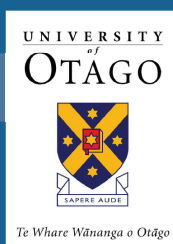


New Zealand Injury Prevention Strategy

Rautaki Ārai Whara o Aotearoa

November 2008

A Chartbook of the New Zealand Injury Prevention Strategy Serious Injury Outcome Indicators for Māori: 1996-2007



New Zealand Government

A chartbook of the NZIPS serious injury outcome indicators for Māori: 1996-2007

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Foreword

Presented here is a chartbook of the New Zealand Injury Prevention Strategy serious injury outcome indicators for Māori. This is an update of the 1996-2005 report, published in May 2007. The development of the all population indicators was described in the report:

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

The specifications of the indicators for Māori were proposed by the authors of the first chartbook report, following consultation Tony Blakely (University of Otago, Wellington) and Bridget Robson (Te Rōpū Rangahau Hauora a Eru Pōmare).

The main body of the report is purposely short on words and long on charts. The intention is to let the charts speak for themselves with little detail being provided on the background and methods, and minimal commentary on the results. It is recognised, however, that some readers will wish for more detail, particularly relating to methods and commentary. This is provided in the accompanying technical report titled "[The New Zealand Injury Prevention Strategy Serious Injury Outcome Indicators: Technical Report](#)".

Abbreviations

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

Summary of the charts – key highlights of the chartbook

Below is a summary of the overall changes from baseline in the frequency and age standardised rates of serious non-fatal injury and death for ‘All injury’ and five of the six NZIPS priority areas.

Frequencies

The frequency of injury details the number of fatalities or hospitalisations resulting from injury, thereby describing the impact of injury on society.

Injury Area	Serious non-fatal trends to 2007	Fatal trends to 2005	Serious (fatal and non-fatal) trends to 2005
<u>All injury</u>	I01: increase from the baseline of around 1,300 to approximately 1,600 in 2007.	I11: no change – the number of fatalities has stayed around the baseline value of approximately 330.	I21: increase from the baseline of around 1,600 to around 1,800 in 2005.
<u>Assault</u>	A01 (provisional indicators): increase from baseline, although this could be the result of reporting behaviour	No indicators presented	A21 (provisional indicators): increase from baseline, although could be the result of reporting behaviour
<u>Work related</u>	W01 (provisional indicators): increase from baseline, although this could be the result of reporting behaviour	No indicators presented	No indicators presented
<u>Intentional self harm</u>	No indicators presented	S11: increase from baseline	S21 (provisional indicators): no detectable change in 2005. May be influenced by other factors such as reporting behavior.
<u>Falls</u>	F01a-c: increase from baseline for all ages, for the 0-74 and 75+ age groups.	No indicators presented	F21a-c: some evidence of an increase for all ages and the 75+ age groups. No detectable change for the 0-74 age group.
<u>MVTC</u>	M01: increase from baseline	M11: no change	M21: increase from baseline
Drowning	F01: no indicators presented	F11: no indicators presented	F21: no indicators presented

Age standardised rates

Age standardised rates provide an estimate of an individuals' average annual risk of being injured.

Injury Area	Serious non-fatal trends to 2007	Fatal trends to 2005	Serious (fatal and non-fatal) trends to 2005
<u>All injury</u>	I02: increase from baseline	I12: no detectable change	I22: increase from baseline
<u>Assault</u>	A02 (provisional indicators): increase from baseline, although this could be the result of reporting behaviour	No indicators presented	A22 (provisional indicators): increase from baseline, although this could be the result of reporting behaviour
<u>Work related</u>	W02 (provisional indicators): No detectable change from baseline	No indicators presented	No indicators presented
<u>Intentional self harm</u>	No indicators presented	S12: suggestion of an increase from baseline	S22 (provisional indicators): no detectable change from baseline in 2005. May be influenced by other factors such as reporting behavior.
<u>Falls</u>	F02a-c: no detectable change from baseline for all ages, and for the 0-74 and 75+ age groups.	No indicators presented	F22a-c: No significant change from baseline for all age groups, 0-74 and 75+ age groups.
<u>MVTC</u>	M02: increase from baseline	M12: no change	M22: increase from baseline
Drowning	F02: no indicators presented	F12: no indicators presented	F22: no indicators presented.

Part 1: Background and Methods

1.1 The New Zealand Injury Prevention Strategy

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

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

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

Ten key objectives are identified which are designed to address the vision and goals of [NZIPS](#).

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

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

Serious injury outcome indicators, that include fatal, serious non-fatal and serious (fatal and non-fatal) injury indicators, have been developed for these areas as the main means of measuring performance in reducing injury. The purpose of this chartbook is to present trends for Māori over the period 1996 to 2007 for each of the NZIPS fatal, serious non-fatal and serious (fatal and non-fatal) injury indicators, for each of these priority areas, in order to judge progress in the prevention of serious injury during the lifetime of the NZIPS. The Chartbook of NZIPS serious injury outcome indicators for Māori is an assertion of the principles of the Treaty of Waitangi, applied with the intention of contributing to positive health gains in Māori injury prevention.

1.2 What is a serious injury?

Serious injuries were those that resulted in death, or an admission to hospital that was associated with at least a 6% chance of death (serious non-fatal injury). Amongst first discharges from hospital for Māori (i.e. not including those who are readmitted for the same injury) with a primary diagnosis of injury, approximately 10% hospital admissions have at least a 6% chance of death. The methods by which cases of fatal, serious non-fatal, and serious (fatal and non-fatal) injury are identified are described briefly in the accompanying [Technical Report](#).

1.3 The indicators

The development of the NZIPS indicators is described in the Cryer 2004 [report](#)¹.

The [NZ Injury Prevention Strategy's 2008-11 Implementation Plan](#) was approved by the Government in August 2008. This Plan includes the NZIPS fatal and serious non-fatal injury indicators as one of the key indicators to measure the Strategy's progress and impact.

The high threshold used to define serious non-fatal injury, described above, was chosen for the non-fatal injury indicators to reduce the likelihood of producing misleading time trends. For discussion and illustration of this point, see the Cryer 2004 report¹.

The detailed methods used to produce the charts in this chartbook and the indicator specifications are presented in the accompanying Technical Report. These methods and specifications have been adapted from those presented in the Cryer 2004 report¹.

1.4 Serious injury indicators for Māori

This work has produced a single Chartbook of both the 'proposed' and the 'provisional' injury outcome indicators for Māori, typically for the period 1996 to 2007. The full set of NZIPS serious injury indicators is listed in the [Technical Report](#). Only a subset of indicators was viable for Māori (see [Table 1](#) below).

Unlike the All Population indicators which use 1994 as the starting year, the indicators in the Māori Chartbook use 1996 as the starting year. This deviation was based on two main factors. There was a major change in the recording of ethnicity in the Mortality Collection between 1994 and 1996. Reliable counts are not available for 1995⁷. Additionally, there was a major change in the collection of ethnicity data by hospitals from 1995 to 1996. Morbidity data from 1996 onwards are thought to have a low under-count for Māori, in contrast to the years prior to this. The choice of 1996 as a start year is consistent with practice within Public Health Intelligence (Craig Wright, PHI, MoH, personal correspondence, 8 March 2005).

When calculating rates for Māori, there are difficulties with the comparability of numerators and denominators, which can lead to numerator-denominator bias. One of the challenges was to minimise the effects of this bias on the Māori indicators. An additional problem was that ethnic group classifications within the potential sources of numerator data (death registrations, hospitalisations, ACC claims) and the denominator data (Census and Statistics New Zealand population estimates) have not been constant over time. For example, the ethnicity question in the Census changed from 1991 to 1996, and then changed back to the 1991 format in 2001 (see [Appendix C of Statistics New Zealand Report of the Review of the Measurement of Ethnicity, June 2004](#))². How the problem

of numerator-denominator bias has been addressed when using death registrations and hospital data is described below ([section 1.6](#)). For the indicators presenting rates we were unable to address the problem of numerator-denominator bias when using ACC data alone as numerators.

For the calculation of the indicators, there are practical limitations in regard to numbers of Māori cases for some priority groups, and thus for the precision and viability of the indicators. Viable indicators are shown in Table 1.

For each indicator, where annual average counts during the period 2000-2005 were less than 100, 3-year moving averages were presented. If the 3-year cumulative total number of cases were less than 100, the indicator was regarded as non-viable.

Table 1: The number of viable indicators for Māori for each NZIPS priority area.

Area	Fatals	Serious non-fatals	Serious (Fatal + serious non-fatal)
All injury	✓(2)	✓(2)	✓(2)
Assault	X	✓(2)	✓(2)
Work-related injury	X[a]	✓(2)	[a]
Intentional self-harm	✓(2)	X	✓(2)
Falls	X	✓(6)	✓(6)
Motor vehicle traffic crashes	✓(2)[b]	✓(2)[b]	✓(2)[b]
Drowning and near-drowning	X	X	X

✓ = number of cases per year makes the indicators viable

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

() = The number in brackets indicates the number of viable indicators.

[a] practical difficulties resulted in these indicators not being produced for this report.

[b] For the MVTC indicators, only 2 fatal, 2 non-fatal, and 2 serious injury indicators are indicated as viable. These are NZIPS indicators M(T)M01, M(T)M02, M(T)M11, M(T)M12, M(T)M21 and M(T)M22 (see Chapter 4, Technical Report). It was not possible to produce the other indicators M13-M18. These rely on data from Land Transport New Zealand (LTNZ), and the classification of Māori was not accurate enough to enable the production of valid indicators.

1.5 What the chartbook comprises

[Part 2](#) presents the charts for the NZIPS fatal and serious non-fatal injury indicators for ‘All injury’ and for the five of the six priority areas for Māori. These charts speak largely for themselves, and so only a brief commentary is provided for each.

1.6 Frequently Asked Questions

Q What are the validated NZIPS serious injury indicators for all injury?

A The validated NZIPS fatal, serious non-fatal, and serious (fatal and non-fatal) injury indicators for ‘all injury’ are as follows:

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

Age-standardisation is a process of adjusting the rates of injury to account for changes in the age structure of a population over time. It allows comparison of the rates of injury from one year to another, taking into account the changing population.

The NZIPS fatal and serious non-fatal injury indicators for most of the priority areas are based on those for ‘all injury’.

Q Why is there a serious (fatal and non-fatal) injury indicator?

A We have supplemented the original NZIPS fatal and serious non-fatal injury indicators with “serious injury indicators”, for which the numerators are the sum of the relevant fatal and serious non-fatal injuries – see the [Technical Report](#). The reason for including these additional indicators is as follows. Where there is a decline in the rates or numbers of fatal injury, one explanation could be improved case-fatality rates, eg. improved emergency medical systems resulting in more cases of serious injury surviving than before. If this is the case, then there would be a shift of cases from the fatal category to serious non-fatal. Thus in order to present a more complete picture, the trends in serious injury (fatal and serious non-fatal injury) have been presented.

Q What data are the indicators based on?

A The majority of these indicators are based on the New Zealand Health Information Service (NZHIS) Mortality Collection³ and the National Minimum Dataset (NMDS)⁴ of hospital discharge data. Provisional indicators for serious non-fatal work related injury are based on Accident Compensation Corporation data.

Q What do the frequencies and rates reflect?

A Frequencies reflect the societal burden of injury^a, while rates reflect individual risk.

Q Why are there provisional indicators?

A Where valid indicators could not be identified, provisional indicators were developed (see Cryer 2004 report)¹. The provisional serious injury indicators were candidate NZIPS indicators, but had some identifiable threats to validity. In these cases it was considered that the count of injuries based on the data available could be impacted by factors such as reporting behaviour (people being more willing to report the true cause of an injury because of an increased awareness) or monitoring behaviour (more cases being identified because of increased policing or a cause of injury becoming more of a public health priority).

Q What is the period presented in the charts?

A Wherever possible, the period presented for serious non-fatal injuries for Māori is 1996 to 2007. For fatal injuries, the period presented is 1996 to 2005. Because many cases of injury related death are required to be reviewed by a Coroner, there is a time delay in the recording of the cause of fatal injury. Hence, 2005 is the most recent year available for the mortality data.

Q How is ethnicity recorded for this chartbook?

A When deriving counts for total Māori^b using NZHIS Mortality Collection and NMDS of hospital discharges, historically there has been an undercount for Māori. For the calculation of these national indicators for the first Māori chartbook, the ever-Māori method was recommended in our discussions with Craig Wright (PHI), Tony Blakely and Bridget Robson (Wellington School of Medical and Health Sciences), and Joanne Baxter (Dunedin School of Medicine), and has been used in some recent reports produced or published by the Ministry of Health⁵.

The ever-Māori method used in the current report allocated Māori ethnicity to an individual according to whether or not any previous admission for patients (as identified by their unique NHI identifiers) had been recorded as Māori in any NMDS admission record (1982-2007), cancer registry record (1948-2007), PHO data (2007), or on the Mortality Collections (1988-2005). A description of the validation of this method is provided in the Technical Report.

^a 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 2002 it was estimated that 99% of all hospital injury discharges were publicly funded.

^b In 'Total' response output, all cases that indicated Maori ethnicity were recorded as such, irrespective of other ethnicities identified. Because individuals who indicate more than one ethnic group are counted more than once, the sum of the ethnic group populations will exceed the total population of New Zealand.

There appears to be an undercount in some years and over count in other years when using the ever-Māori method for classifying Māori ethnicity. However, the direction and slope of injury trends are consistent, whether or not a correction is made. This is also true irrespective of the correction method used ([Chapter 5, Technical Report](#)).

Q Why does the Māori Chartbook cover a different period than the other Chartbooks (All population and Children's)?

A The choice of 1996 as the starting year for the Māori indicators is based on two main factors. For mortality data, there was a major change in the recording of ethnicity on deaths between 1994 and 1996. Reliable counts are not available for 1995⁶. Additionally, there was a major change in the collection of ethnicity data by hospitals from 1995 to 1996. Morbidity data from 1996 onwards are thought to have a low under-count for Māori, in contrast to the years prior to this. The choice of 1996 as a start year is consistent with practice within the Ministry of Health (Craig Wright, PHI, MoH, personal correspondence, 8 March 2005).

Q What is the coding scheme used for diagnosis of injury?

A The coding system used for classifying injury diagnosis and cause of injury in the NZHIS Mortality Collection and NMDS is the World Health Organisation (WHO) International Classification of Diseases (ICD)⁷. During the period considered in these charts, the ICD was substantially revised, and a new version of the coding scheme was introduced (from ICD-9 to ICD-10, refer Technical Report). This change has resulted in differences in the number of deaths and hospitalizations attributable to injury⁸. That is, it is apparent that, for many of the charts, the years before 1999 cannot be compared with the years after 1999.

Readers should exercise caution if commenting on trends that include indicator values based on both ICD-9 and ICD-10 coded data. Accordingly, the commentary will focus on the trends since the implementation of the newest revision ICD-10, ie. from the year 2000 onwards.

Q Why include the years before 2000 in the charts, given that commentary is only provided from 2000 onwards?

A For some of the priority areas, the effect of the changeover is discernable, in others it is not. Since the effects vary for each priority area, we have elected to present the whole of the period from 1996 onwards and let the reader make their own judgments about trends in the period before 2000, and their relevance to the trends from 2000 onwards.

Q What is the significance of the various colours used in the charts?

A The colours used in the charts have been chosen in order to signal the different status of the indicators (NZIPS compared with provisional), as well as the information used to generate the bars in the charts (ICD-9 vs ICD-10 coding).

Green:	NZIPS fatal, serious non-fatal and serious (fatal and non-fatal) injury indicator (ICD-10).
Blue:	NZIPS fatal, serious non-fatal and serious (fatal and non-fatal) injury indicator (ICD-9).
Brown:	Provisional fatal, serious non-fatal and serious (fatal and non-fatal) injury indicator (ICD-10).
Light brown:	Provisional fatal, serious non-fatal and serious (fatal and non-fatal) indicator (ICD-9).

An intermediate colour was used for the bars for 1999 for indicators based on hospitalisation data, since 1999 was a transitional year when both ICD-9 and ICD-10 coding systems were used.

Q Why are some of the injury indicators presented as a 3-year moving average? What does this mean?

A For some of the fatal, serious and serious (fatal and non-fatal) injury indicators, the numbers of cases attributable to specific NZIPS priority groups, fall below 100 per year. In these instances, the numbers fluctuate substantially on a year-to-year basis. Such fluctuations may hide trends in the numbers and rates of injury. In order to overcome this effect, three year moving averages have been estimated. This means, for example, that data from 1996, 1997 and 1998 are used to estimate an indicator value for 1997. Consequently, for the serious non-fatal injury indicators and the serious (fatal and non-fatal) injury indicators, when using 3-year moving averages, the indicator values for 1998 (which use data from 1997, 1998 and 1999), 1999 (which use data from 1998, 1999 and 2000) and 2000 (which uses data from 1999, 2000, and 2001) are presented using an intermediate colour as they are based on both ICD-9 and ICD-10 coded mortality data. For the fatal injury indicators, when using 3-year moving averages, the indicator values for 1999 (which use data from 1998, 1999 and 2000) and 2000 (which uses data from 1999, 2000, and 2001) are presented using an intermediate colour as they are based on both ICD-9 and ICD-10 coded mortality data.

Q What is the 'baseline'?

A The 'baseline' (horizontal line half way up the graphs) provides a point from which to compare the frequencies and rates of injuries. It is the average count or rate of injury for the three years leading up to the launch of NZIPS (2001-2003). For those indicators where moving averages were used, the baseline is the average count or rate of injury for the five years closest to the launch of NZIPS (2000-2004). The line has been extended 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 this chartbook is based.

Q What are the red lines shown on the graphs and what do these mean?

A Each bar on each chart has confidence intervals 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 are displayed, little weight should be given to the variation from one year to the next – it could be due to chance alone.

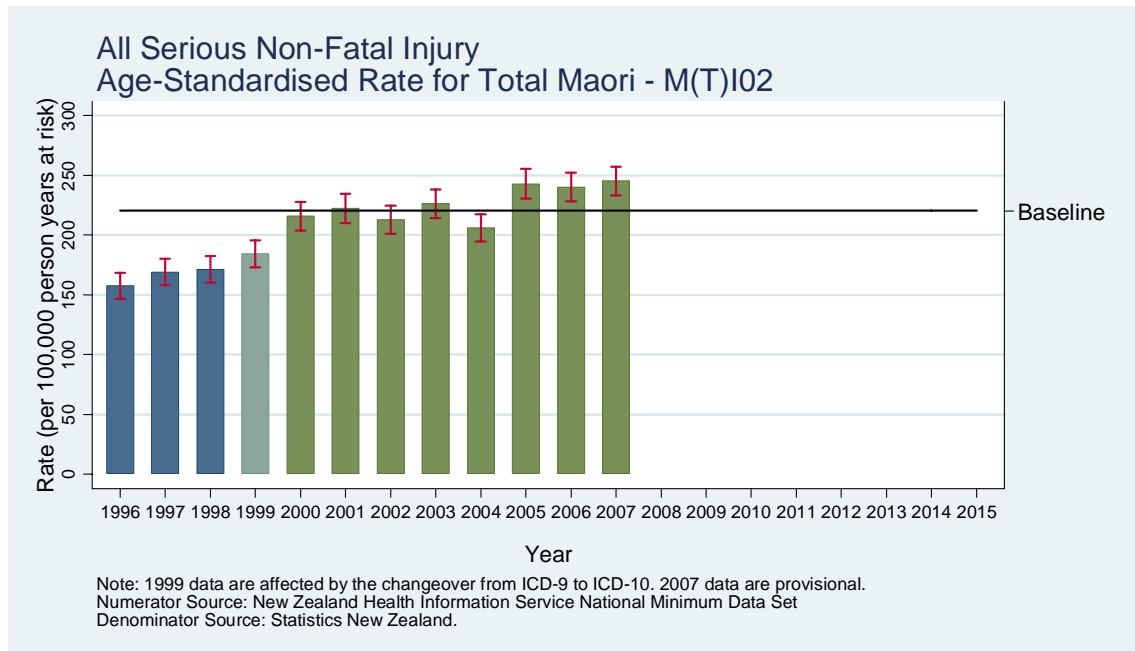
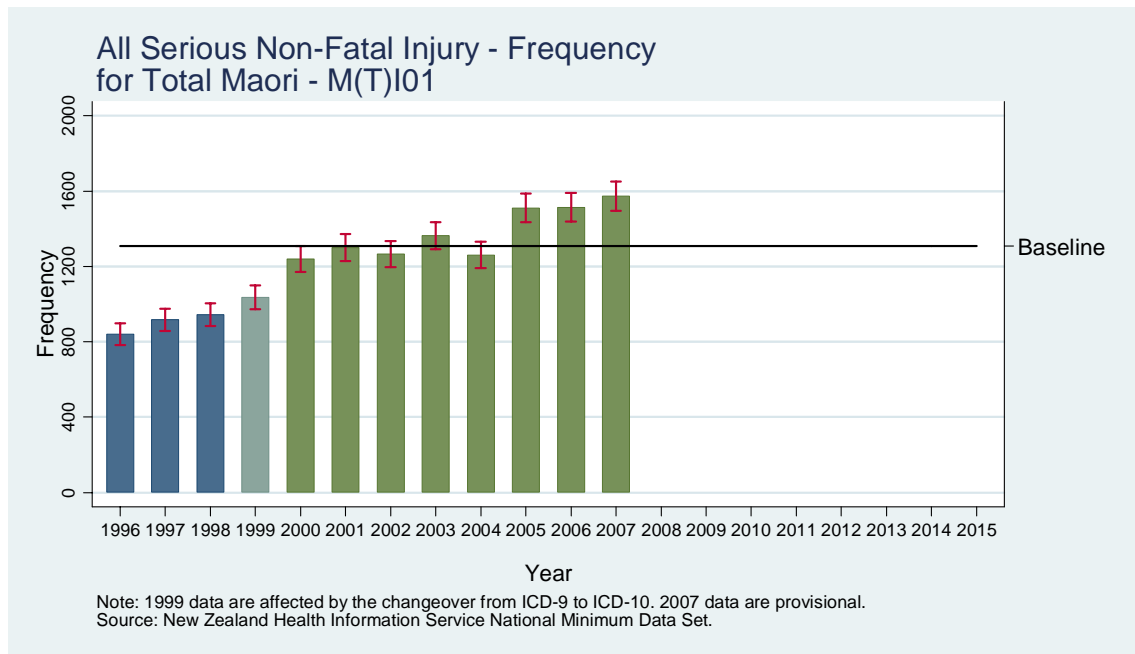
Where there is reader interest in the magnitude of the frequency or rate of serious injury in a given year, there will be particular interest in these confidence intervals for that year. In many other circumstances, it is the trends in the indicators that will be of interest. For example, trends are of interest to gauge how well New Zealand is doing in reducing serious injury following the introduction of the NZIPS. When considering trends, observing the degree of overlap of confidence intervals for individual bars (years) is helpful as an aid to interpretation of trends. If confidence intervals do not overlap the baseline, this is indicative of a change from baseline (the years immediately preceding the introduction of NZIPS) that is unlikely to be due to chance alone.

1.7 Interpretation of the charts

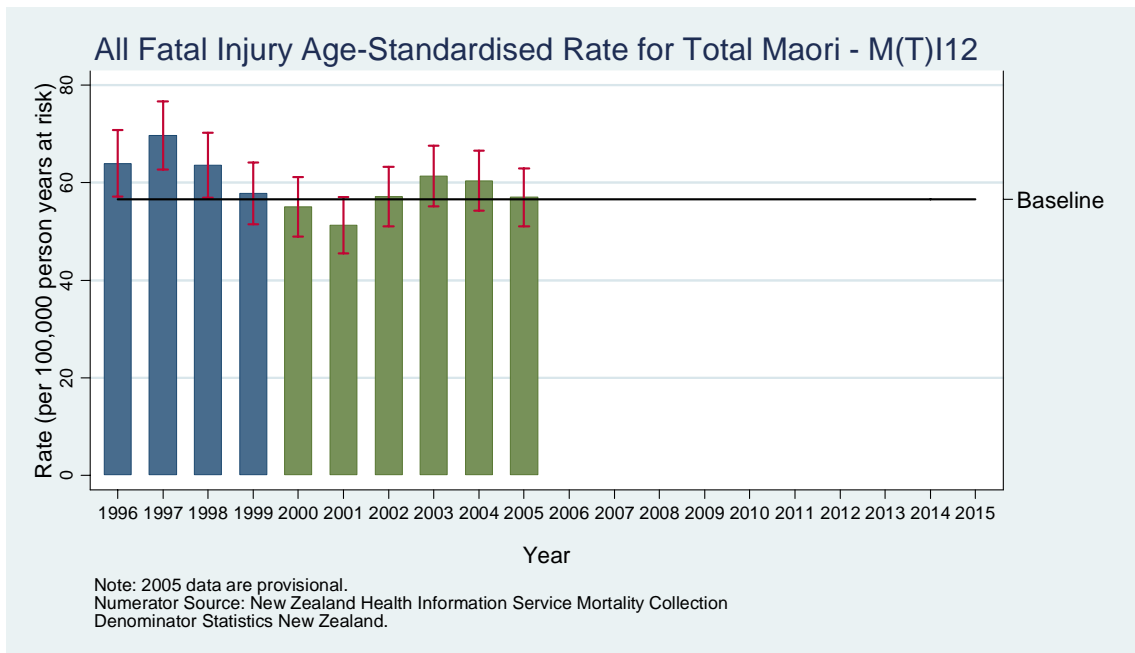
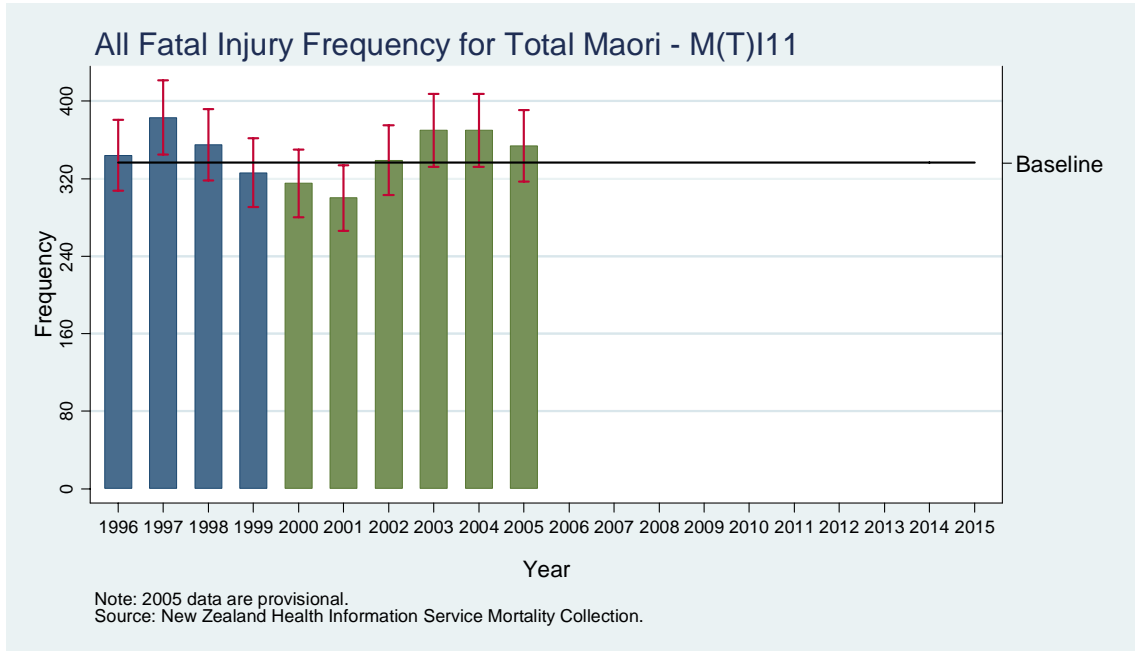
Brief comments on each chart are provided at the foot of each page in Part 2. The interpretations provided are based on a visual inspection (as opposed to formal statistical trend analysis). Within a chart, where the confidence intervals do not overlap the baseline, this is indicative of a change from baseline that is unlikely to be due to chance alone – unless some threats to the validity of the indicator have been identified.

Part 2: The Charts

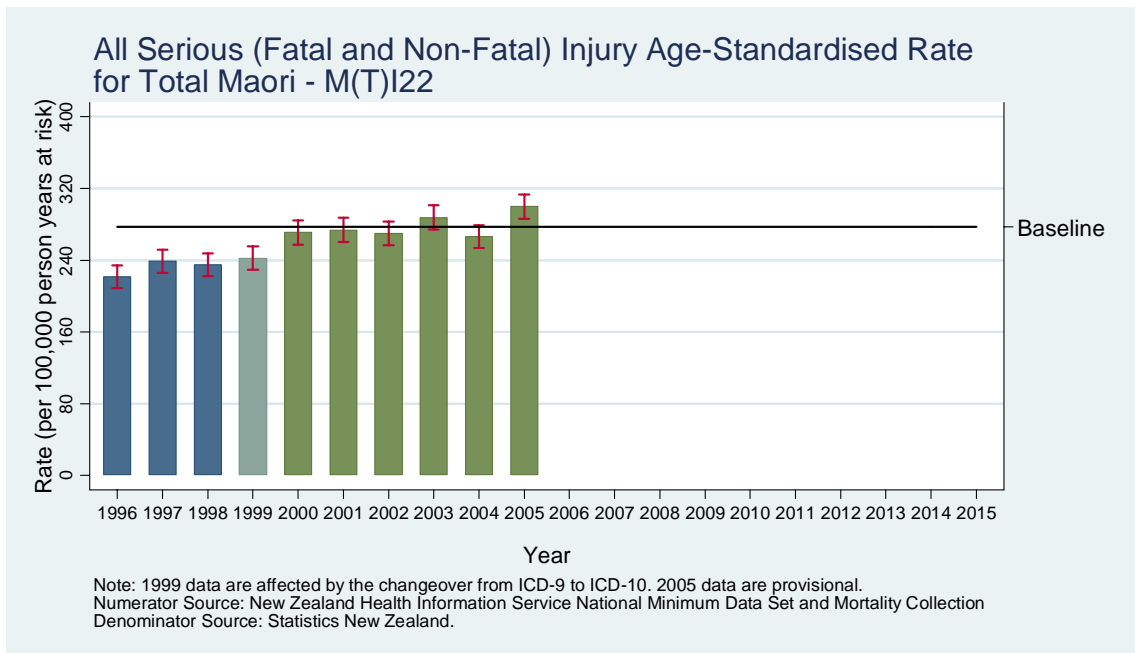
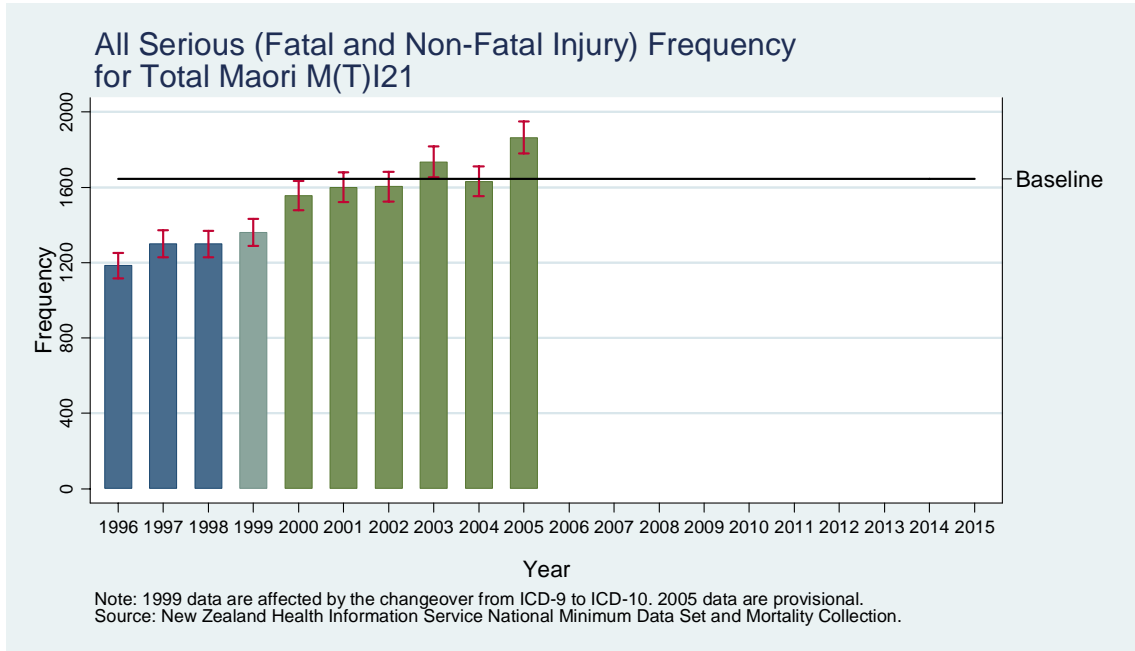
2.1 All injury



The frequencies (M(T)I01) and rates (M(T)I02) of serious non-fatal injury have consistently remained above the baseline since 2005.

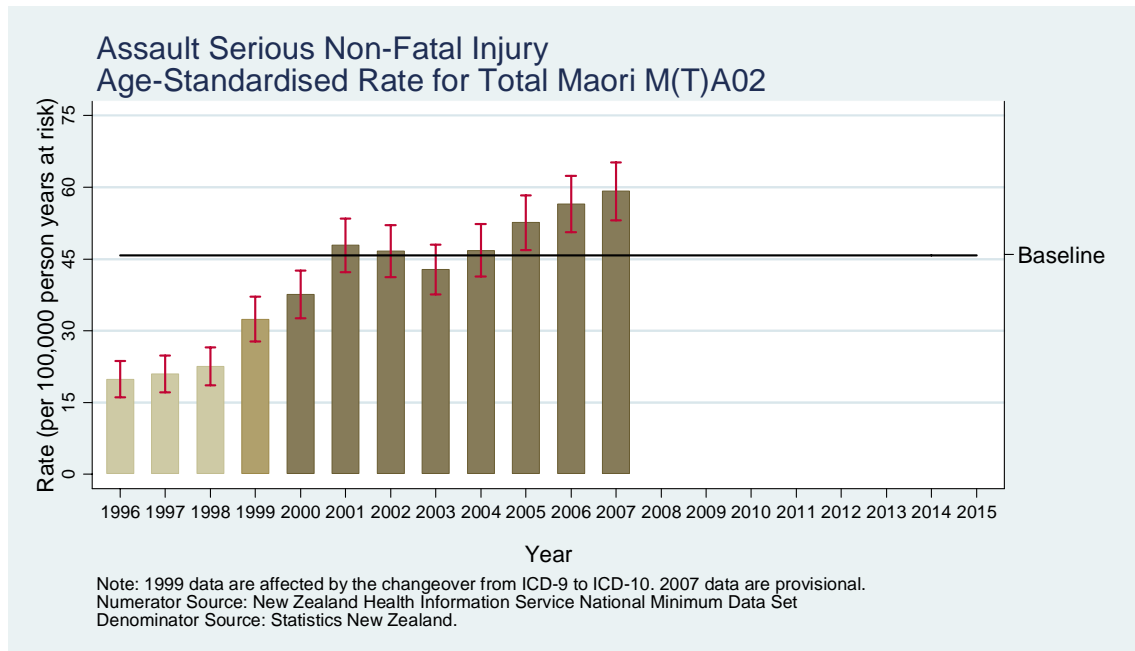
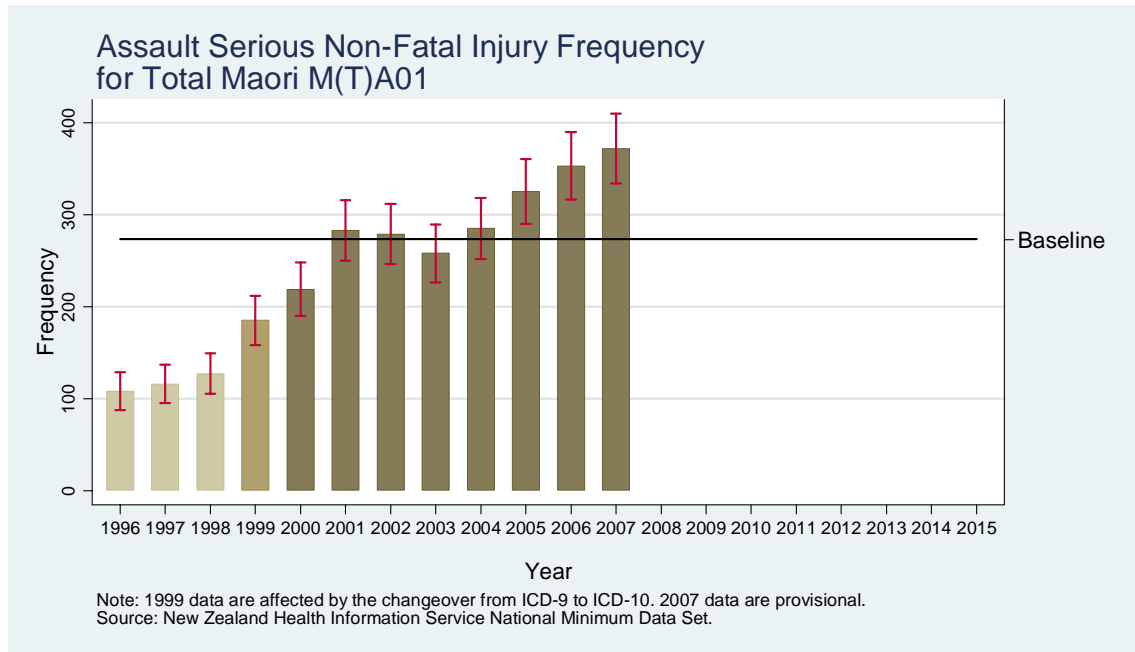


The frequencies (M(T)11) and rates (M(T)12) of fatal injury for Māori are variable. There is no evidence of a significant change from baseline in either.

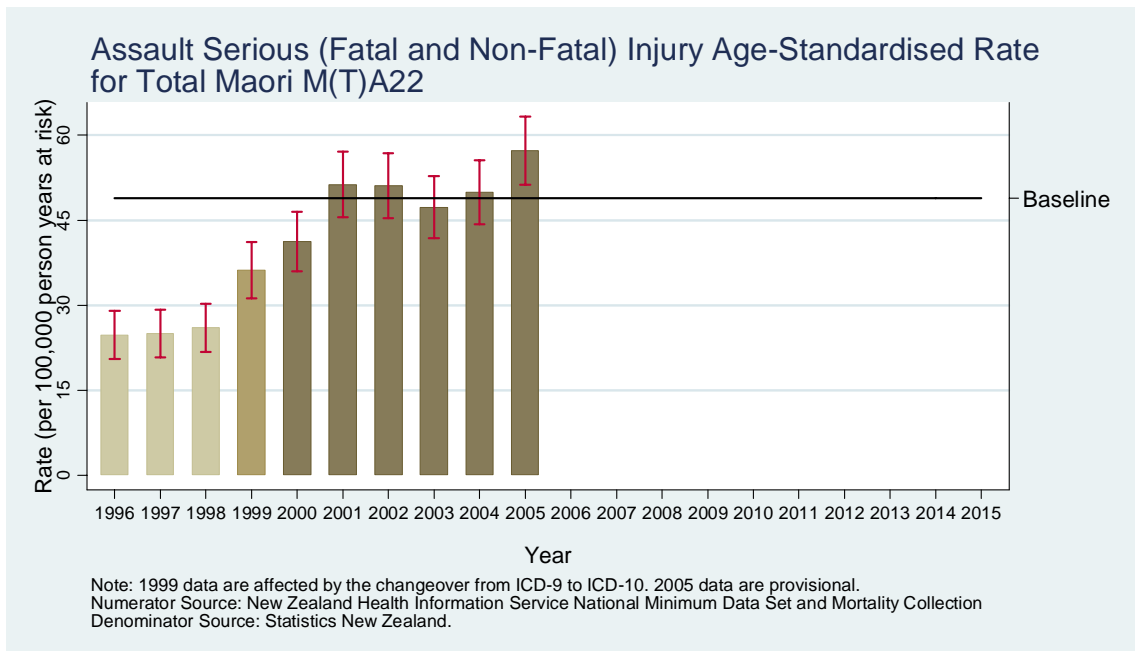
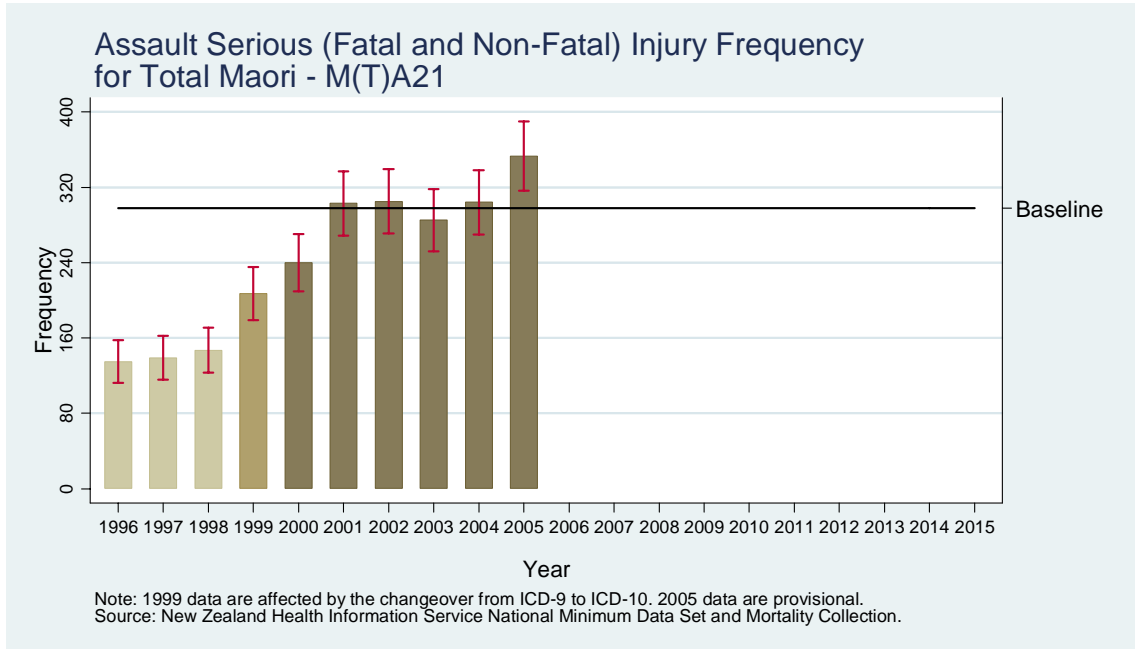


In the most recent year (2005), there is evidence of an increase in the frequency (M(T)21) and rate (M(T)22) of serious (fatal and non-fatal) injury for Māori.

2.2 Assault

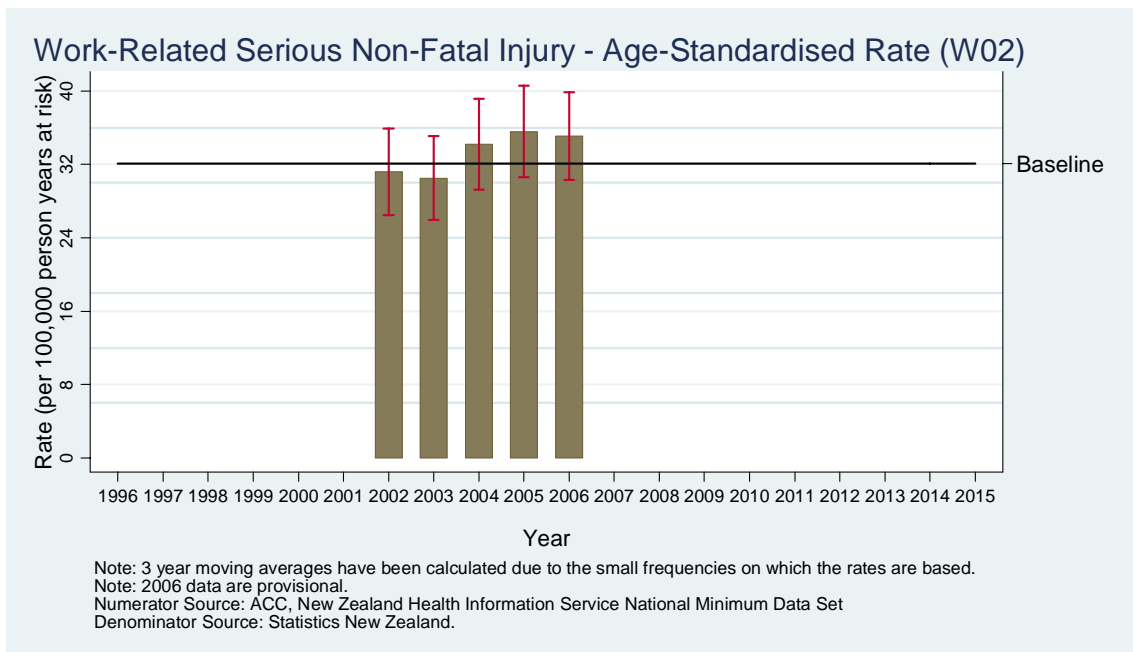
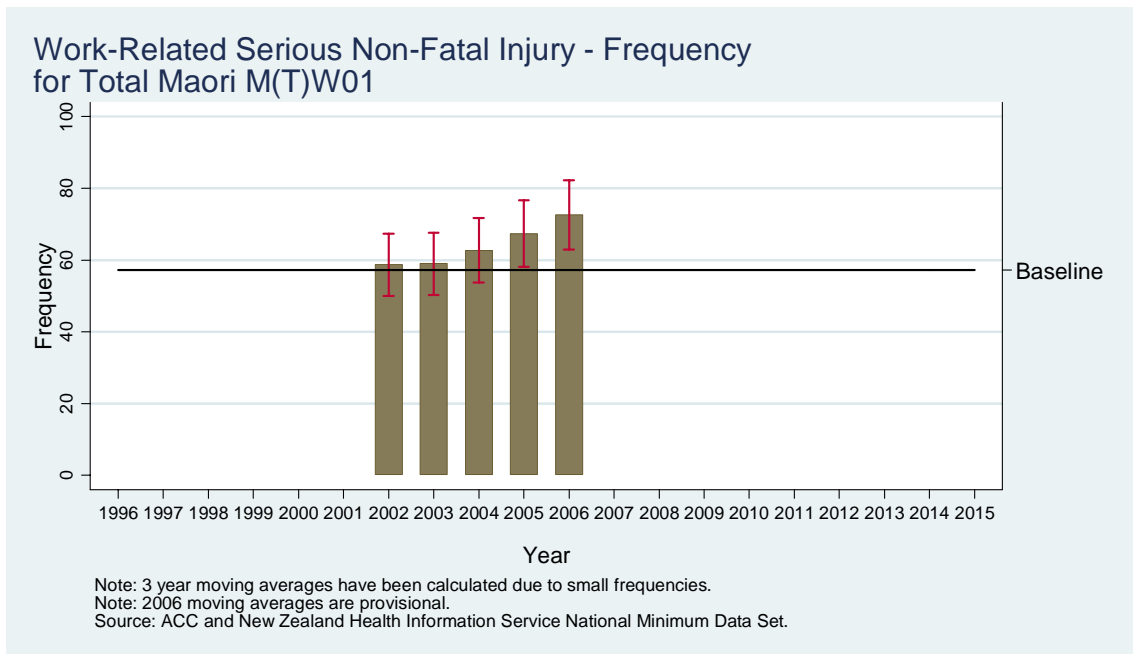


Since 2005, the frequencies (M(T)A01) and rates (M(T)A02) of serious non-fatal assaultive injuries have been above the baseline. The trends for these provisional indicators could, however, be the results of extraneous factors, so care must be taken with interpretation.



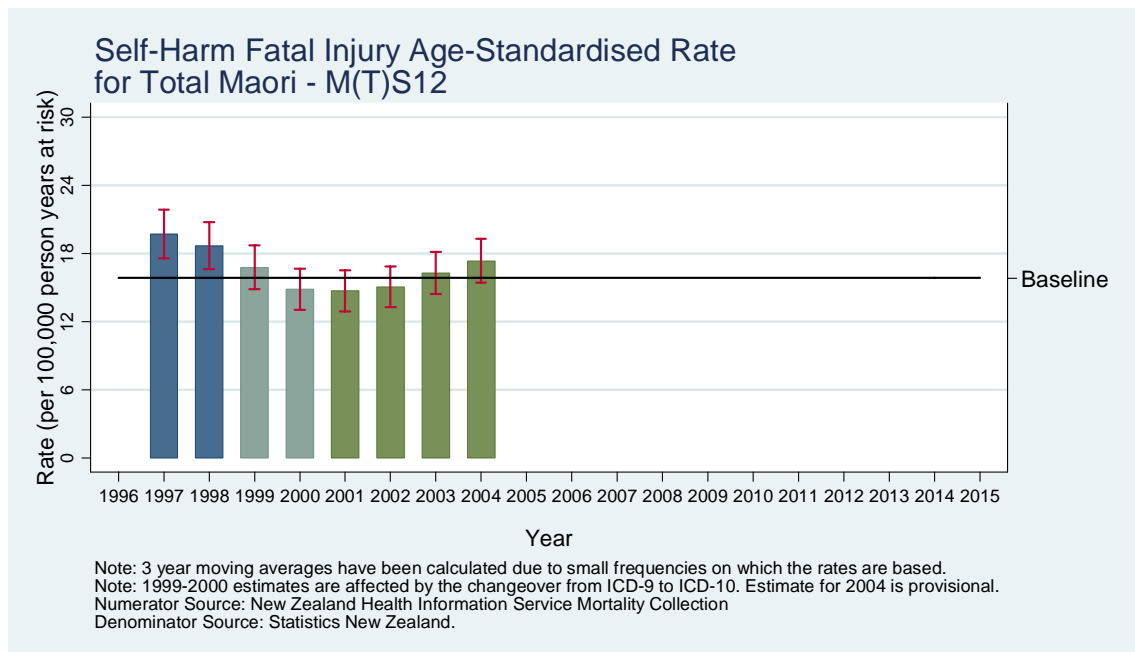
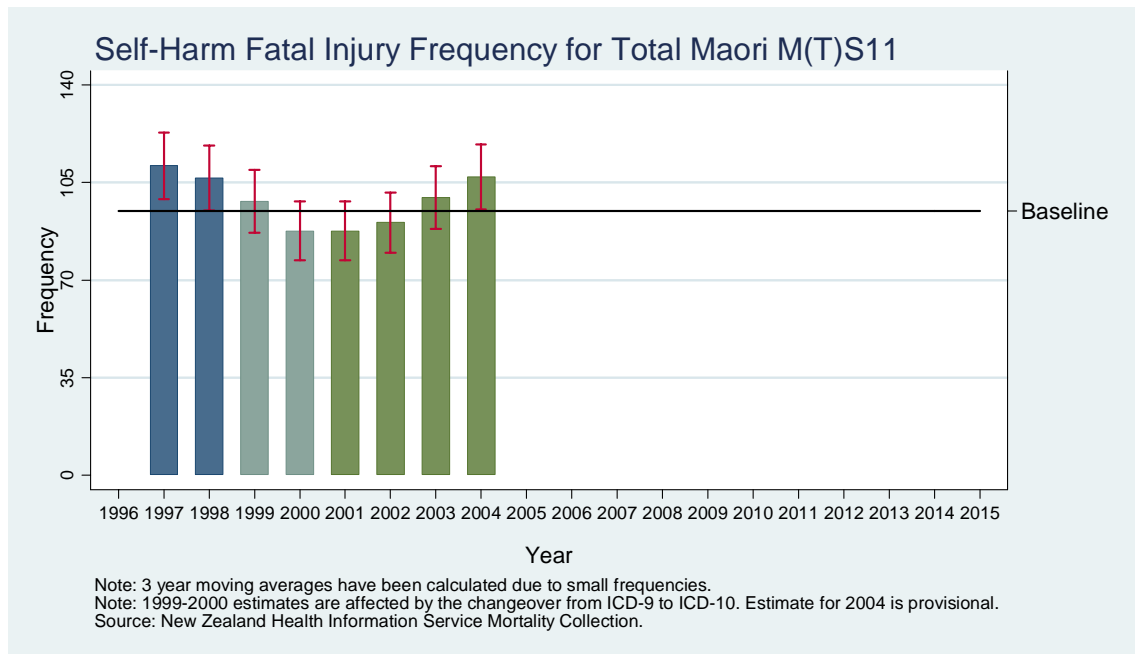
In 2005, the frequency (M(T)A21) and rate (M(T)A22) of serious (fatal and non-fatal) assaultive injury for Māori increased above baseline. The trends for these provisional indicators could be the result of extraneous factors, so care must be taken with interpretation.

2.3 Work-related injury

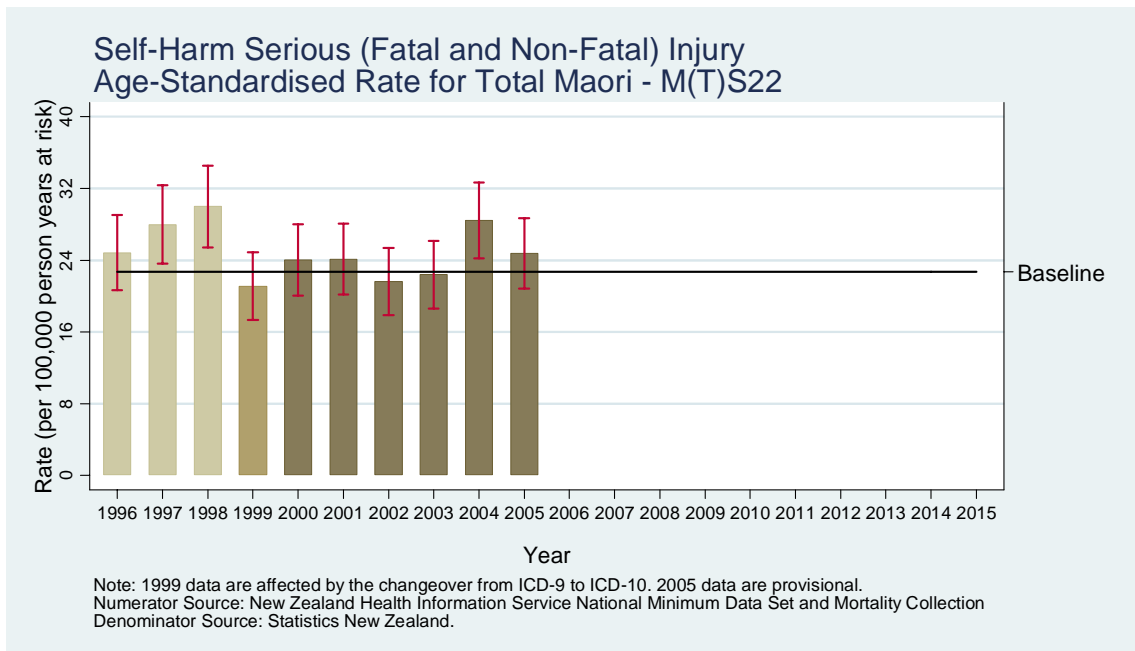
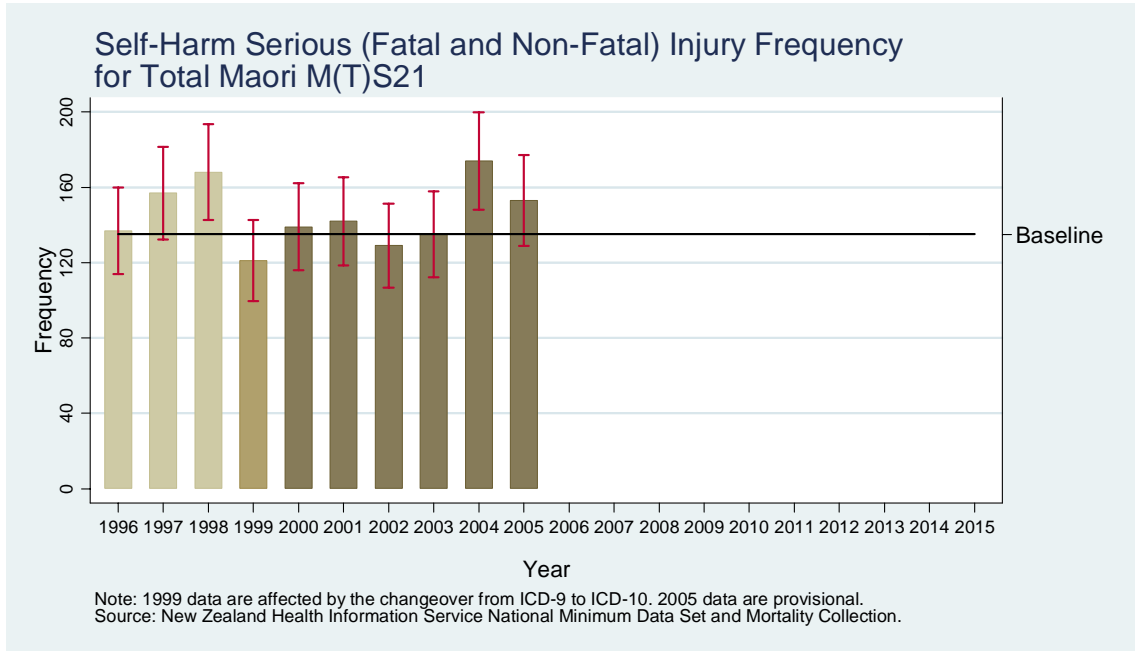


The frequency of serious non-fatal work injury (M(T)W01) for Māori has been gradually increasing. In 2006 this was above the baseline. There has been no detectable change from baseline in the rates of serious non-fatal work related injury for Māori (M(T)W02).

2.4 Intentional self-harm



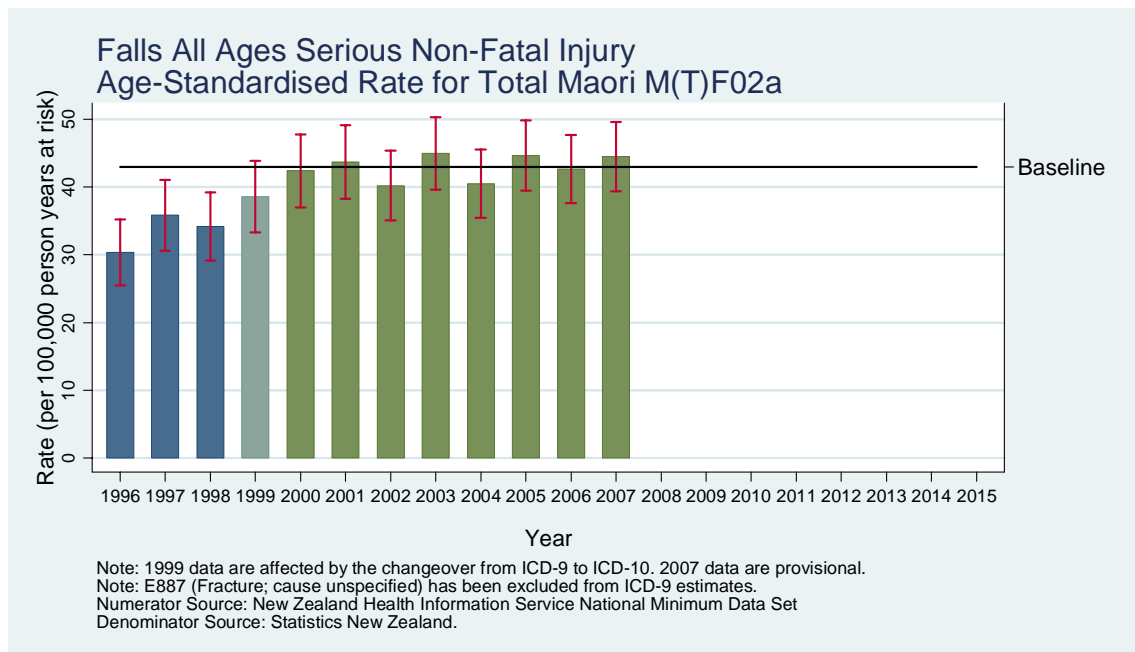
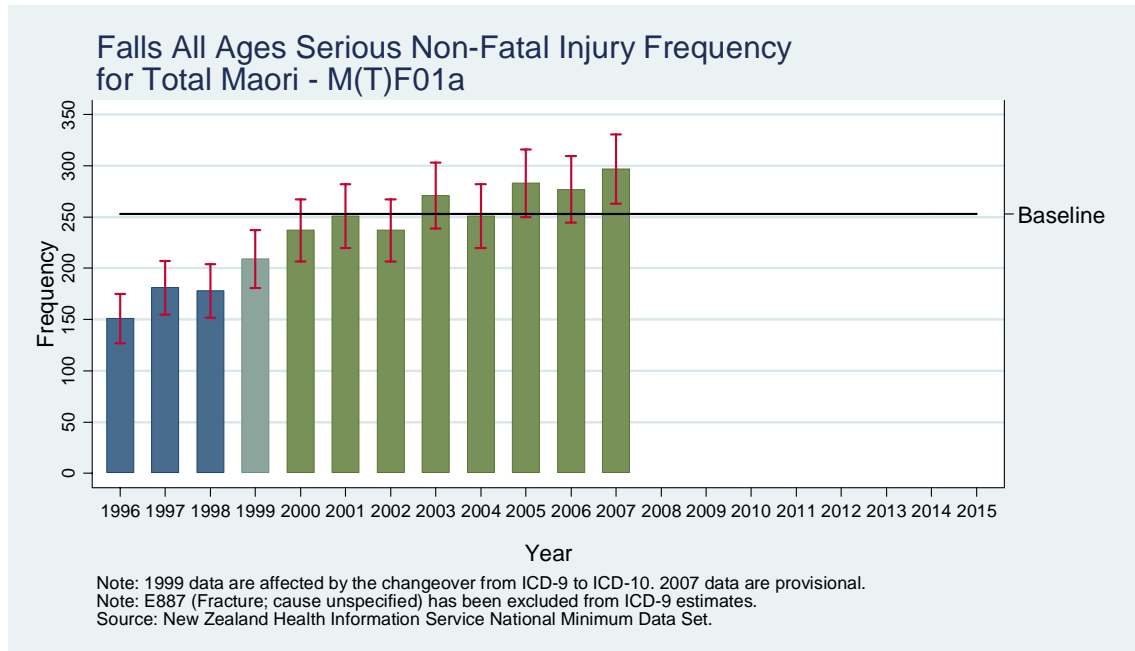
Since 2001, there has been a steady increase in the frequency (M(T)S11) and rates (M(T)S12) of fatal self-harm injury in Māori.



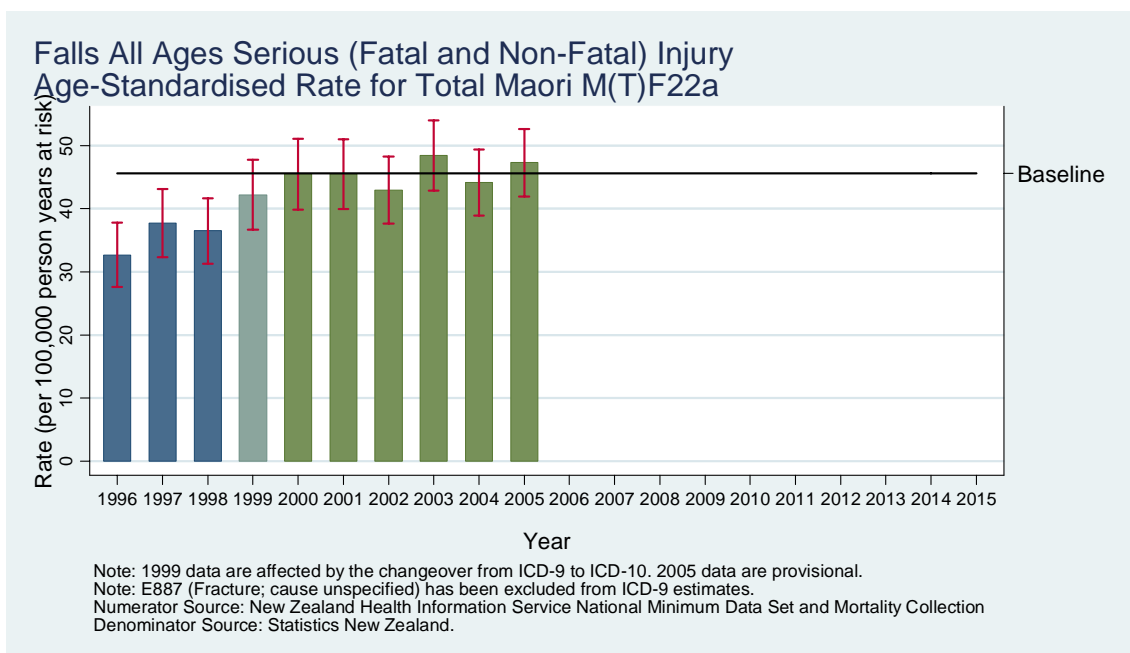
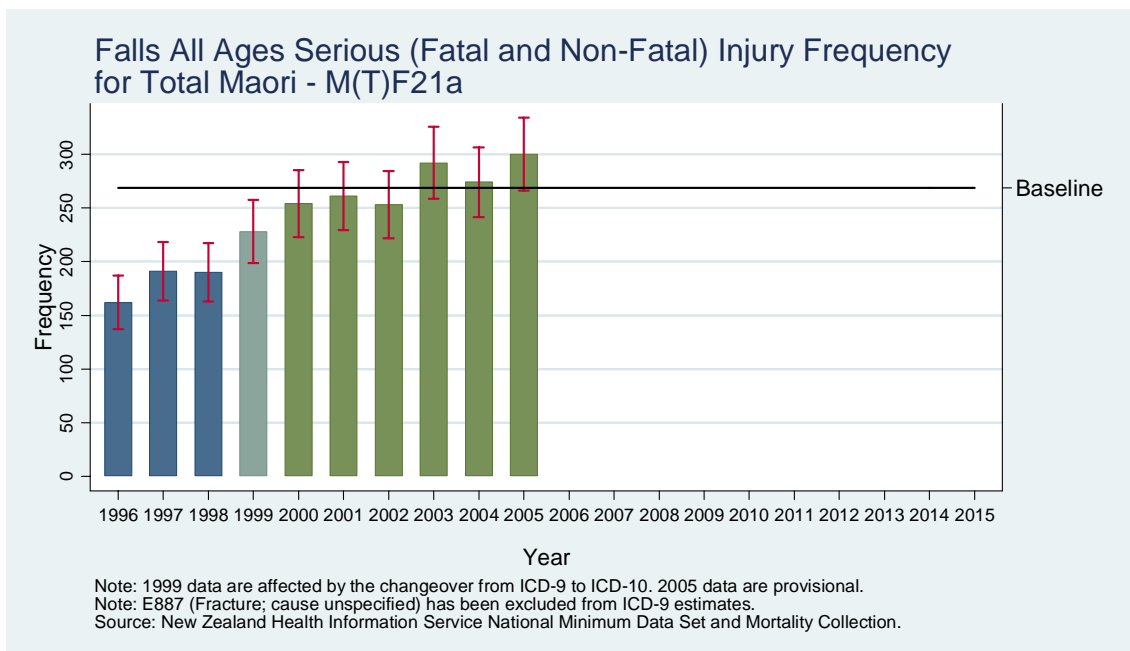
The frequencies (M(T)S21) and rates (M(T)S22) of serious (fatal and non-fatal) self-harm injury in Māori are variable. There is no strong evidence of an increasing or decreasing trend in either of these measures.

2.5 Falls

All ages

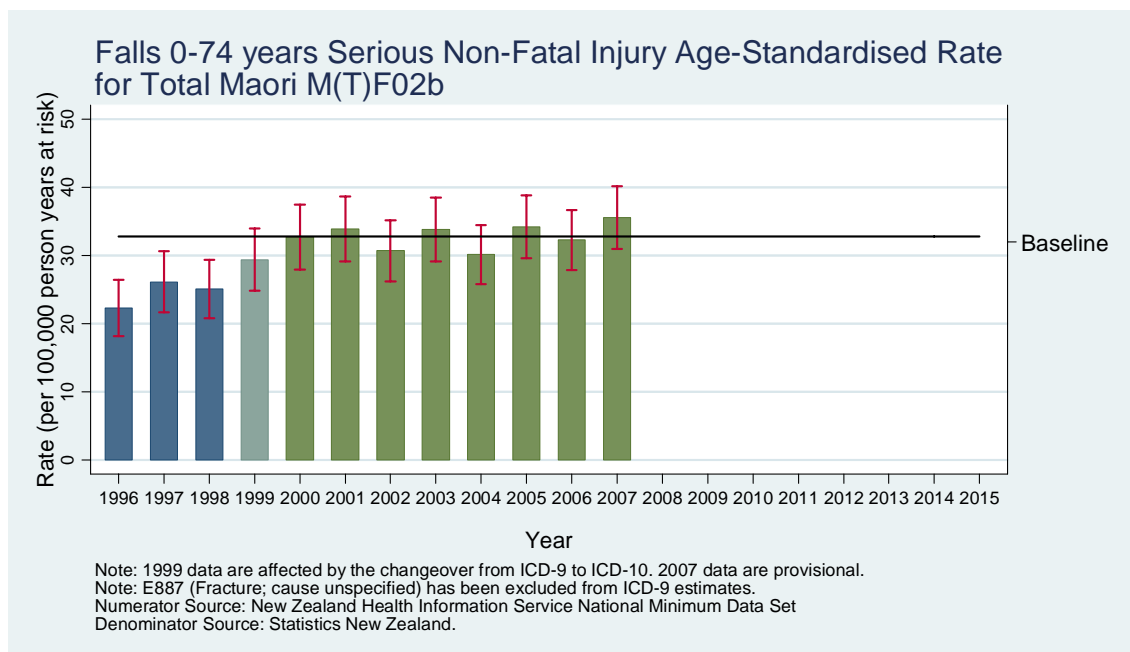
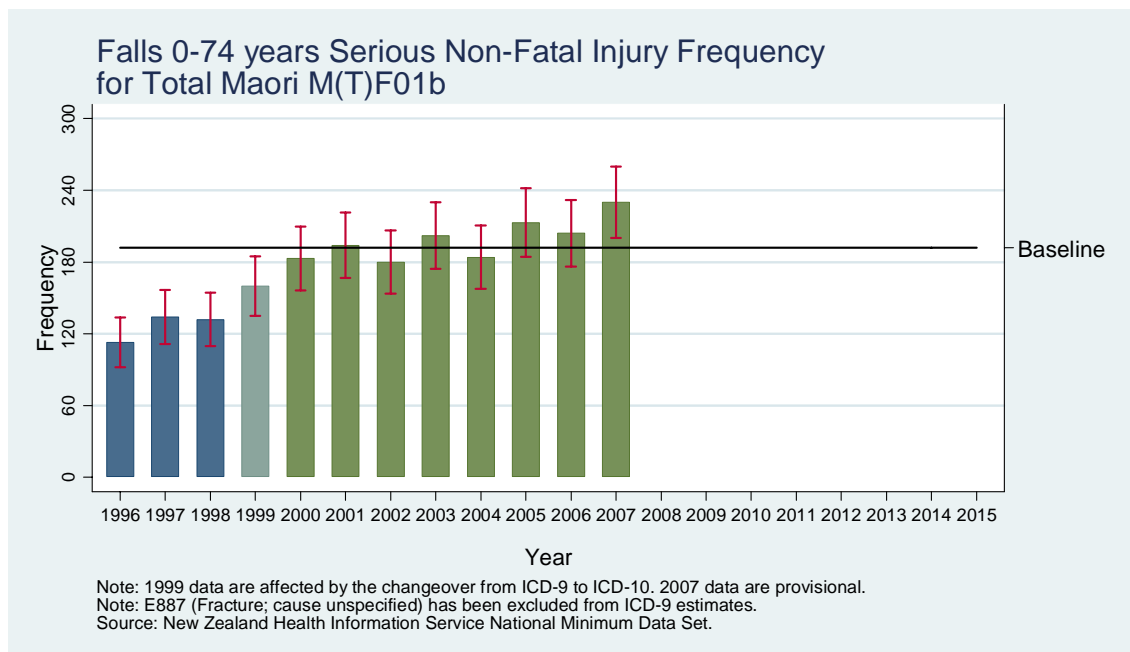


The frequencies (M(T)F01a) and rates (M(T)F02a) of serious non-fatal falls injury are variable. In 2007, the frequency of serious non fatal falls increased above the baseline. There is no evidence of a change in the rates of serious non-fatal falls between 2000 and 2007.

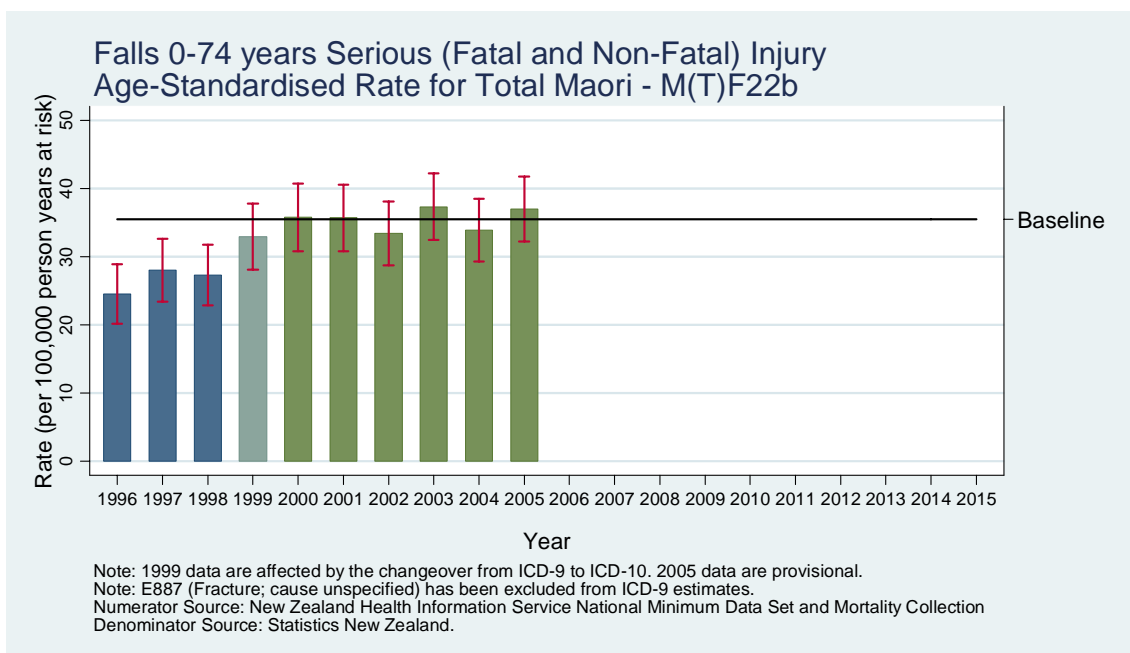
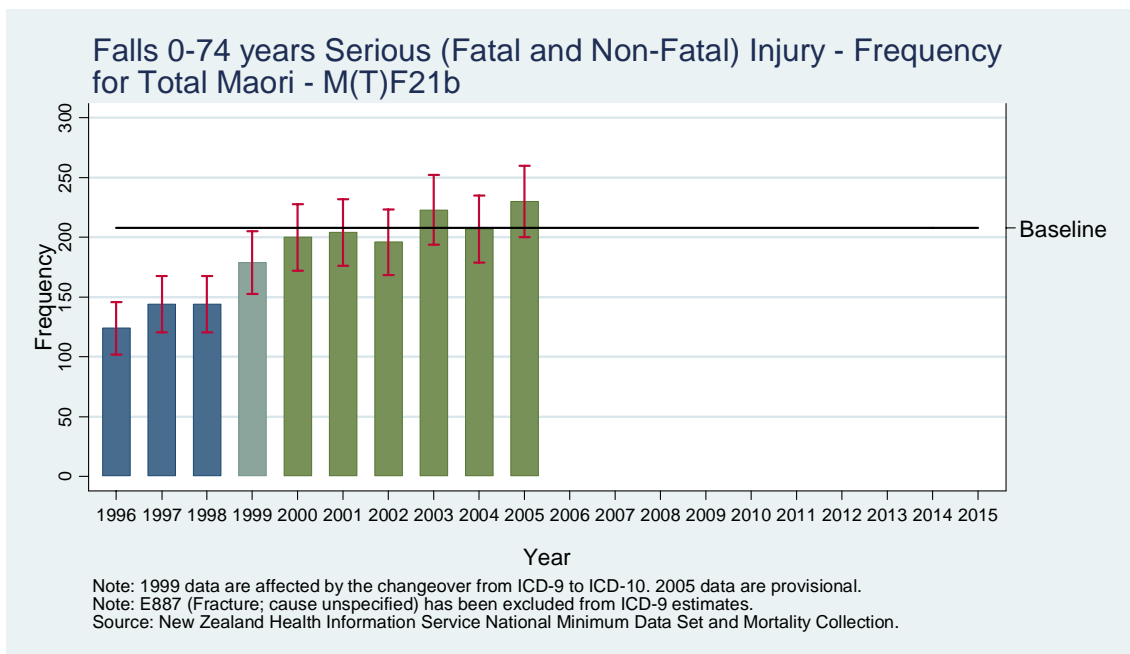


The frequencies (M(T)F21a) and rates (M(T)F22a) of serious (fatal and non-fatal) falls injury for Māori for all ages are variable. There is weak evidence of an increase in the frequency of serious (fatal and non-fatal) falls in 2005. There is no evidence of a change from baseline in the rates of serious (fatal and non-fatal) falls.

0-74 years of age

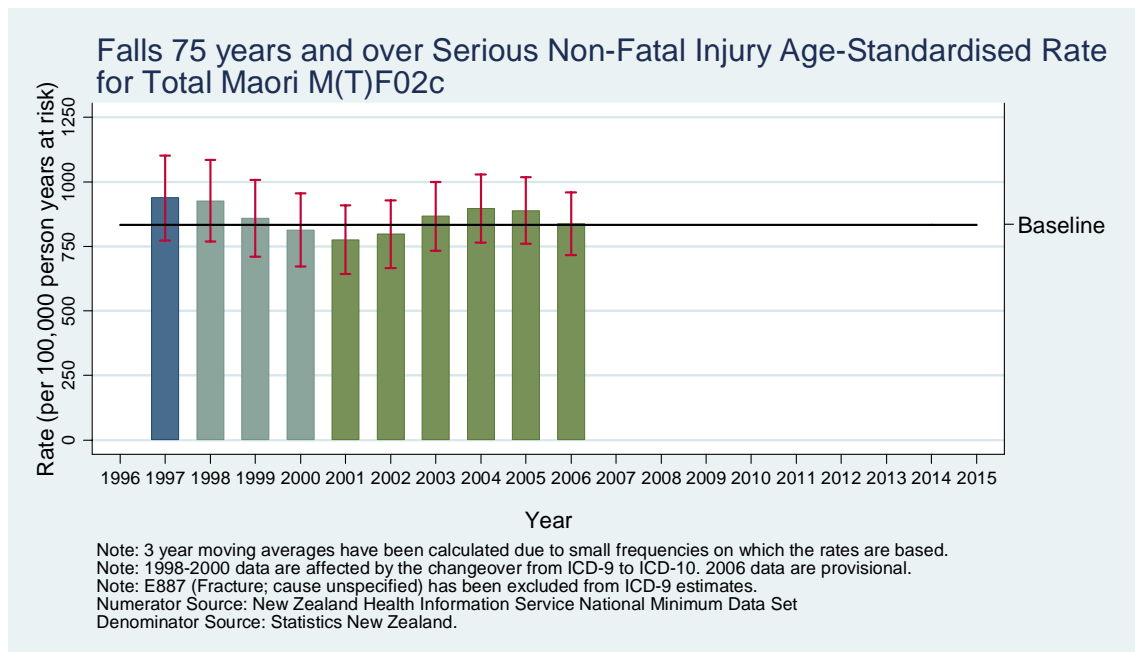
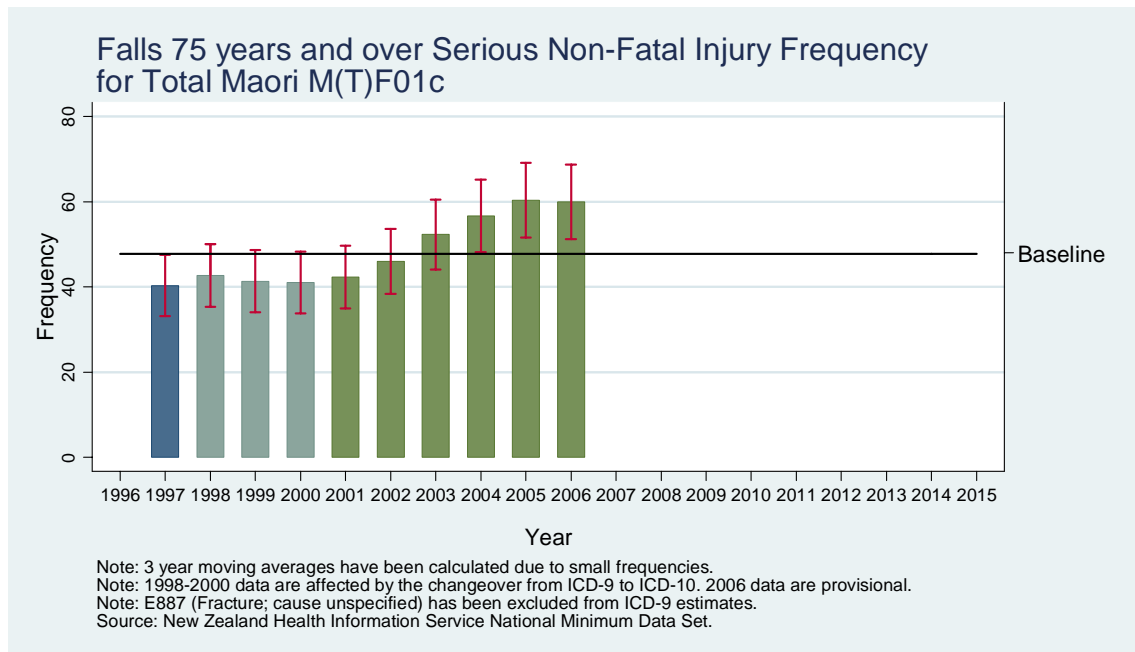


The frequencies (M(T)F01b) and rates (M(T)F02b) of serious non-fatal falls injury for those aged 0-74 years are variable. In 2007, the frequency of serious non-fatal falls increased above the baseline. There is no strong evidence of a change in the rates of serious non-fatal falls between 2000 and 2007; the observed change could be due to chance alone.



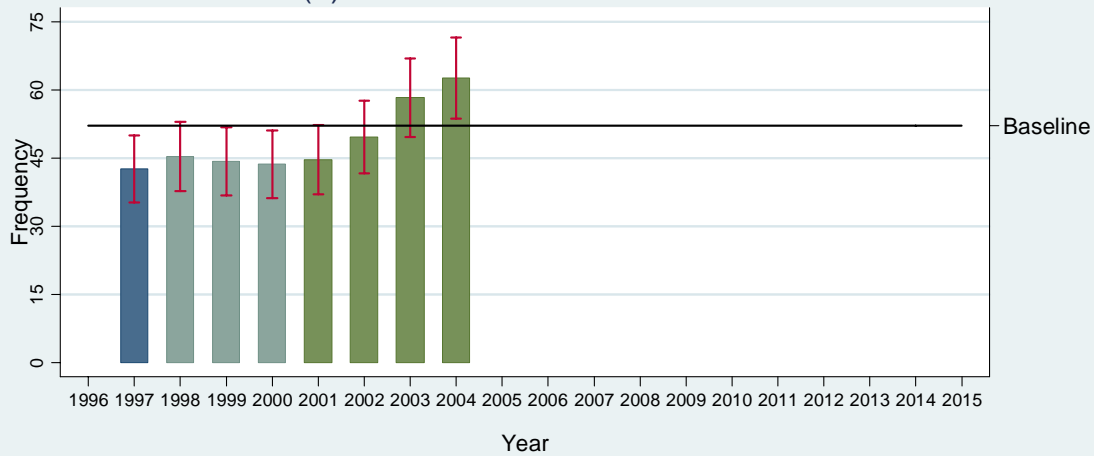
The frequencies (M(T)F21b) and rates (M(T)F22b) of serious (fatal and non-fatal) falls injury for Māori for those aged 0-74 years are variable. There is no strong evidence of a change from baseline in either indicator.

75+ years of age



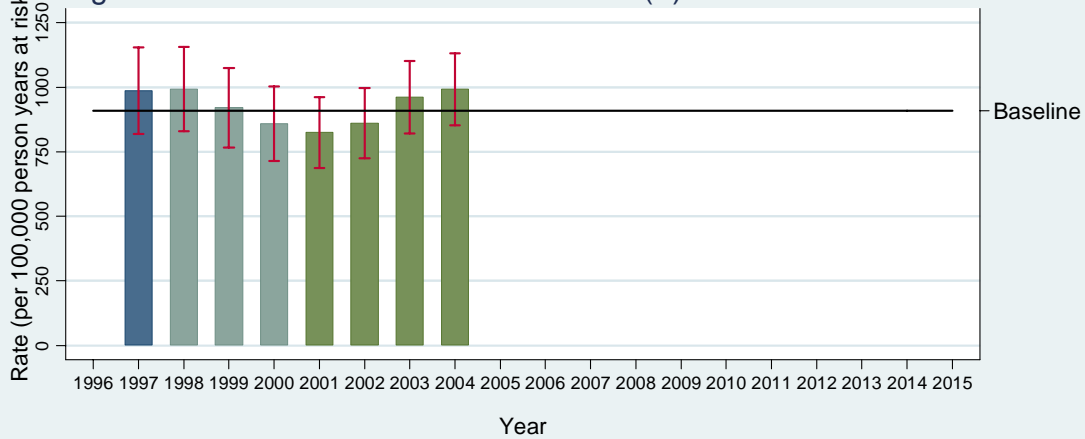
Since 2004 there has been an increase from baseline in the frequency of serious non-fatal falls injury for those aged 75+ years (M(T)F01c). There is no evidence of a change from baseline in the rates of serious non-fatal falls injury for those aged over 75 years (M(T)F02c).

Falls 75 years and over Serious (Fatal and Non-Fatal) Injury Frequency for Total Maori M(T)F21c



Note: 3 year moving averages have been calculated due to small frequencies.
 Note: 1999-2000 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 and Mortality Collection.

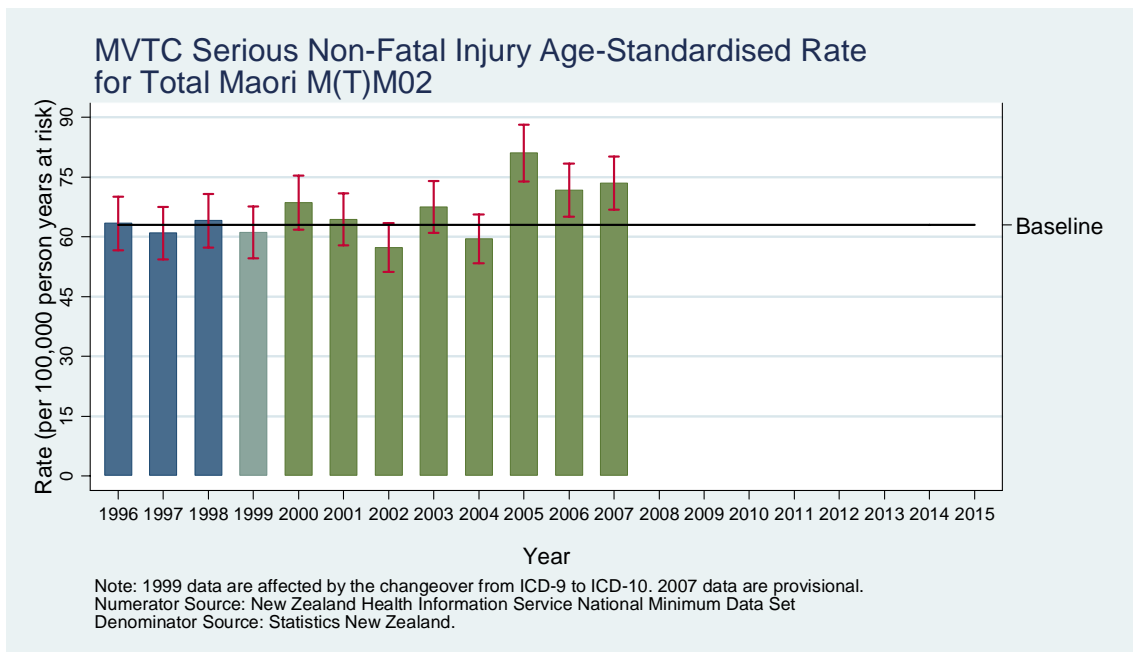
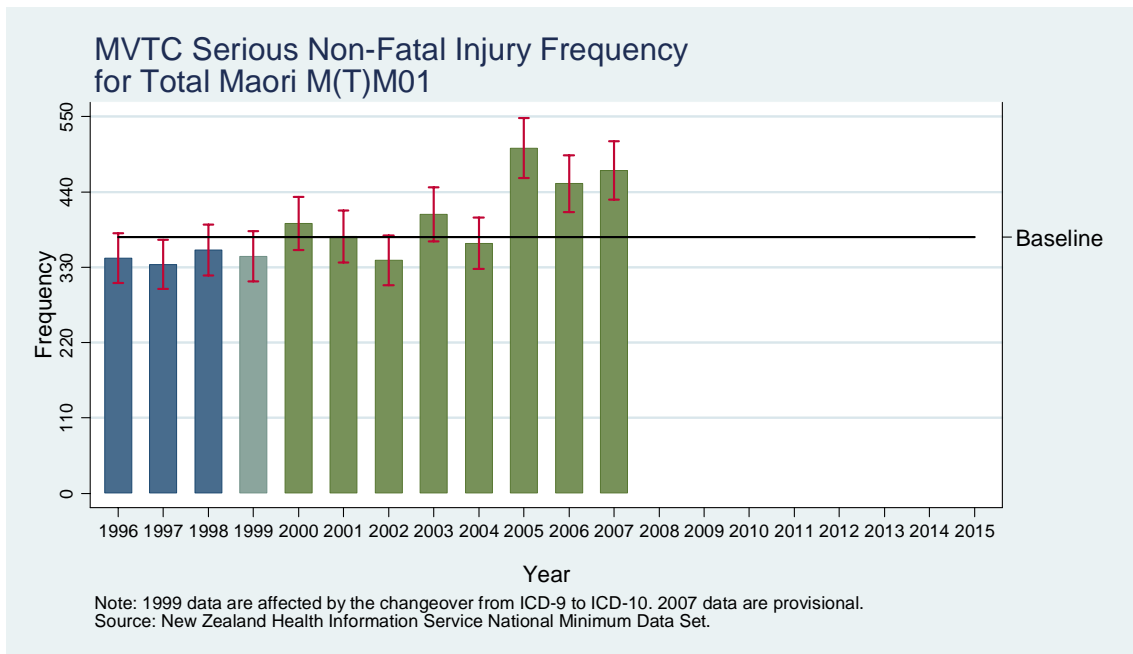
Falls 75 years and over Serious (Fatal and Non-Fatal) Injury Age-Standardised Rate for Total Maori M(T)F22c



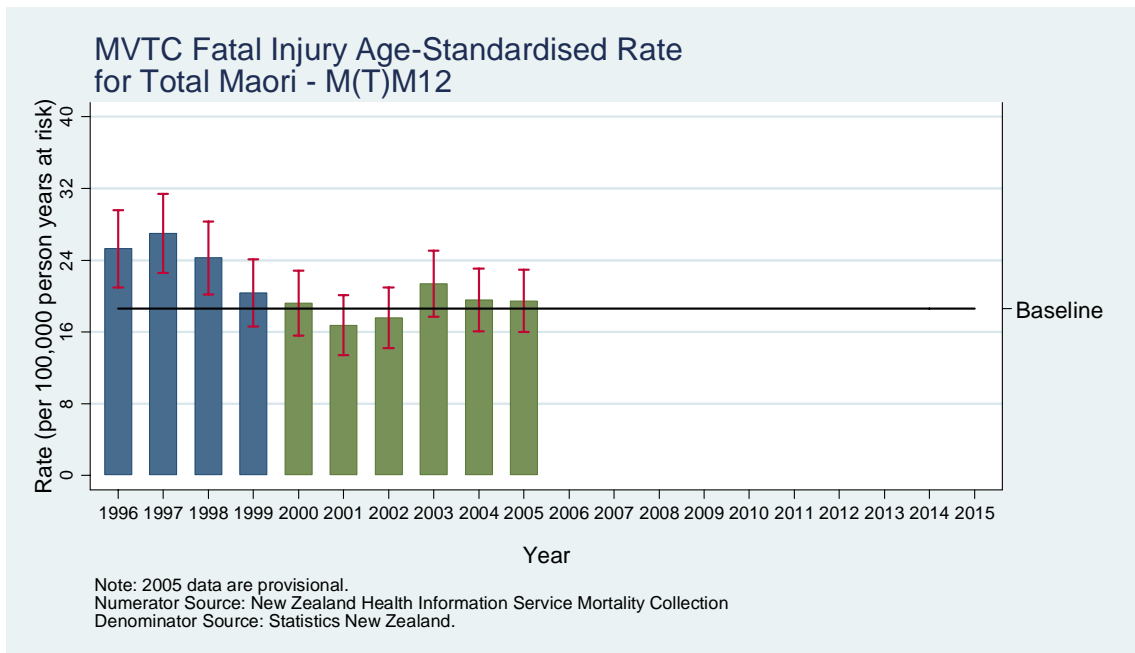
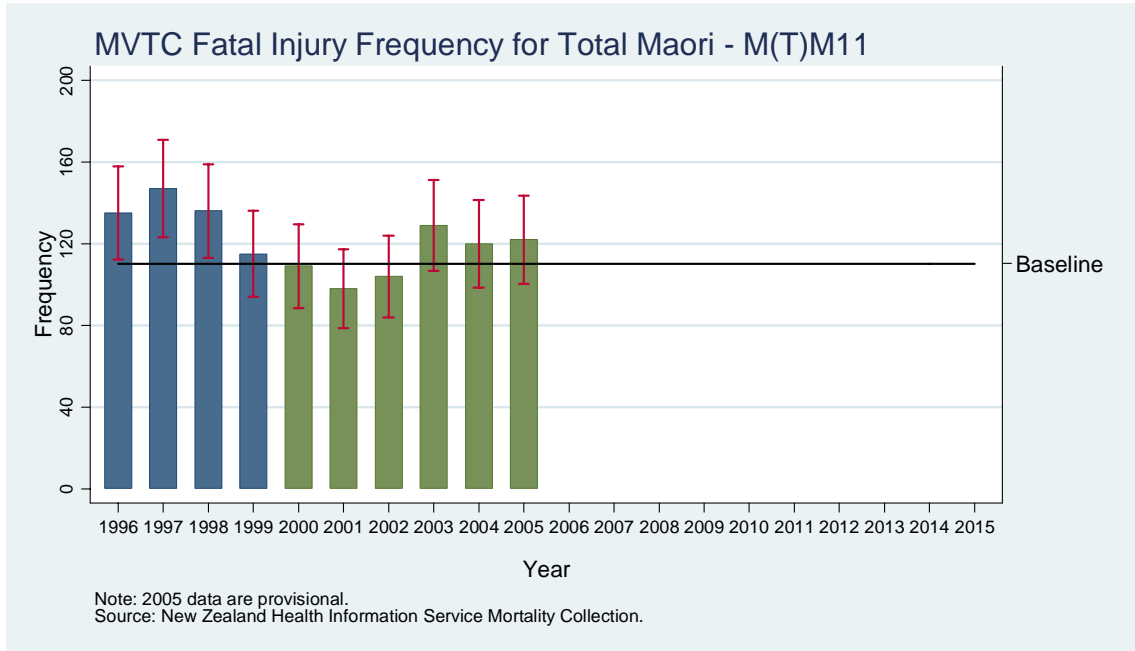
Note: 3 year moving averages have been calculated due to small frequencies.
 Note: 1999-2000 data are affected by the changeover from ICD-9 to ICD-10. 2004 data are provisional.
 Note: E887 (Fracture; cause unspecified) has been excluded from ICD-9 estimates.
 Numerator Source: New Zealand Health Information Service National Minimum Data Set and Mortality Collection
 Denominator Source: Statistics New Zealand.

In 2004 there was an increase from baseline in the frequency (M(T)F21c) of serious (fatal and non-fatal) falls injury for Māori aged 75+ years. The rates (M(T)F22c) of serious (fatal and non-fatal) falls injury for Māori aged 75+ years have not changed significantly from baseline.

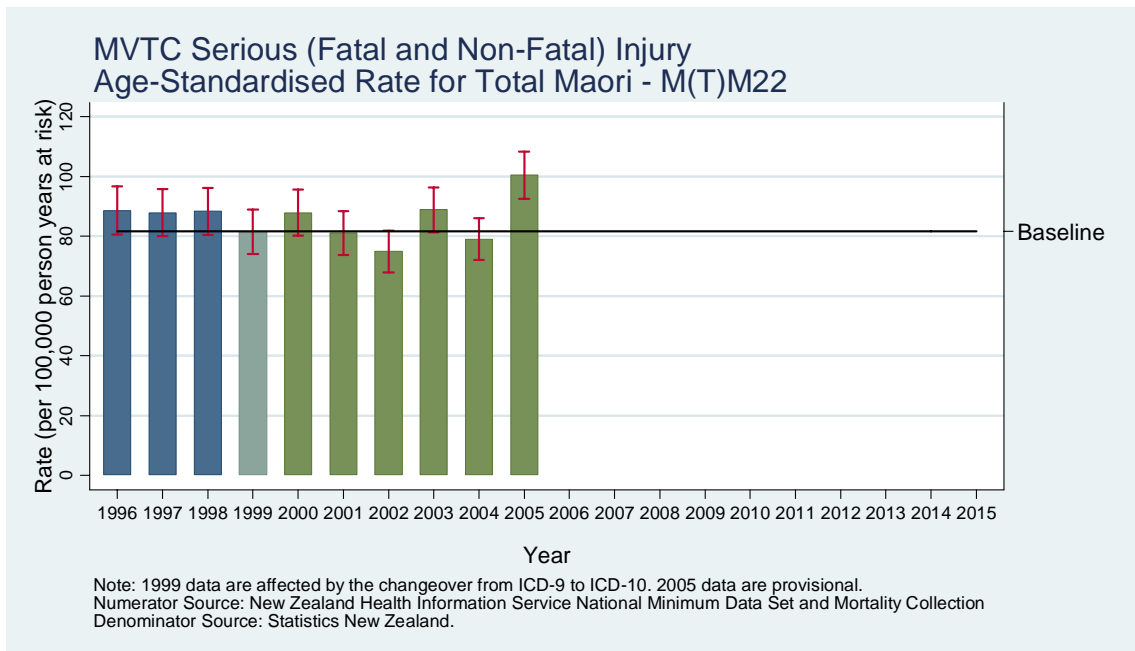
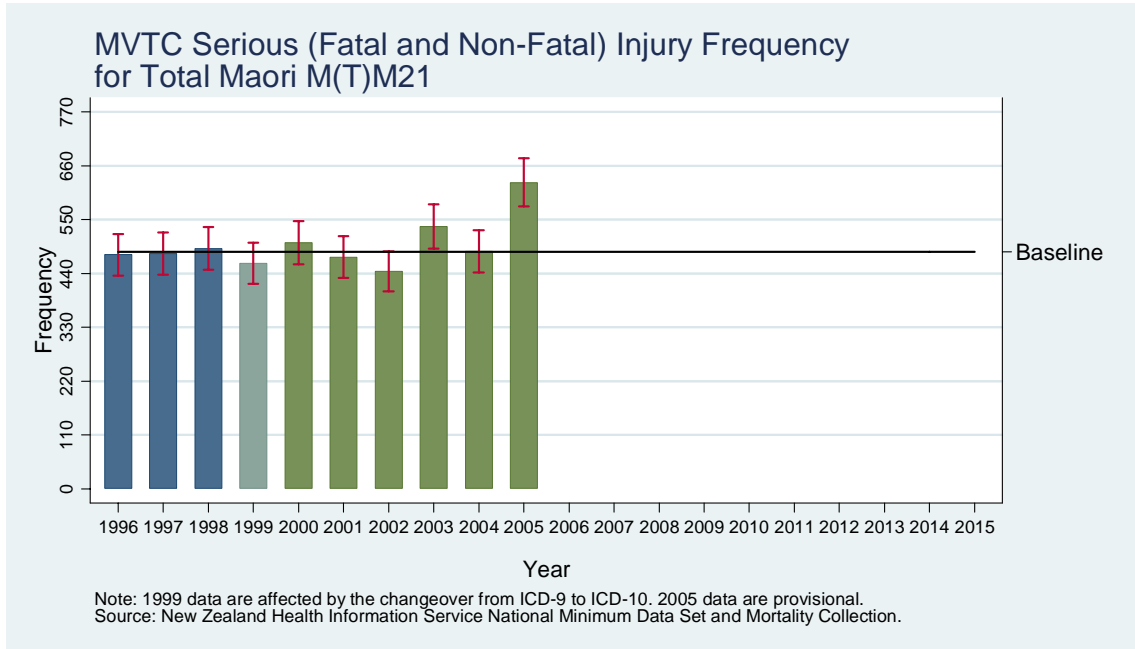
2.6 Motor Vehicle Traffic Crashes (MVTC)



Since 2005, the frequencies (M(T)M01) and rates (M(T)M02) of serious non-fatal MVTC injury have been above the baseline.



There has been no change from baseline in either the frequencies (M(T)M11) or rates (M(T)M12) of fatal MVTC injury for Māori.



In 2005, the frequency (M(T)M21) and rate (M(T)M22) of serious (fatal and non-fatal) MVTC injury for Māori increased above the baseline.

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