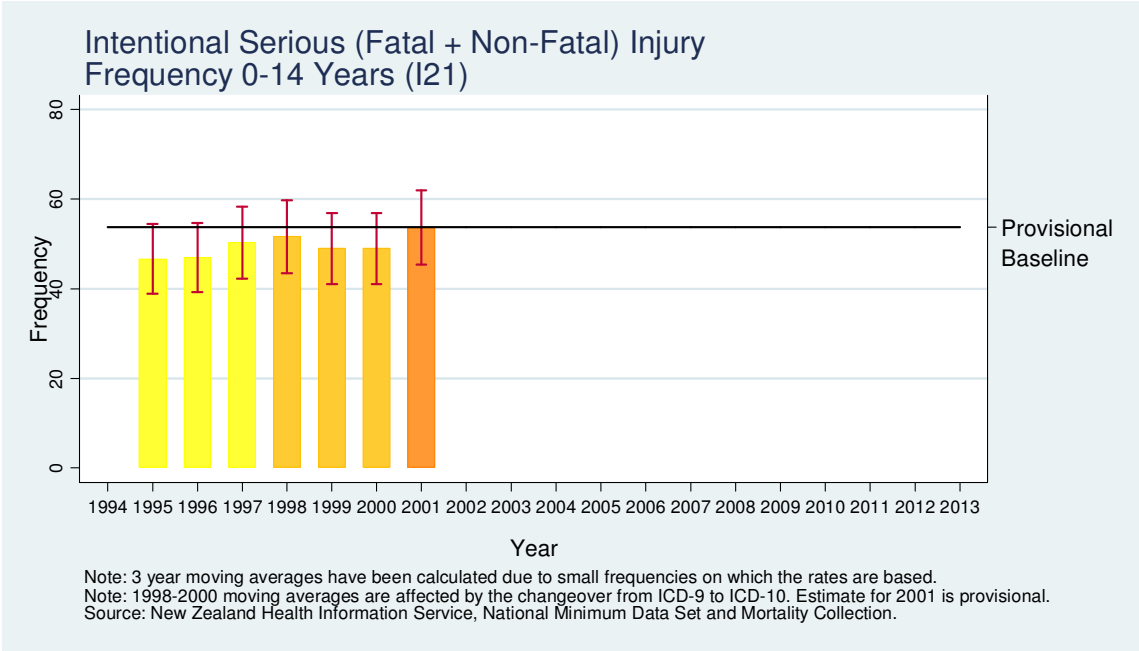


Note: 3 year moving averages have been calculated due to small frequencies on which the rates are based.
Note: 1998-2000 moving averages are affected by the changeover from ICD-9 to ICD-10.
Note: Estimate for 2003 is provisional.
Source: New Zealand Health Information Service, National Minimum Data Set.

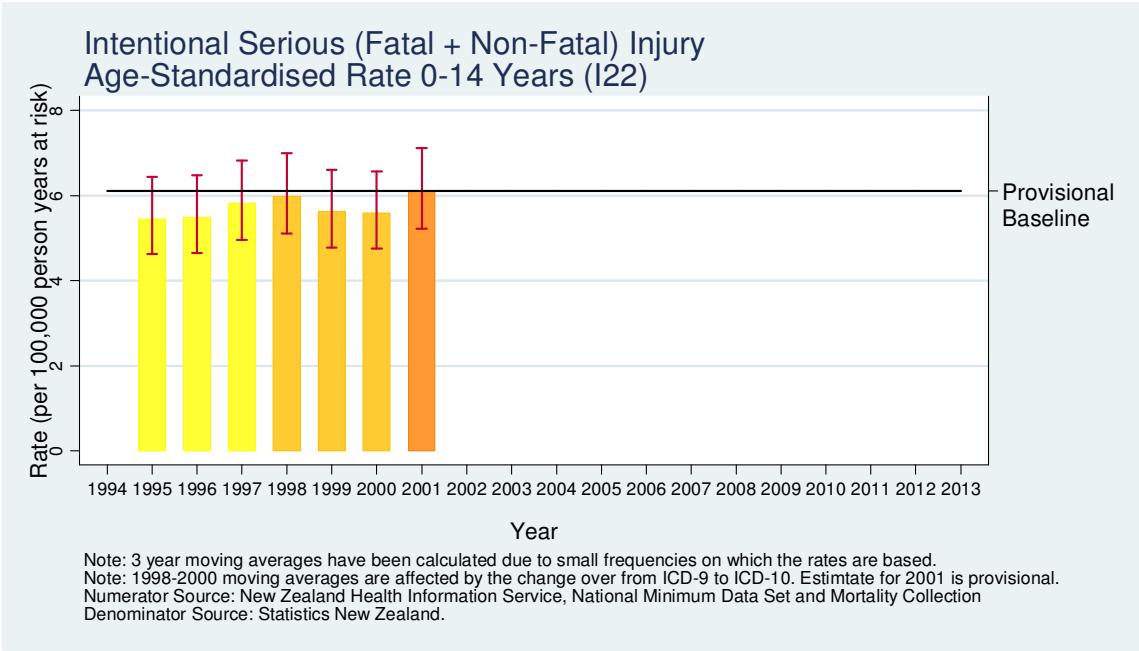


Note: 3 year moving averages have been calculated due to small frequencies on which the rates are based.
Note: 1998-2000 moving averages are affected by the change over from ICD9 to ICD10. Estimate for 2003 is provisional.
Numerator Source: New Zealand Health Information Service, National Minimum Data Set
Denominator Source: Statistics New Zealand.

For each of these charts, any apparent trend over the transition from ICD-9 to ICD-10 (1997 to 2001) should be viewed with caution. Since 3-year moving averages are used, the most recent year shown below is 2001 (based on data from 2000, 2001 and 2002).



Note: 3 year moving averages have been calculated due to small frequencies on which the rates are based.
Note: 1998-2000 moving averages are affected by the changeover from ICD-9 to ICD-10. Estimate for 2001 is provisional.
Source: New Zealand Health Information Service, National Minimum Data Set and Mortality Collection.



Note: 3 year moving averages have been calculated due to small frequencies on which the rates are based.
Note: 1998-2000 moving averages are affected by the change over from ICD-9 to ICD-10. Estimtate for 2001 is provisional.
Numerator Source: New Zealand Health Information Service, National Minimum Data Set and Mortality Collection
Denominator Source: Statistics New Zealand.

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Appendix A: Indicator specifications

ID I01

Name *ICISS-based All Fatal Injury Frequency*

Concept of Interest Societal burden of fatal injury.

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description Injury fatalities registered in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification [3].

In order to compare with earlier years the definition of an injury fatality has been translated into equivalent ICD-9-CM-A codes [4]. These are an underlying cause of death e-code in the range E800-E869, E880-E928 or E950-E999.

Source NZHIS Mortality Collection [5]

Denominator N/A

Calculation N/A

ID I02

Name *All Fatal Injury Rate*

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description Injury fatalities registered in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification [3].

In order to compare to earlier years the definition of an injury fatality has been translated into equivalent ICD-9-CM-A codes [4]. These are an underlying cause of death e-code in the range E800-E869, E880-E928 or E950-E999.

Source NZHIS Mortality Collection [5]

Denominator

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

Details The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (ref http://www.stats.govt.nz/tables/nat-pop-est-tables.htm accessed October 2005)

Source Statistics New Zealand

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

ID I11

Name *All Serious Non-Fatal Injury Frequency*

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description Injury hospitalisations in a calendar year who did not die in hospital with an ICISS score of 0.941 or less.

Details Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification [3]. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al.[8]

ICISS scores have been calculated using the methods described elsewhere. [6,9]

In order to compare to earlier years the definition of an injury hospitalisation has been translated into equivalent ICD-9-CM-A codes [4]. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E800-E869, E880-E928 or E950-E999. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS NMDS [7]

Denominator N/A

Calculation N/A

ID I12

Name *All Serious Non-Fatal Injury Rate*

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description Injury hospitalisations in a calendar year who didn't die in hospital with an ICISS score of 0.941 or less.

Details Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification [3]. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al. [8]

In order to compare to earlier years the definition of an injury hospitalisation has been translated into equivalent ICD-9-CM-A codes. [4] These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E800-E869, E880-E928 or E950-E999. ICISS scores have been calculated using the methods described elsewhere.[6,9] An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS NMDS [7]

Denominator

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

Details The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (ref http://www.stats.govt.nz/tables/nat-pop-est-tables.htm accessed October 2005)

Source Statistics New Zealand

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

ID I21

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

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description Injury fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification [3].

In order to compare to earlier years the definition of an injury fatality has been translated into equivalent ICD-9-CM-A codes [4]. These are an underlying cause of death e-code in the range E800-E869, E880-E928 or E950-E999.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification [3]. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al [8].

ICISS scores have been calculated using the methods described elsewhere [6,9].

In order to compare to earlier years the definition of an injury hospitalisation has been translated into equivalent ICD-9-CM-A codes [4]. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E800-E869, E880-E928 or E950-E999. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS Mortality Collection and NMDS [5 7]

Denominator N/A

Calculation N/A

ID I22

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

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator Description Injury fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification [3].

In order to compare to earlier years the definition of an injury fatality has been translated into equivalent ICD-9-CM-A codes [4]. These are an underlying cause of death e-code in the range E800-E869, E880-E928 or E950-E999.

Hospitalisations have been operationally defined as all publicly funded discharges from hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause code are coded using the ICD-10-AM classification [3]. Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al[8].

ICISS scores have been calculated using the methods described elsewhere [6,9]

In order to compare to earlier years the definition of an injury hospitalisation has been translated into equivalent ICD-9-CM-A codes [4]. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E800-E869, E880-E928 or E950-E999. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS Mortality Collection and NMDS [5,7]

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

Details The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (ref http://www.stats.govt.nz/tables/nat-pop-est-tables.htm accessed October 2005)

Source Statistics New Zealand

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

ID A21

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

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description Assault fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification [3]. Assault fatalities are injury fatalities with a underlying cause of death e-code in the range X85-Y09.

In order to compare to earlier years the definition of an assault fatality has been translated into equivalent ICD-9-CM-A codes [4]. These are an underlying cause of death e-code in the range E960-E969.

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and e-codes are coded using the ICD-10-AM classification[3]. 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[8].

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes. [4] These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969. ICISS scores have been calculated using the methods described elsewhere. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS Mortality Collection and NMDS [5,7]

Denominator N/A

Calculation Because the annual number of assault fatalities and serious non-fatal injuries was less than 100, three-year moving averages are presented.

ID A22

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

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator Description Assault fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification. Assault fatalities are injury fatalities with a underlying cause of death e-code in the range X85-Y09.
In order to compare to earlier years the definition of an assault fatality has been translated into equivalent ICD-9-CM-A codes [4]. These are an underlying cause of death e-code in the range E960-E969.

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first e-code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification.[3] 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.[8]

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes.[4] These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969. ICISS scores have been calculated using the methods described elsewhere.[6,9] An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS Mortality Collection and NMDS [5,7]

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

Details The estimates used have been published by Statistics NZ. They are based on the most recent NZ Census and post-enumeration survey adjusted for the estimated number of NZ residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (ref http://www.stats.govt.nz/tables/nat-pop-est-tables.htm accessed October 2005)

Source Statistics New Zealand

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

ID F11

Name *Falls Serious Non-Fatal Injury Frequency*

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator Description Falls hospitalisations in a calendar year who didn't die in hospital with an ICISS score of 0.941 or less.

Details Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification [3]. 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[8].

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes. [4] These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. ICISS scores have been calculated using the methods described elsewhere. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS NMDS [7]

Denominator N/A

Calculation N/A

ID F12

Name *Falls Serious Non Fatal Injury Rate*

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description Falls hospitalisations in a calendar year who didn't die in hospital with an ICISS score of 0.941 or less.

Details Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification [3]. 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. [8]

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes [4] These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. ICISS scores have been calculated using the methods described elsewhere.[6,9] An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS NMDS [7]

Denominator

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

Details The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (ref http://www.stats.govt.nz/tables/nat-pop-est-tables.htm accessed October 2005)

Source Statistics New Zealand

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

ID F21

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

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description Falls fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification [3]. Falls fatalities are injury fatalities with an underlying cause of death external cause code in the range W00-W19.
In order to compare to earlier years the definition of a fatal fall has been translated into equivalent ICD-9-CM-A codes.[4] These are an underlying cause of death e-code in the range E880-E886 or E888.

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification [3]. 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. [8]

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes [4] These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. ICISS scores have been calculated using the methods described elsewhere [6,9] An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS Mortality Collection and NMDS [5,7]

Denominator N/A

Calculation N/A

ID F22

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

Concept of Interest		Individuals' average annual risk of fatal or serious non-fatal injury from falls.
Scope	**Area**	All Injury
	Gender	Both genders
	Age	0-14 years
Source Organisation		Developed by IPRU for NZIPS.

Numerator Description

Falls fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

Details

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification [3]. Falls fatalities are injury fatalities with an underlying cause of death external cause code in the range W00-W19.

In order to compare to earlier years the definition of a fatal fall has been translated into equivalent ICD-9-CM-A codes. [4] These are an underlying cause of death e-code in the range E880-E886 or E888.

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification [3]. 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.[8]

In order to compare to earlier years the definition of a falls hospitalisation has been translated into equivalent ICD-9-CM-A codes [4] These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E880-E886 or E888. ICISS scores have been calculated using the methods described elsewhere. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source

NZHIS Mortality Collection and NMDS [5,7]

Denominator Description

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

Details

The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (ref http://www.stats.govt.nz/tables/nat-pop-est-tables.htm accessed October 2005)

Source

Statistics New Zealand

Calculation

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

ID M01

Name *MVTC Fatal Injury Frequency*

Concept of Interest Societal burden of fatal injury from MVTCs.

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description MVTC fatalities registered in a calendar year.

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

In order to compare to earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes. [4] These are an underlying cause of death e-code in the range E810-E819.

Source NZHIS Mortality Collection [5]

Denominator N/A

Calculation Because the annual number of MVTC fatalities was less than 100, three-year moving averages are presented.

ID M02

Name *MVTC Fatal Injury Rate*

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description MVTC fatalities registered in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification [3]. MVTC fatalities are injury fatalities with an underlying cause of death external cause code in the range V02-V04 (with a 4th digit in the range .1-.9), V09 (.2), V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29-V79 (.4-.9), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8) or V89 (.2)
In order to compare to earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes. [4] These are an underlying cause of death e-code in the range E810-E819.

Source NZHIS Mortality Collection [5]

Denominator

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

Details The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (ref http://www.stats.govt.nz/tables/nat-pop-est-tables.htm accessed October 2005)

Source Statistics New Zealand

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

ID M11

Name *MVTC Serious Non-Fatal Injury Frequency*

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description MVTC hospitalisations in a calendar year who didn't die in hospital with an ICISS score of 0.941 or less.

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

In order to compare to earlier years the definition of an MVTC hospitalisation has been translated into equivalent ICD-9-CM-A codes. [4] These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819. ICISS scores have been calculated using the methods described elsewhere. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS NMDS [7]

Denominator N/A

Calculation N/A

ID M12

Name *MVTC Serious Non-Fatal Injury Rate*

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description MVTC hospitalisations in a calendar year who didn't die in hospital with an ICISS score of 0.941 or less.

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

In order to compare to earlier years the definition of an MVTC hospitalisation has been translated into equivalent ICD-9-CM-A codes. [4] These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819. ICISS scores have been calculated using the methods described elsewhere.[6,9] An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS NMDS [7]

Denominator

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

Details The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (ref http://www.stats.govt.nz/tables/nat-pop-est-tables.htm accessed October 2005)

Source Statistics New Zealand

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

ID M21

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

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description MVTC fatalities and hospitalizations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

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

In order to compare to earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes. [4] These are an underlying cause of death e-code in the range E810-E819.

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

In order to compare to earlier years the definition of an MVTC hospitalisation has been translated into equivalent ICD-9-CM-A codes. [4] These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819. ICISS scores have been calculated using the methods described elsewhere. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS Mortality Collection and NMDS [5,7]

Denominator N/A

Calculation N/A

ID M22

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

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator Description MVTC fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

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

In order to compare to earlier years the definition of a MVTC fatality has been translated into equivalent ICD-9-CM-A codes. [4] These are an underlying cause of death e-code in the range E810-E819.

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

In order to compare to earlier years the definition of an MVTC hospitalisation has been translated into equivalent ICD-9-CM-A codes. [4] These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819. ICISS scores have been calculated using the methods described elsewhere. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS Mortality Collection and NMDS [5,7]

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

Details The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (ref http://www.stats.govt.nz/tables/nat-pop-est-tables.htm accessed October 2005)

Source Statistics New Zealand

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

ID P21

Name *Pedestrian Serious (Fatal and Non-Fatal) Injury Frequency*

Concept of Interest Societal burden of fatal and serious non-fatal injury from Pedestrian related MVTCs.

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description Pedestrian related MVTC fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification. [3] Pedestrian fatalities are injury fatalities with an underlying cause of death external cause code in the range V02-V04 (with a 4th digit in the range .1-.9).

In order to compare to earlier years the definition of a Pedestrian fatality has been translated into equivalent ICD-9-CM-A codes. [4] These are an underlying cause of death e-code in the range E810-E819 (4th digit=7).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification. [3] MVTC hospitalisations are injury hospitalisations with a first e-code in the range V02-V04 (with a 4th digit in the range .1-.9). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al.[8]

In order to compare to earlier years the definition of an Pedestrian hospitalisation has been translated into equivalent ICD-9-CM-A codes. [4] These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819 (4th digit=7). ICISS scores have been calculated using the methods described elsewhere. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS Mortality Collection and NMDS [5,7]

Denominator N/A

Calculation Because the annual number of pedestrian fatalities and serious non-fatal injuries was less than 100, three-year moving averages are presented.

ID P22

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

Concept of Interest		Individuals' average annual risk of fatal and serious non-fatal injury from Pedestrian related MVTCs.
Scope	**Area**	All Injury
	Gender	Both genders
	Age	0-14 years
Source Organisation		Developed by IPRU for NZIPS.

Numerator Description

Pedestrian related MVTC fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

Details

All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification. [3] Pedestrian fatalities are injury fatalities with an underlying cause of death external cause code in the range V02-V04 (with a 4th digit in the range .1-.9).

In order to compare to earlier years the definition of a Pedestrian fatality has been translated into equivalent ICD-9-CM-A codes. [4] These are an underlying cause of death e-code in the range E810-E819 (4th digit=7).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification.[3] Pedestrian hospitalisations are injury hospitalisations with a first external cause code in the range V02-V04 (with a 4th digit in the range .1-.9). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al.[8]

In order to compare to earlier years the definition of an Pedestrian hospitalisation has been translated into equivalent ICD-9-CM-A codes. [4] These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819 (4th digit=7). ICISS scores have been calculated using the methods described elsewhere. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source

NZHIS Mortality Collection and NMDS [5,7]

Denominator

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

Description

Details

The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (ref http://www.stats.govt.nz/tables/nat-pop-est-tables.htm accessed October 2005)

Source

Statistics New Zealand

Calculation

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

ID C21

Name *Car Occupant Serious (Fatal and Non-Fatal) Injury Frequency*

Concept of Interest Societal burden of fatal and serious non-fatal injury from MVTCs in which children were car occupants.

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description Car Occupant fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification.[3] Car Occupant fatalities are injury fatalities with an underlying cause of death external cause code in the range V40-V46, V48 and V49 (with a 4th digit in the range .4-.9).

In order to compare to earlier years the definition of a Car Occupant fatality has been translated into equivalent ICD-9-CM-A codes. [4] These are an underlying cause of death e-code in the range E810-E819 (4th digit=1).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification.[3] Car Occupant hospitalisations are injury hospitalisations with a first e-code in the range V40-V46 (with a 4th digit in the range .4-.9). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al.[8]

In order to compare to earlier years the definition of an Car Occupant hospitalisation has been translated into equivalent ICD-9-CM-A codes. [4] These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819 (4th digit=1). ICISS scores have been calculated using the methods described elsewhere. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS Mortality Collection and NMDS [5,7]

Denominator N/A

Calculation Because the annual number of car occupant fatalities and serious non-fatal injuries was less than 100, three-year moving averages are presented.

ID C22

Name *Car Occupant Serious (Fatal and Non-Fatal) Injury Rate*

Concept of Interest		Individuals' average annual risk of fatal and serious non-fatal injury from MVTCs in which children were car occupants.
Scope	**Area**	All Injury
	Gender	Both genders
	Age	0-14 years
Source Organisation		Developed by IPRU for NZIPS.

Numerator Description Car Occupant fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification.[3] Car Occupant fatalities are injury fatalities with an underlying cause of death external cause code in the range V40-V46, V48 and V49 (with a 4th digit in the range .4-.9).

In order to compare to earlier years the definition of a Car Occupant fatality has been translated into equivalent ICD-9-CM-A codes. [4] These are an underlying cause of death e-code in the range E810-E819 (4th digit=1).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first external cause code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification [3]. Car Occupant hospitalisations are injury hospitalisations with a first e-code in the range V40-V46 (with a 4th digit in the range .4-.9). Readmissions for subsequent treatment and deaths in hospital have been excluded using the methods described in Langley et al.[8]

In order to compare to earlier years the definition of an Car Occupant hospitalisation has been translated into equivalent ICD-9-CM-A codes. [4] These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E810-E819 (4th digit=1). ICISS scores have been calculated using the methods described elsewhere.[6,9] An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS Mortality Collection and NMDS [5,7]

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

Description

Details The estimates used have been published by Statistics New Zealand. They are based on the most recent New Zealand Census and post-enumeration survey adjusted for the estimated number of New Zealand residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (ref http://www.stats.govt.nz/tables/nat-pop-est-tables.htm accessed October 2005)

Source Statistics New Zealand

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

ID *In11*

Name *Intentional Serious Non-Fatal Injury Frequency*

Concept of Interest Societal burden of serious non-fatal injury from assault or self harm.

Scope

Area	All Injury
Gender	Both genders
Age	All ages

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description Intentional (assault and self harm) hospitalisations in a calendar year who didn't die in hospital with an ICISS score of 0.941 or less.

Details Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first e-code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification. [3] 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.[8]

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969 (assault) and E950-E959 (self harm). ICISS scores have been calculated using the methods described elsewhere.[6,9] An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS NMDS [7]

Denominator N/A

Calculation Because the annual number of serious non-fatal intentional injuries was less than 100, three-year moving averages are presented.

ID *In12*

Name *Intentional Serious Non-Fatal Injury Rate*

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator

Description Intentional (assault and self harm) hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

Details Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first e-code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification. [3] 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.[8]

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969 (assault) and E950-E959 (self harm). ICISS scores have been calculated using the methods described elsewhere.[6,9] An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS NMDS [7]

Denominator

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

Details The estimates used have been published by Statistics NZ. They are based on the most recent NZ Census and post-enumeration survey adjusted for the estimated number of NZ residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (ref http://www.stats.govt.nz/tables/nat-pop-est-tables.htm accessed October 2005)

Source Statistics New Zealand

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

ID In21

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

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

Scope

Area	All Injury
Gender	Both genders
Age	0-14 years

Source Organisation Developed by IPRU for NZIPS.

Numerator Description Assault and self harm fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.

Details All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification. Intentional fatalities are injury fatalities with a underlying cause of death e-code in the range X85-Y09 (assault) and X60-X84 (self harm).

In order to compare to earlier years the definition of an assault fatality has been translated into equivalent ICD-9-CM-A codes. [4] These are an underlying cause of death e-code in the range E960-E969 (assault) and E950-E959 (self harm).

Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first e-code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification. [3] 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.[8]

In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969 (assault) and E950-E959 (self harm). ICISS scores have been calculated using the methods described elsewhere.[6,9] An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.

Source NZHIS Mortality Collection [5]

Denominator N/A

Calculation Because the annual number of assault and self harm fatalities and serious non-fatal injuries was less than 100, three-year moving averages are presented.

***ID** In22*

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

Concept of Interest		Individual's average annual risk of fatal or serious non-fatal injury from assault and self harm.
Scope	**Area**	All Injury
	Gender	Both genders
	Age	0-14 years
Source Organisation		Developed by IPRU for NZIPS.

Numerator Description	Assault and self harm fatalities and hospitalisations who didn't die in hospital with an ICISS score of 0.941 or less in a calendar year.
Details	All fatalities are required to be registered. Injury fatalities are those fatalities where the underlying cause of death is an external cause code in the range V01-Y36, where external cause codes are coded using the ICD-10-AM classification. Intentional fatalities are injury fatalities with a underlying cause of death e-code in the range X85-Y09 (assault) and X60-X84 (self harm). In order to compare to earlier years the definition of an assault fatality has been translated into equivalent ICD-9-CM-A codes. [4] These are an underlying cause of death e-code in the range E960-E969 (assault) and E950-E959 (self harm). Hospitalisations have been operationally defined as all discharges from public hospitals in the relevant year. Injury hospitalisations are those hospitalisations with a principal diagnosis in the range S00-T78 and a first e-code in the range V01-Y36, where diagnoses and external cause codes are coded using the ICD-10-AM classification.[3] 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.[8] In order to compare to earlier years the definition of an assault hospitalisation has been translated into equivalent ICD-9-CM-A codes. These are a principal diagnosis in the range 800-904 or 910-995 and a first e-code in the range E960-E969 (assault) and E950-E959 (self harm). ICISS scores have been calculated using the methods described elsewhere. An equivalent ICISS threshold for the ICD-9-CM-A data is estimated as an ICISS score of 0.96 or less.
Source	NZHIS Mortality Collection [5]
Denominator	Estimated total New Zealand population as at 30 June of the relevant year.
Description	
Details	The estimates used have been published by Statistics NZ. They are based on the most recent NZ Census and post-enumeration survey adjusted for the estimated number of NZ residents overseas on census night, estimated natural increase in population and estimated net long term and permanent migration. (ref http://www.stats.govt.nz/tables/nat-pop-est-tables.htm accessed October 2005)
Source	Statistics New Zealand
Calculation	Age standardisation was via the direct methods with age groups of 0-4, 5-9 and 10-14 years. The standard population was the estimated NZ population as at 30 June 2003. For details of the process of direct standardisation see, for example, Armitage and Berry (1987), Statistical Methods in Medical Research, 2nd. Ed.,pp399-403