



Safe Communities Foundation New Zealand

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North Shore Injury Data ACC ThinkSafe Report

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1.0 Introduction

1.1 Overview

The prevention of injuries is a major public health priority area in New Zealand, as injury is the leading cause of death between 1-34 years (Coggan, Langley & Dawe, 2000). Injuries account for more potential years of life lost than heart disease and cancer combined. Following complications of childbirth and pregnancy, injuries are also responsible for more hospitalisations than any other cause.

Although injury prevention is a relatively new discipline, there is increasing recognition nationally and internationally that community-based injury prevention programmes are an effective and acceptable way to reduce the burden of injury experienced by individuals, whanau/families and communities. Based on the World Health Organisation (WHO) 'safe communities' model, the community-based programme has been adopted in New Zealand following successful Australian and Scandinavian initiatives (Coggan, Bennett, Patterson & Borne, 2003; Coggan, Patterson, Brewin, Hooper, & Robinson 2000; Svanstrom 1997; Day, Ozanne-Smith, Cassell, Li, 2001). The model is a community-based all age, all injury prevention model which recognises that those most able to solve community injury prevention programmes are those people living in that particular community (Brewin & Coggan, 2004).

Community-based injury prevention programmes were first established in Aotearoa/New Zealand in the early 1990s, and rigorous evaluation evidence indicates that the model is effective (Coggan, Patterson, Brewin et al, 2000; Brewin & Coggan, 2003). Currently in Aotearoa/New Zealand there are, in addition to North Shore City, more than 30 other communities at various stages of implementing community action in injury prevention, including Whangarei City, Auckland City, Waitakere City, Manukau City, Turanganui-a-kiwa, Ngati Porou, Waimakariri and 23 ACC ThinkSafe communities.

Evidence from the evaluations undertaken with three of these initiatives to date, strongly suggests that community-based injury prevention activities are able to have an impact on the injury burden experienced by people of all ages. For example, evaluation findings from the Turanganui-a-kiwa Community Injury Prevention

Programme indicate that injury death rates have steadily declined for the period 1996-1999 (Brewin & Coggan, 2002). Conversely, injury mortality rates for the comparison community, where there was no community-based injury prevention programme in place, increased during this period.

Similarly, following implementation of Safe Waitakere in 1996, injury death rates decreased considerably from 48 deaths per 100,000 population in 1997 to 34 deaths per 100,000 population in 1999. Waitakere City also had a lower injury hospitalisation rate than the rest of Auckland in 1998, 2000 and 2001. This injury hospitalisation rate for Waitakere City was considerably lower than the comparison community (where there was no community-based injury prevention programme in place), from 1997-2001 (Coggan, Lee, Patterson & Fill, 2003). The provision of injury data is an essential tool for assessing the effects of community-based programmes. It is also vital for the identification of groups at high risk of injury within specific communities.

1.2 How to use this report

This report consists of five main sections: Section One provides a brief introduction and overview of the report objectives. Section Two describes the data sources used to support this report, and the methods of data analysis used.

Section Three describes North Shore City injury statistics. Firstly, this section begins by providing an overview of the leading causes of mortality and morbidity for North Shore City. Demographic data relating to North Shore City is also provided. Injury mortality data is described, including leading causes of injury deaths, overall rates of injury deaths by age group and comparisons of injury deaths by Ward. Injury hospitalisations for North Shore City are also outlined including: leading causes of injury hospitalisations; overall rates of injury hospitalisations by age group; rates of injury hospitalisations by gender; injury hospitalisations by ethnicity; and comparisons of injury hospitalisations by Ward. Other sources of injury data are also described, including ACC injury statistics, and Land Transport Safety Authority (LTSA) road injury statistics.

Sections Four to Six outline demographic and injury statistics for the three Wards which comprise North Shore City (Section Four: Central Ward; Section Five: Harbour

Ward; Section Six: Northern Ward). Data is provided on the usual population of each ward, including information about the age and gender composition of the total population. Household and personal income information is also provided. For each ward, an analysis of overall leading causes of injury deaths is provided, and, where possible, an analysis by ethnicity is also provided. Overall causes of injury hospitalisation are provided, and a detailed analysis of injury hospitalisation is provided, including analysis by age, gender and ethnicity. Leading causes of injury hospitalisation and rates of injury hospitalisation are provided for each ward, for Maori, New Zealand European and Pacific populations.

1.3 Objectives

The objectives of this report are to present:

1. Routinely collected baseline data which can be used to identify injury prevention related needs and issues in North Shore City;
2. Routinely collected data on a Ward-by-Ward basis to enable comparisons by areas;
3. Routinely collected data to enable comparisons over time; and
4. The data in a meaningful manner to assist in the development of strategic plans for injury prevention for North Shore City.

2.0 Methodology

2.1 Sources of information

The sources of information utilised to develop this community injury profile came from a wide variety of sources, including:

- Routinely collected injury statistics from the New Zealand Health Information Service (NZHIS) related to injury deaths (1993-1999) and hospitalisations (1993-2003) for North Shore City;
- 1991, 1996 and 2001 New Zealand Census data from Statistics New Zealand;
- LTSA data for 1997-2002; and
- ACC data for 1994/5-2003/4.

2.2 Data analysis

Data was analysed using SAS Version 9.0 in Windows. Injury data were sourced from the NZHIS Minimum Dataset. Injury deaths and hospitalisations caused by medical misadventure, adverse effects, and late effects were excluded from the analysis. Injury hospitalisation records were selected for patients who were admitted overnight to hospital with a primary diagnosis of injury. Cases were only included if the patient survived the injury, and if the admission was the first hospitalisation for this injury.

The category labelled "*motor vehicle traffic crash on a public road*" includes crashes involving a pedestrian, but does not include cycle crashes, which are coded as a separate category. Note that this data is for people resident in North Shore City, not for the location in which the injury event occurred.

As changes were made to the definition of ethnicity in 1995, 1996 is the beginning of a new time series for ethnicity data. Also, because of a change in the wording of the question in the 2001 Census of Population and Dwellings that asks about ethnicity, the 2001 Census data is not consistent with the 1996 Census data. Since age specific rates were calculated from population estimates based on the Census data, all ethnicity statistics for injury death data in this document refer only to the period 1996-1999, and ethnicity statistics for injury hospitalisation data refer only to the period

2001-2003 (for years not in a Census year, population figures were estimated). The standard population used in the calculation of age-standardised rate is Segi's world population.

Sections Four to Six of this report present injury data at the ward level. Injury data for the wards were compiled by using the domicile code recorded for the injured person's place of residence. As the numbers of injury deaths for each of the wards are relatively small, separate analyses by ethnicity were not carried out for mortality data.

The ACC data is taken from a summary of entitlement claims data for North Shore City (prepared by ACC Scheme Analysis). The data excludes claims lodged with Private Insurers. An entitlement claim is one where payment is made for entitlement other than medical treatment, such as weekly compensation, independence allowance, and social rehabilitation. In addition, claims requiring dental treatment are classed as entitlement claims.

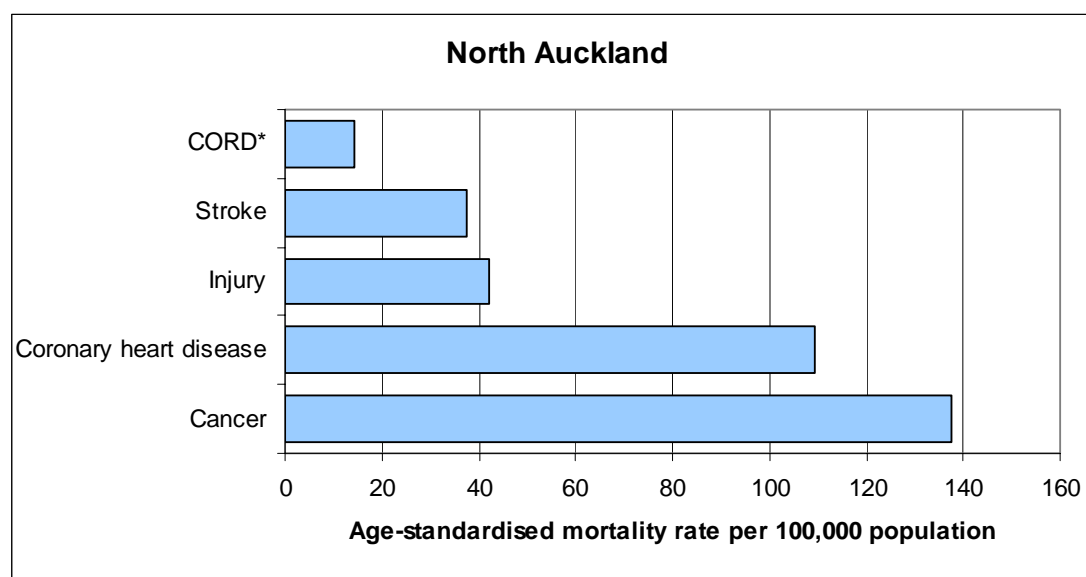
The LTSA data are taken from Motor Accidents in New Zealand 2001 (LTSA, 2002), Motor Vehicle Crashes in New Zealand 2002 (LTSA, 2003), Road Safety Atlas (LTSA, 1996), and 1997/98 Travel Survey Report (LTSA, 2000). It should be noted that not all motor vehicle crashes are reported to the Police; therefore LTSA figures underestimate the burden of injury due to motor vehicle crashes in New Zealand.

3.0 North Shore City Injury Statistics

3.1 Introduction: Injury in North Auckland

Figure one shows that after cancer, and coronary heart disease, injury was the third leading cause of mortality in North Auckland (i.e. North Shore City and East-Rodney District Council) for the period 1988-1992. When compared to other areas within the northern region of the Ministry of Health, North Auckland had the lowest rate of chronic rheumatic heart disease, asthma, chronic obstructive respiratory disease, and all cancers except Lymph/Haem cancer; and second lowest rate of injury and stroke.

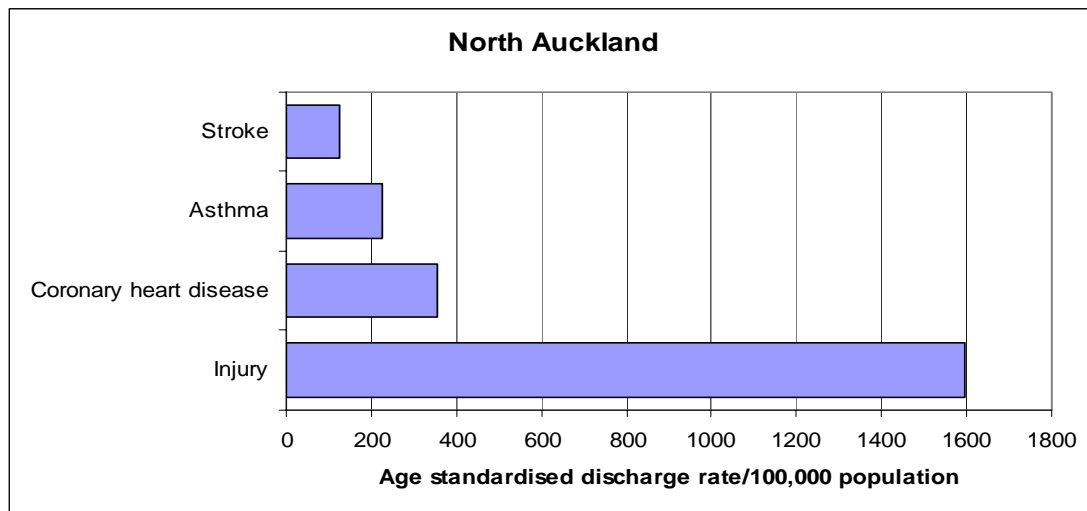
Figure 1: Leading causes of mortality for North Auckland 1988-1992



*Chronic Obstructive Respiratory Disease

Figure two shows that for the period 1989-1994, injury was the leading cause of hospital admission in North Auckland (i.e. North Shore City and East-Rodney District Council), with a rate that was approximately four and a half times greater than the next leading cause of hospitalisation. It should be noted that cancer also makes a significant contribution to hospital admissions, but this information was not available at the Territorial Local Authority (TLA) level. As an indication, for the whole of the North Health Region, cancer was the third leading cause of hospitalisation.

Figure 2: Leading causes of hospitalisation for North Auckland 1989-1994



3.2 North Shore City demographics

This section provides information relating to population, age, ethnicity and income for North Shore City.

Table 1: North Shore City - usually resident population

Population*	2001 Census	%	1996 Census	%	1991 Census	%
Maori	11970	6	12147	7	8451	6
NZ European/Other	171975	93	160398	93	144096	94
Pacific	5907	3	5139	3	3654	2
Total Persons [≈]	184821	102	172164	103	152646	102

* In 1991 Maori ethnicity was determined by ancestry, whereas in 1996 and 2001 Maori ethnicity was by self-definition.

[≈] Total percentage may not add up to 100% as people may belong to more than one ethnic group.

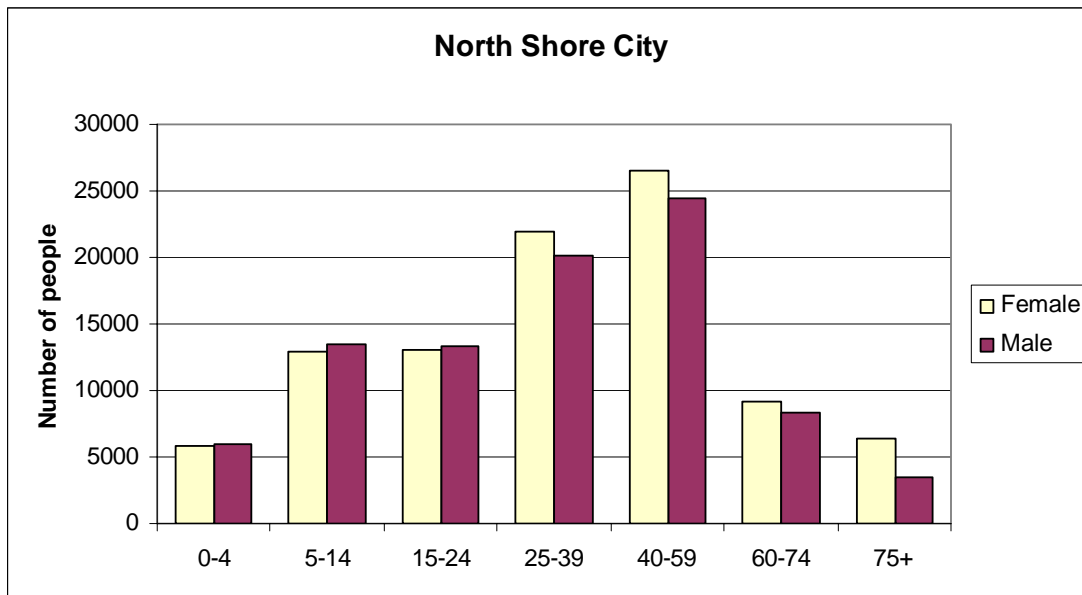
Table 2: North Shore City - age composition

Age Composition	2001 Census (%)	1996 Census (%)	1991 Census (%)
0-4	6	7	7
5-14	14	14	13
15-24	14	15	17
25-39	23	24	23
40-59	28	26	25
60-74	9	10	11
75+	5	5	5

Table 3: North Shore City - household and personal income

Income	2001 Census – number	2001 Census (%)
Households earning > \$30,000	33111	66
Personal incomes > \$30,000	53223	36
Average per capita personal income	\$30,172	

Figure 3: North Shore City- age distribution by gender in 2001 Census



3.3 Injury statistics

3.3.1 NZHIS injury death 1993-1999

Between 1993 and 1999, 398 residents of North Shore City died as the result of receiving an injury. This is equivalent to a crude injury rate of 45 injury deaths per 100,000 person years. Males accounted for the majority (66%) of fatalities.

Figure four shows that the leading cause of injury deaths was suicide, accounting for approximately one-third of the deaths (34%). Motor vehicle crashes on a public road was the second leading cause of injury death (29%); followed by falls (19%); homicide (5%); and unintentional poisoning (3%).

Figure 4: North Shore City- leading causes of injury death 1993-1999

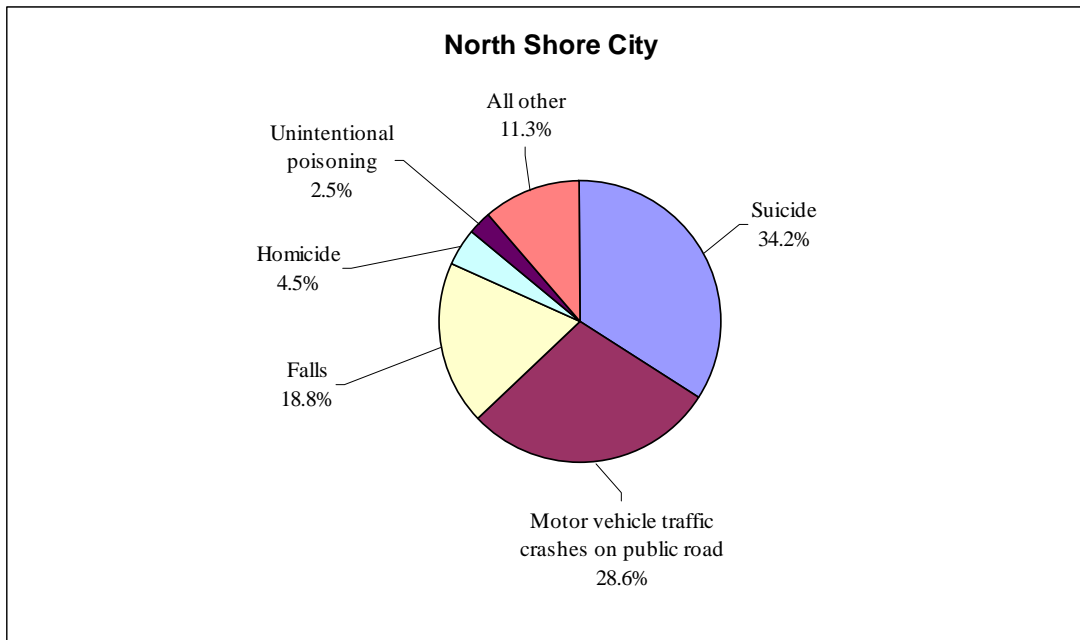
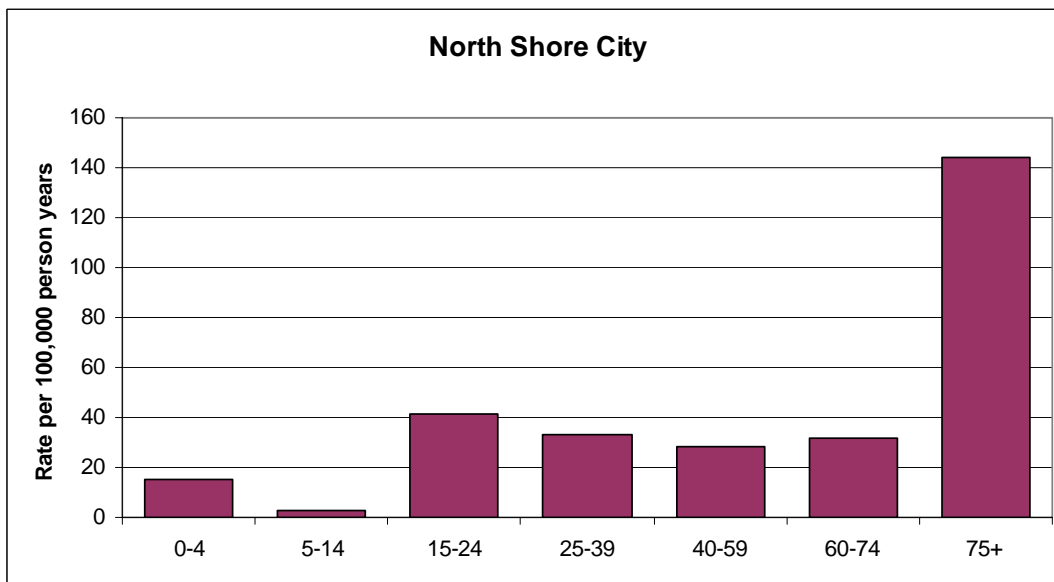


Figure five shows that the 75+ age group had the highest rate of injury death (144 deaths per 100,000 person years) followed by young people aged 15-24 years (42 deaths per 100,000 person years).

Figure 5: Rates of injury death by age group, 1993-1999

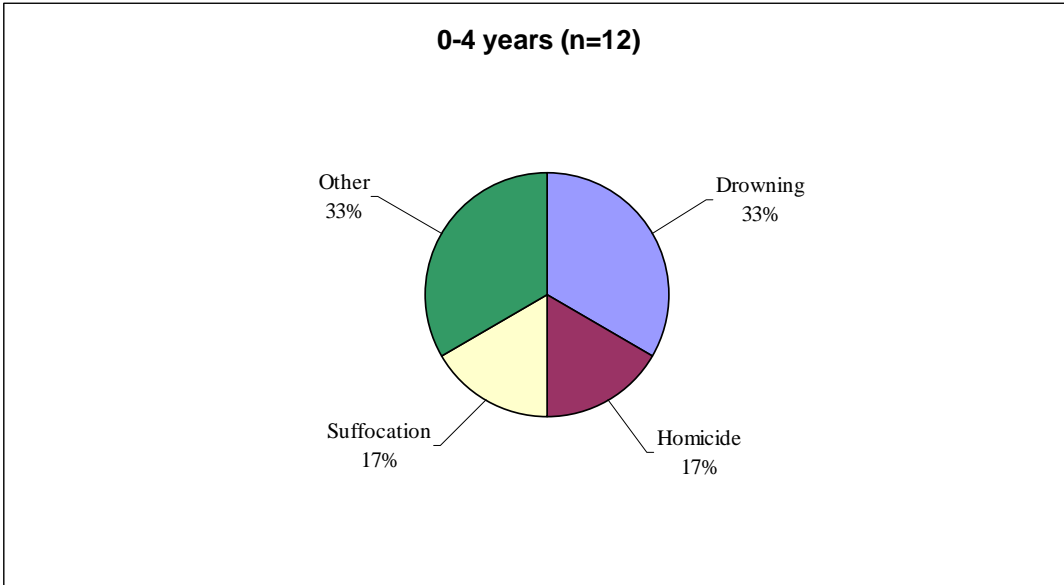


3.3.1.1 Leading causes of injury death by age group

Figure six shows that drowning was the leading cause of injury deaths for pre-school children aged 0-4 years, accounted for one-third (33%) of the deaths during the period

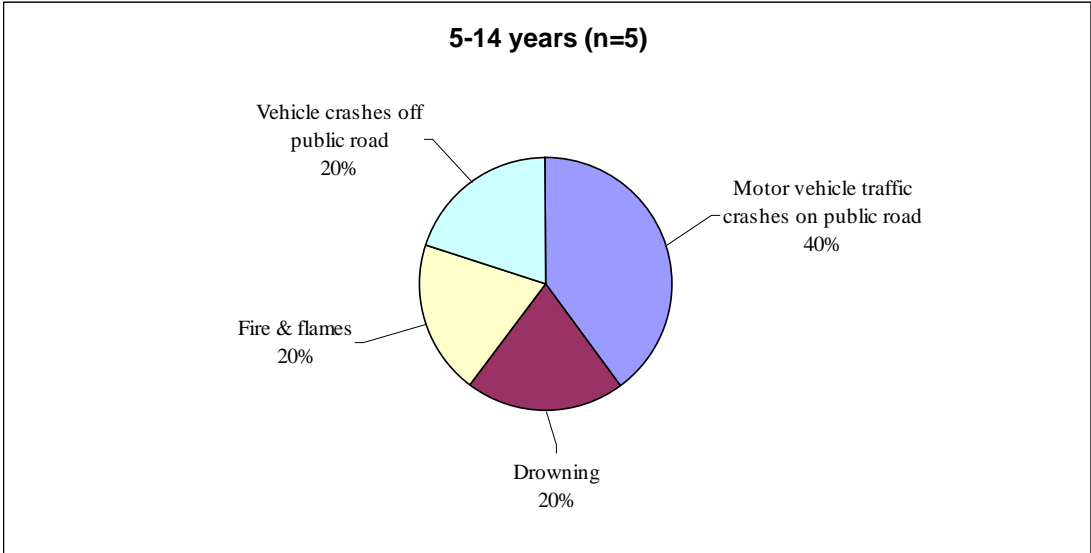
1993-1999. Homicide accounted for 17% of the injury deaths; and suffocation accounted for 17% of the injury deaths.

Figure 6: Leading causes of injury death for 0-4 year olds, 1993-1999



As shown by figure seven, the leading cause of injury death for the 5-14 year age group was motor vehicle crashes on a public road (40%). Drowning accounted for 20% of the deaths; fire and flames accounted for 20% of deaths; and vehicle crashes off public roads also accounted for 20% of the deaths.

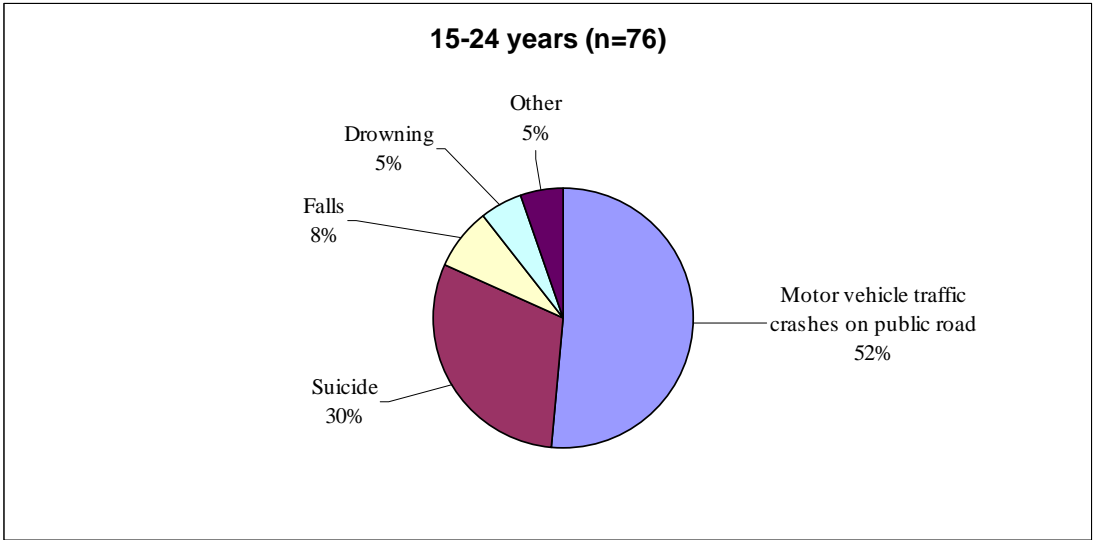
Figure 7: Leading causes of injury death for 5-14 year olds, 1993-1999



For 15-24 year olds, motor vehicle crashes on a public road was the leading cause of injury death, accounted for 52% (figure eight). Suicide accounted for nearly a third

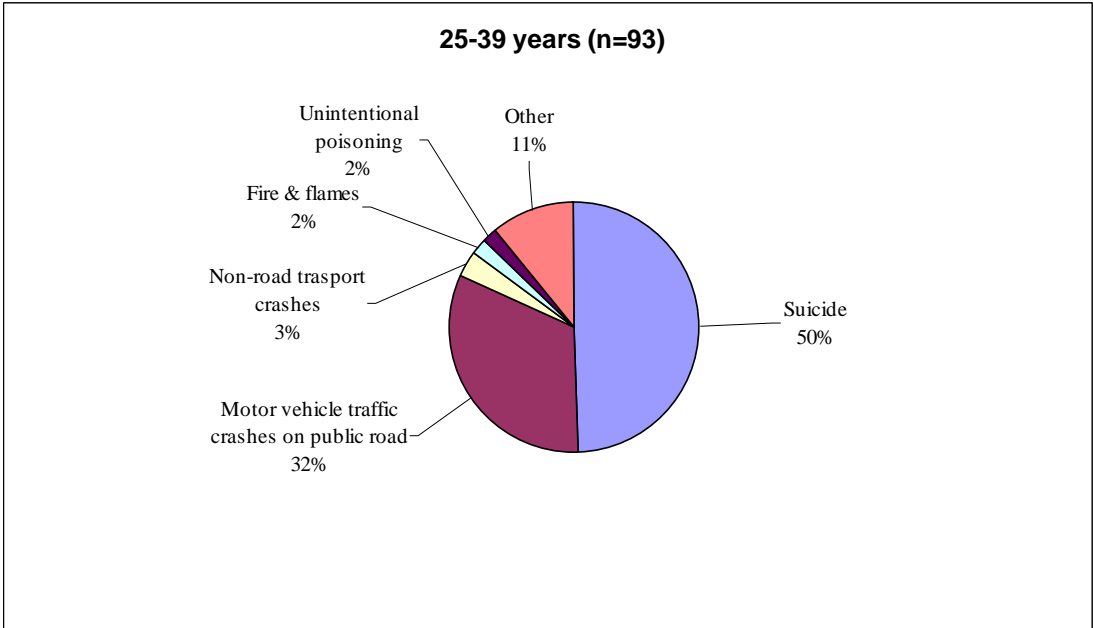
(30%) of the deaths; 8% were the result of falls; and 5% of the fatalities were as a result of drowning.

Figure 8: Leading causes of injury death for 15-24 year olds, 1993-1999



As shown in figure nine, suicide was the leading cause of injury death for 25-39 age group, accounted for half (50%) of the deaths. Nearly one-third (32%) of the injury deaths were caused by motor vehicle crashes on a public road; 3% were the result of non-road transport crashes; 2% were caused by fire and flames; and 2% of the fatalities were as a result of unintentional poisoning.

Figure 9: Leading causes of injury death for 25-39 year olds, 1993-1999



For 40-59 year olds, approximately half (48%) of the deaths were the result of suicide (figure 10). Motor vehicle crashes on a public road were the second leading cause of injury death (23%); followed by drowning (8%); falls (6%); and unintentional poisoning (3%).

Figure 10: Leading causes of injury death for 40-59 year olds, 1993-1999

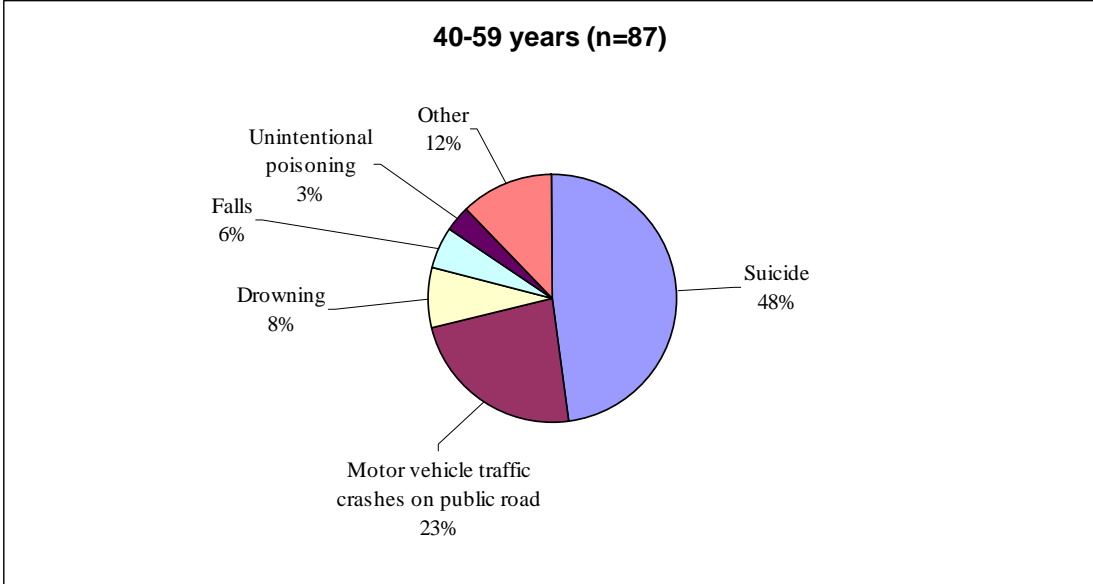
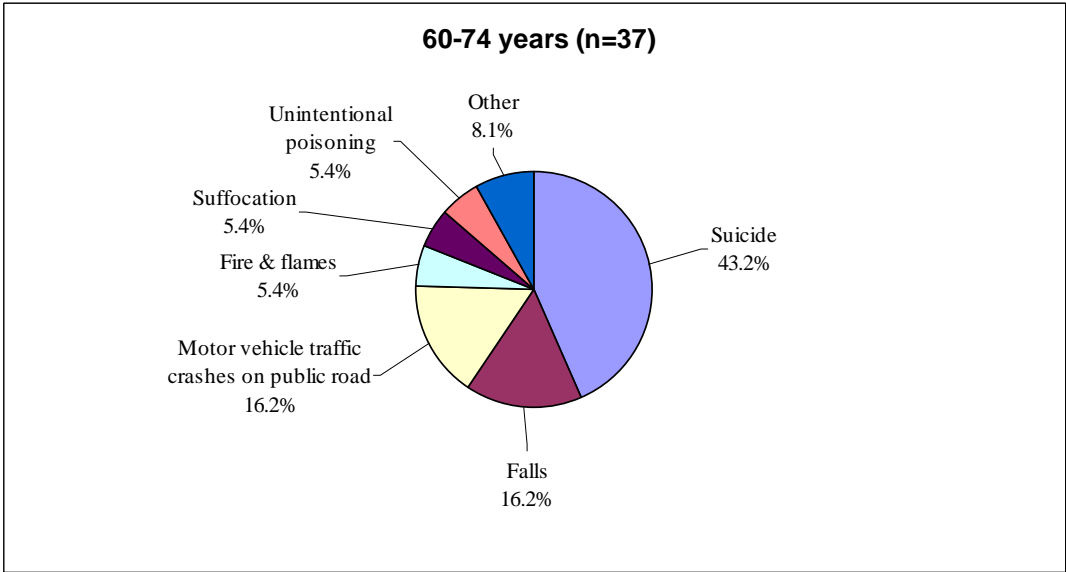


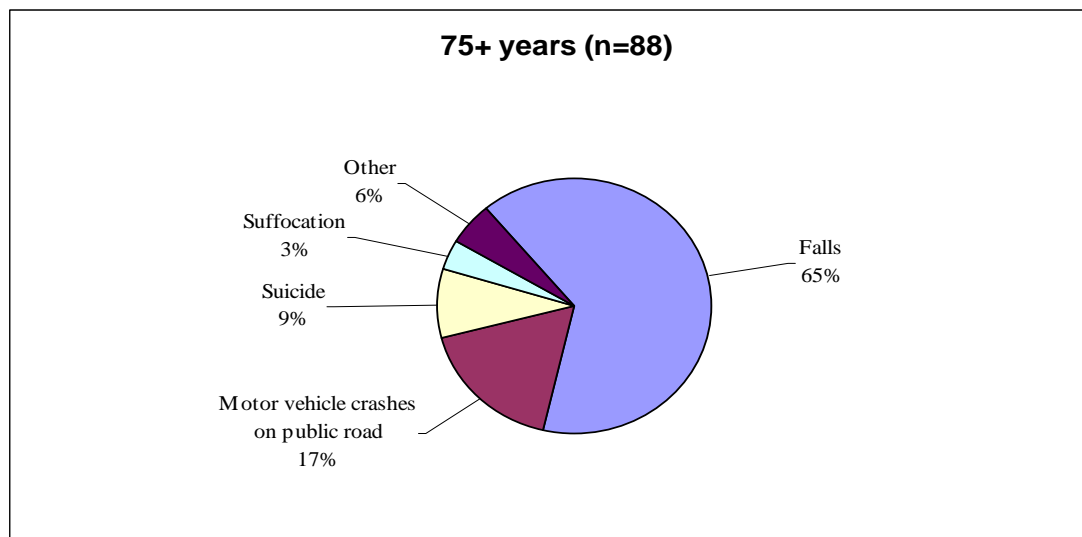
Figure 11 shows that for adults aged between 60-74 years of age, 43% of the deaths were the result of suicide. Falls (16%) and motor vehicle crashes on a public road (16%) were the second leading causes of injury death; followed by fire and flames (5%); suffocation (5%); and unintentional poisoning (5%).

Figure 11: Leading causes of injury death for 60-74 year olds, 1993-1999



For older people aged 75+ years, nearly two-thirds (65%) of the deaths were the result of a fall (figure 12). Motor vehicle crashes on a public road accounted for 17% of the injury deaths; suicide accounted for 9%; and suffocation accounted for 3% of the deaths.

Figure 12: Leading causes of injury death for 75+ year olds, 1993-1999



3.3.1.2 Ethnic comparison

During the period 1996-1999, Pacific had the highest age-standardised rate (51 per 100,000 person years) of injury deaths, followed by Maori (37 per 100,000 person years), and New Zealand European/Other (31 per 100,000 person years). Of the 231 people who died from injury, New Zealand European/Other accounted for the majority (87%), Maori accounted for 8%, and Pacific accounted for 5%.

Figure 13 gives a breakdown of injury death rates by ethnicity and age group. Maori had the highest rate (311 deaths per 100,000 person years) of injury death for the age group 75+ years. The New Zealand European/Other ethnic groups also had the highest injury death rates (123 deaths per 100,000 person years) in the older age groups (75+).

Figure 13: Injury death rates by ethnicity and age group for North Shore City, 1996-1999

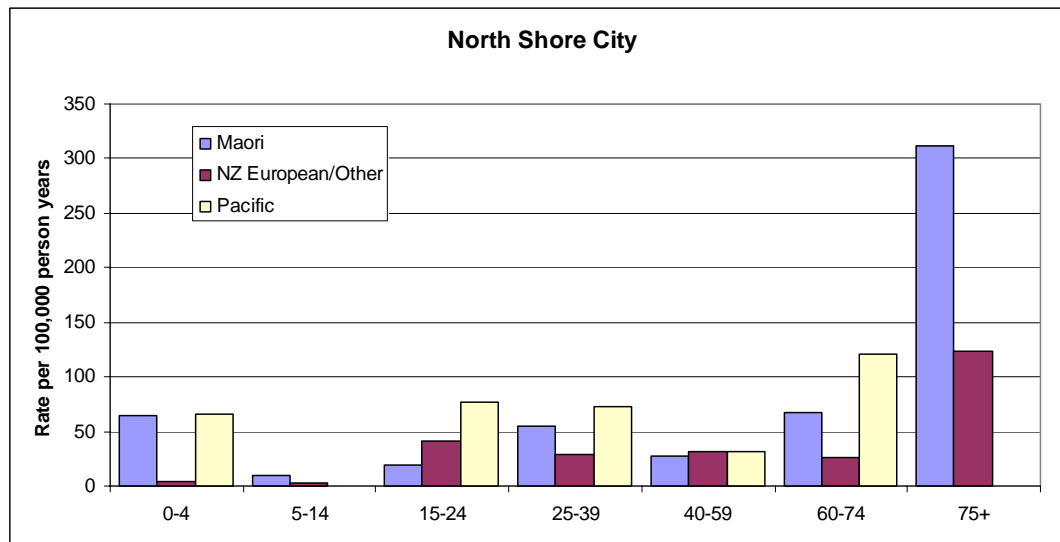


Table four shows that suicide/deliberate self-harm was the leading cause of injury deaths for New Zealand European/Other (40%) and Maori (33%). Over half (55%) of injury deaths for Pacific peoples were caused by motor vehicle crashes on a public road.

Table 4: Ethnic comparison of leading causes of injury deaths, 1996-1999

Maori (n=18)		NZ European/Other (n=202)		Pacific (n=11)	
Cause	%	Cause	%	Cause	%
Suicide	33	Suicide	40	Motor vehicle crashes on public road	55
Motor vehicle crashes on public road	28	Motor vehicle crashes on public road	27	Drowning	10
Unintentional poisoning	11	Falls	19	Suicide	10

3.3.1.3 Comparison by Ward

The Ward comparison in figure 14 shows that the Northern Ward had the highest age-standardised rate of injury death, while Central had the lowest.

Figure 14: Age-standardised injury death rates by Ward for North Shore City, 1993-1999

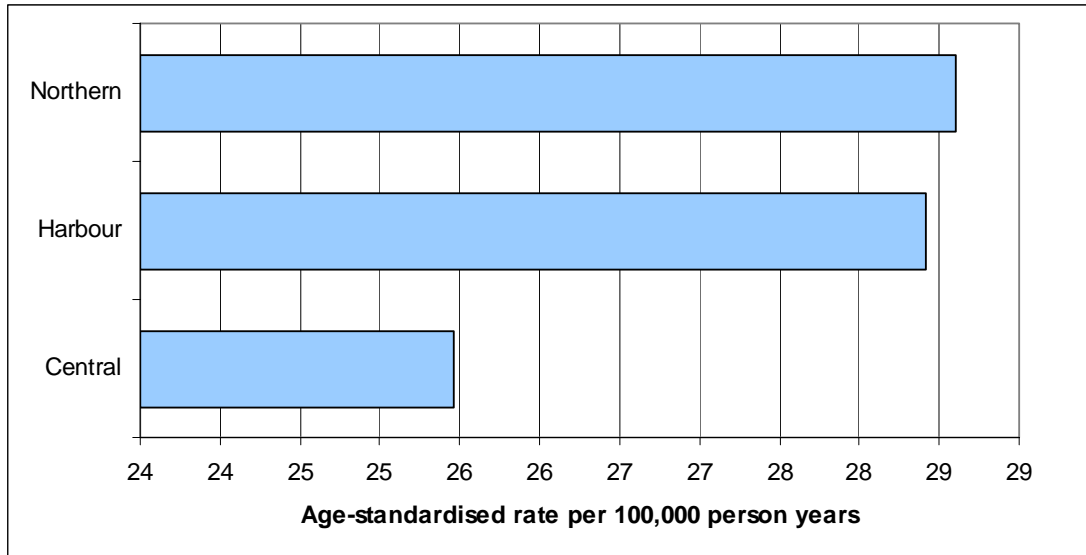
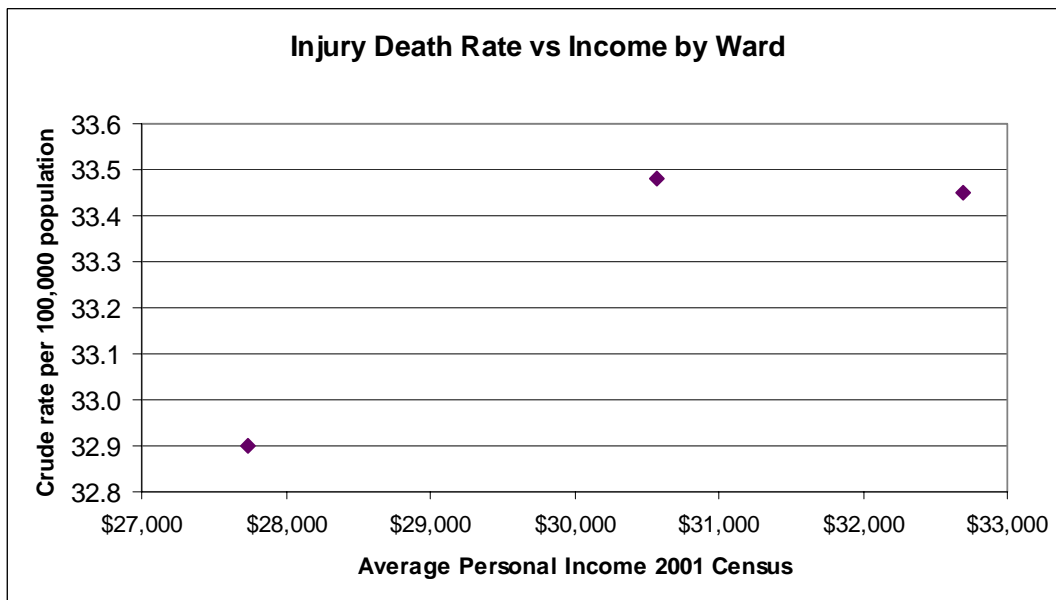


Figure 15 shows a plot of the crude injury death rate for each ward, graphed against the average personal income for each ward. The graph shows that there was no obvious trend in the relationship between the crude injury death rate and the average personal income. Note that the plot should be interpreted with caution, as there are only three points in the graph.

Figure 15: Relationship between injury death rate and income on a Ward Basis

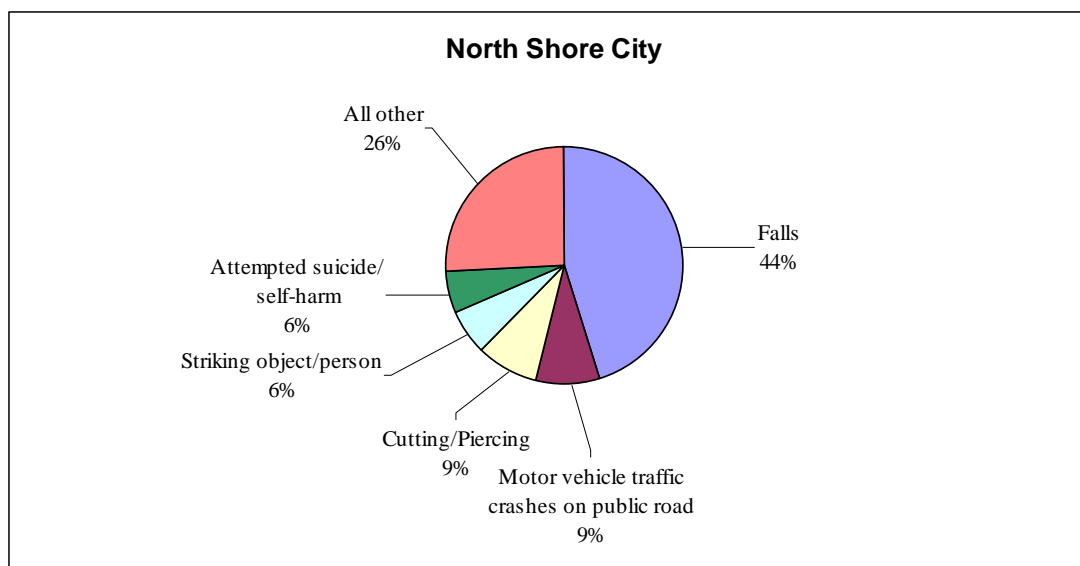


3.3.2 NZHIS injury hospitalisation 1993-2003

Between 1993 and 2003, 19,284 residents of North Shore City were hospitalised due to an injury. The crude injury hospitalisation rate during this period was 994 injury hospitalisations per 100,000 person years. Males accounted for over half (55%) of the injury hospitalisations.

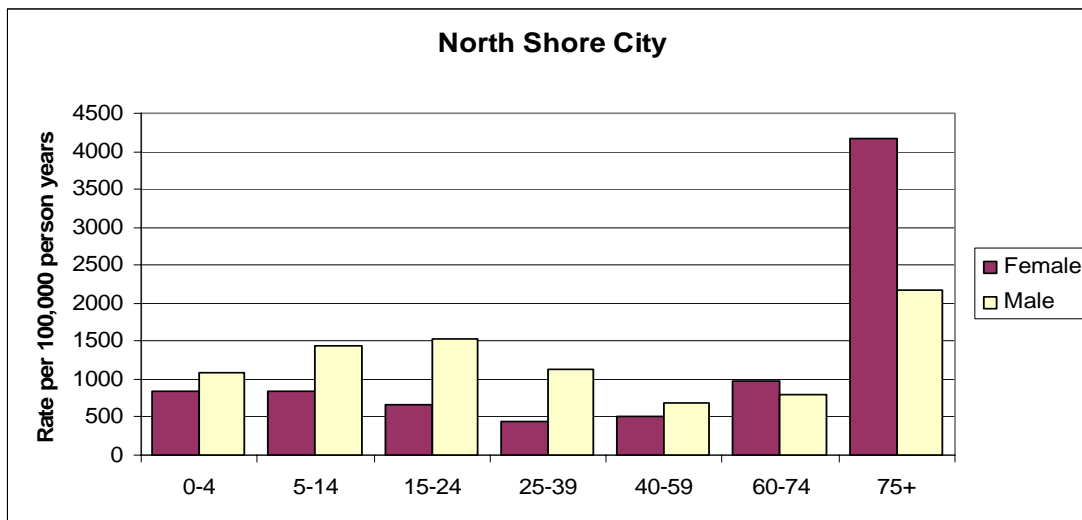
As shown in figure 16, falls (44%) were the leading cause of injury hospitalisation in North Shore City during the period 1993-2003. The other leading causes of injury were motor vehicle traffic crashes on a public road (9%); cutting and piercing (9%); striking an object or person (6%); and attempted suicide/deliberate self-harm (6%).

Figure 16: North Shore City- leading causes of injury hospitalisation 1993-2003



As shown by figure 17, for females, the 75+ age group had the highest rates (4,174 hospitalisations per 100,000 person years) of injury hospitalisation, followed by adults aged 60-74 years (966 hospitalisations per 100,000 person years). For males, the 75+ age group also had the highest rates (2,162 hospitalisations per 100,000 person years) of injury hospitalisation, followed by young people aged 15-24 years (1,523 hospitalisations per 100,000 person years). Males had higher rates of injury across all age groups below the age of 60.

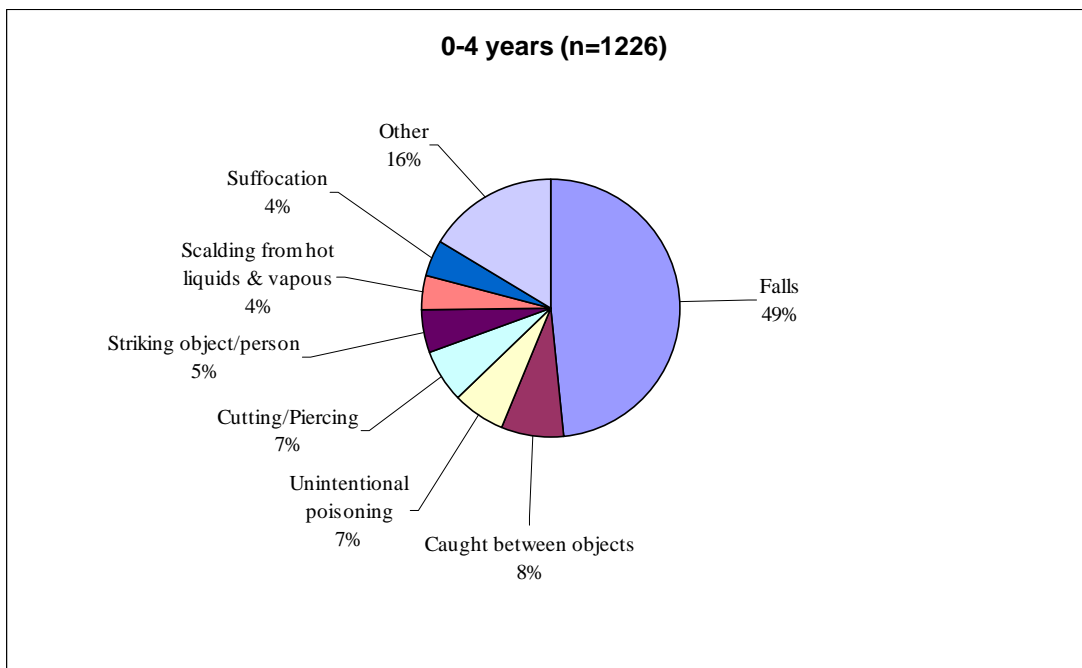
Figure 17: Rates of injury hospitalisation by age and gender, 1993-2003



3.3.2.1 Leading causes of injury hospitalisation by age group

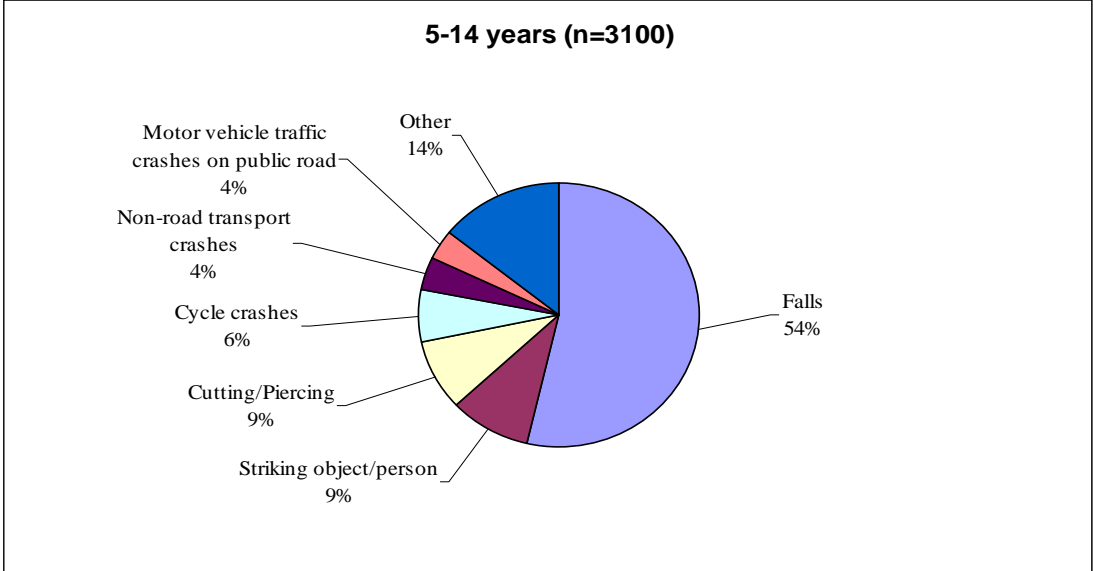
Figure 18 shows that for 0-4 year olds, falls were the leading cause of injury hospitalisation, accounted for 49%. The other leading causes of injury were caught between objects (8%); unintentional poisoning (7%); cutting and piercing (7%); striking an object or person (5%); scalding from hot liquids and vapours (4%); and suffocation (4%).

Figure 18: Leading causes of injury hospitalisation for 0-4 year olds, 1993-2003



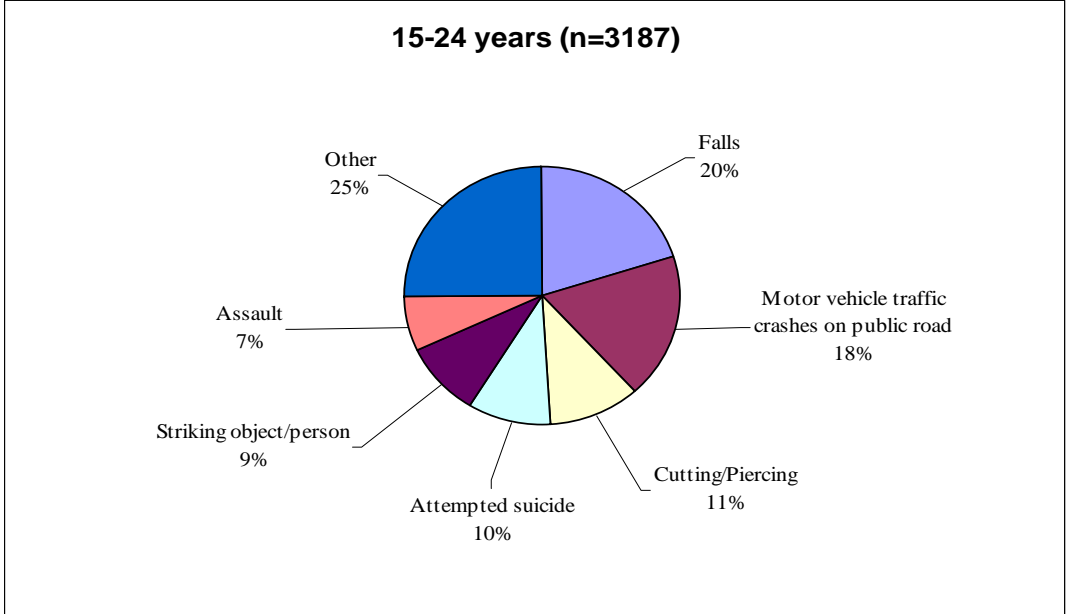
For 5-14 year olds, falls accounted for over half (54%) of the injury hospitalisations (figure 19). The other leading causes were striking an object or person (9%); cutting and piercing (9%); cycle crashes (6%); non-road transport crashes (4%); and motor vehicle crashes on a public road (4%).

Figure 19: Leading causes of injury hospitalisation for 5-14 year olds, 1993-2003



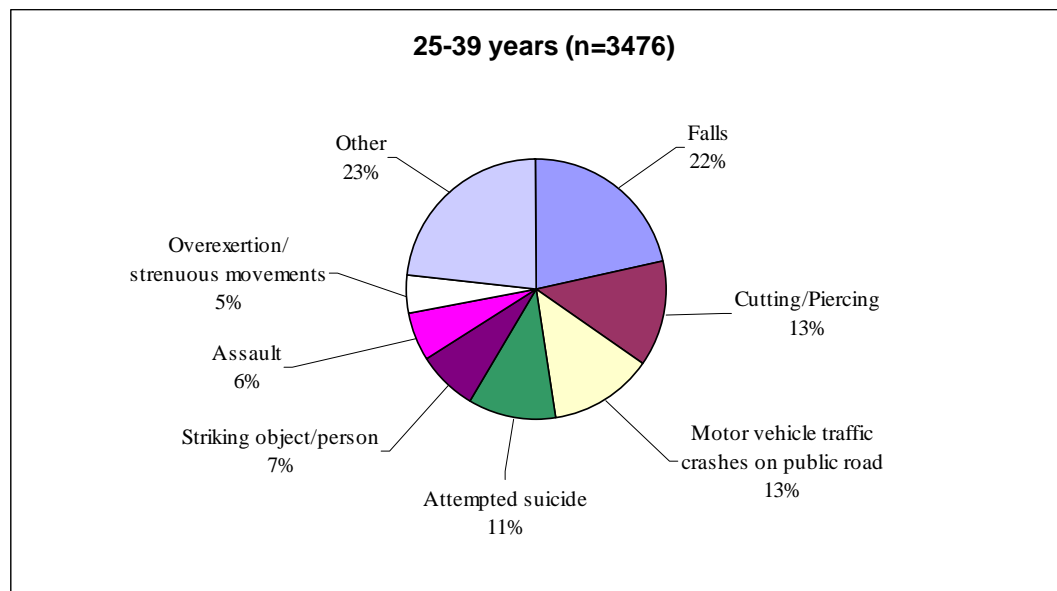
For 15-24 year olds, falls were the leading cause of injury hospitalisation (20%), followed by motor vehicle crashes on a public road (18%; figure 20). The other leading causes were cutting and piercing (11%); attempted suicide (10%); striking a person or object (9%); and assault (7%).

Figure 20: Leading causes of injury hospitalisation for 15-24 year olds, 1993-2003



For 25-39 year olds, falls (22%) were the leading cause of injury hospitalisation (figure 21). The other leading causes were cutting and piercing (13%); motor vehicle crashes on a public road (13%); attempted suicide (11%); striking a person or object (7%); assault (6%); and overexertion or strenuous movements (5%).

Figure 21: Leading causes of injury hospitalisation for 25-39 year olds, 1993-2003



For 40-59 year olds, falls were the leading cause of injury hospitalisation, accounted for one-third (33%) of the injuries (figure 22). The other leading causes were cutting and piercing (12%); attempted suicide (12%); motor vehicle crashes on a public road (10%); striking an object or person (4%); and overexertion and strenuous movements (4%).

Figure 22: Leading causes of injury hospitalisation for 40-59 year olds, 1993-2003

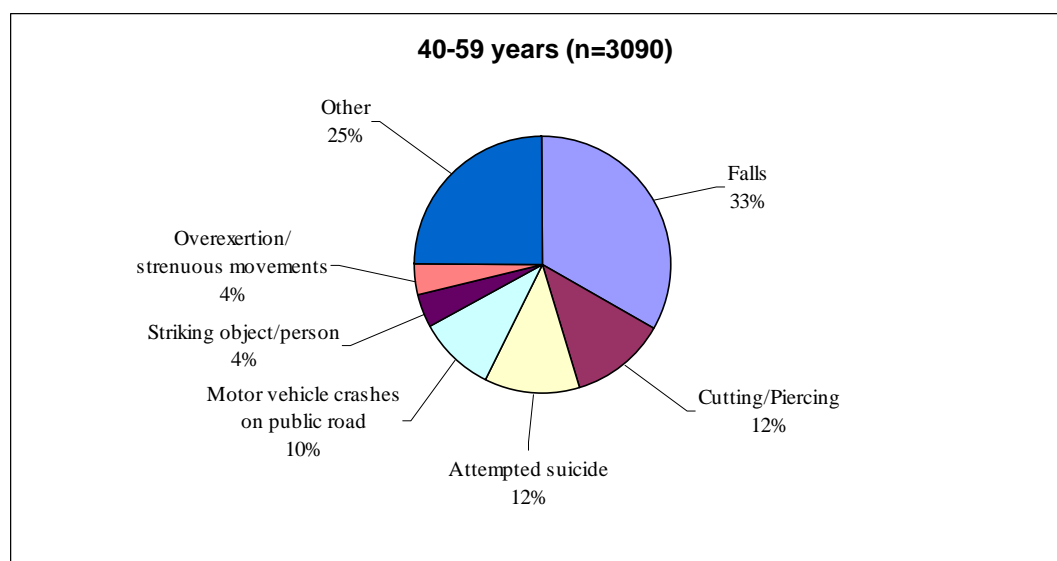
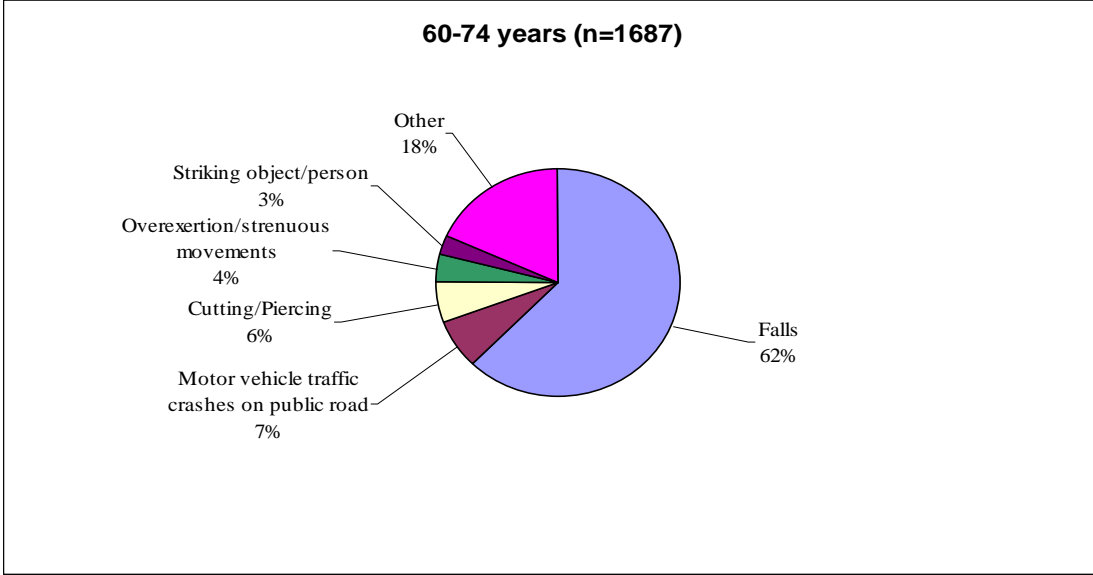


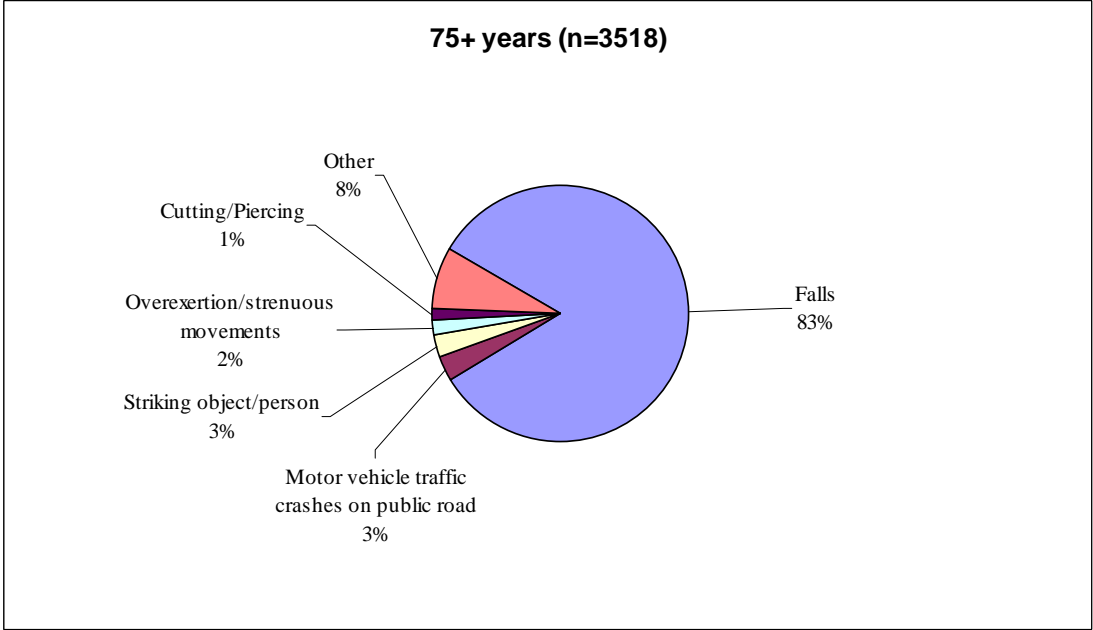
Figure 23 shows that for 60-74 year olds, falls were the leading cause of injury hospitalisation, accounted for 62%. The other leading causes were motor vehicle crashes on a public road (7%); cutting and piercing (6%); overexertion and strenuous movements (4%); and striking an object or person (3%).

Figure 23: Leading causes of injury hospitalisation for 60-74 year olds, 1993-2003



For 75+ year olds, falls (83%) were the leading cause of injury hospitalisation (figure 24). Other causes of injury hospitalisation were motor vehicle crashes on a public road (3%); striking an object or person (3%); overexertion and strenuous movement (2%); and cutting and piercing (1%).

Figure 24: Leading causes of injury hospitalisation for 75+ year olds, 1993-2003



3.3.2.2 Ethnic comparison

For the period 2001-2003, Pacific had the highest age-standardised rate of hospitalised injuries (1,092 per 100,000 person years), followed by New Zealand European/Other (1,066 per 100,000 person years), and Maori (1,044 per 100,000 person years). New Zealand European/Other accounted for the majority (91%) of the injury hospitalisations; Maori accounted for 6%; and Pacific accounted for 3%.

Figure 25 provides a breakdown of injury hospitalisation rates by ethnicity and age group. The New Zealand European/Other ethnic group had the highest injury rate (3,839 hospitalisations per 100,000 person years) in the older age group (75+). For Maori, older adults aged 75+ years also had the highest rate (1,580 hospitalisations per 100,000 person years) of injury. Pacific peoples had the highest rate (1,650 hospitalisations per 100,000 person years) of injury for young people aged 15-24 years.

Figure 25: Injury hospitalisation rates by ethnicity and age Group for North Shore City, 2001-2003

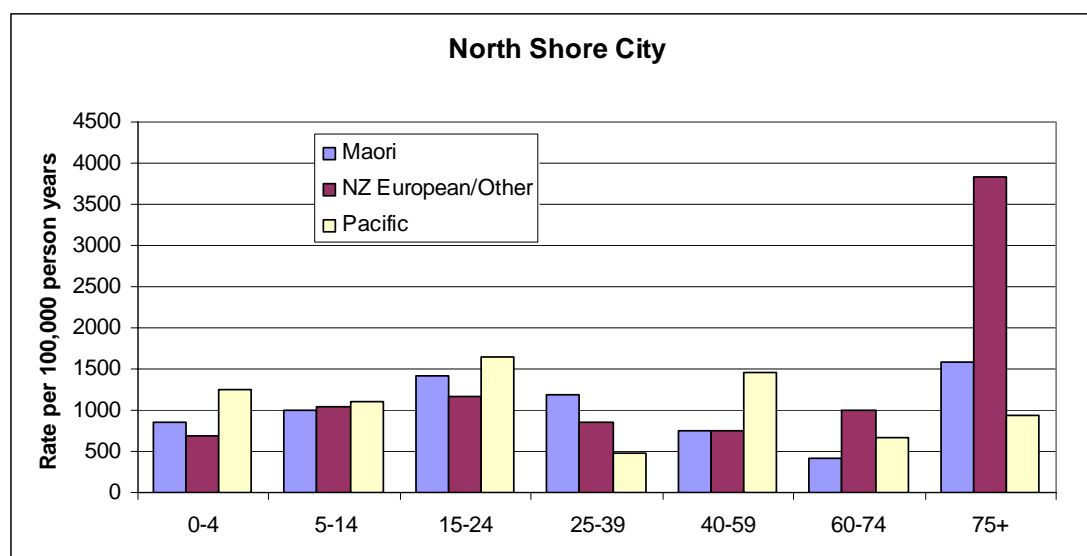


Table five shows that the falls were the leading cause of injury hospitalisation during the period 2001-2003 for all ethnic groups, with New Zealand European/Other having the highest proportion of falls (44%). A higher percentage of Pacific peoples were injured by cutting and piercing (12%) compared to other ethnic groups. Maori had a higher proportion of injuries of being struck by an object or person (9%).

Table 5: Ethnic comparison of leading causes of injury hospitalisation, 2001-2003

Maori (n=384)		NZ European/Other (n=5555)		Pacific (n=199)	
Cause	%	Cause	%	Cause	%
Falls	25	Falls	44	Falls	31
Motor vehicle crashes on public road	11	Attempted suicide/self-harm	9	Cutting/Piercing	12
Cutting/Piercing	10	Motor vehicle crashes on public road	7	Motor vehicle crashes on public road	12
Attempted suicide/self-harm	9	Cutting/Piercing	7	Assault	8
Striking an object or person	9	Striking an object or person	5	Striking an object or person	7

3.3.2.3 Comparison by Ward

The comparison of Ward rates in figure 26 shows that the Harbour Ward had the highest age-standardised rate of injury hospitalisation, while Central Ward had the lowest.

Figure 26: Age-standardised injury hospitalisation rates by Ward for North Shore City, 1993-2003

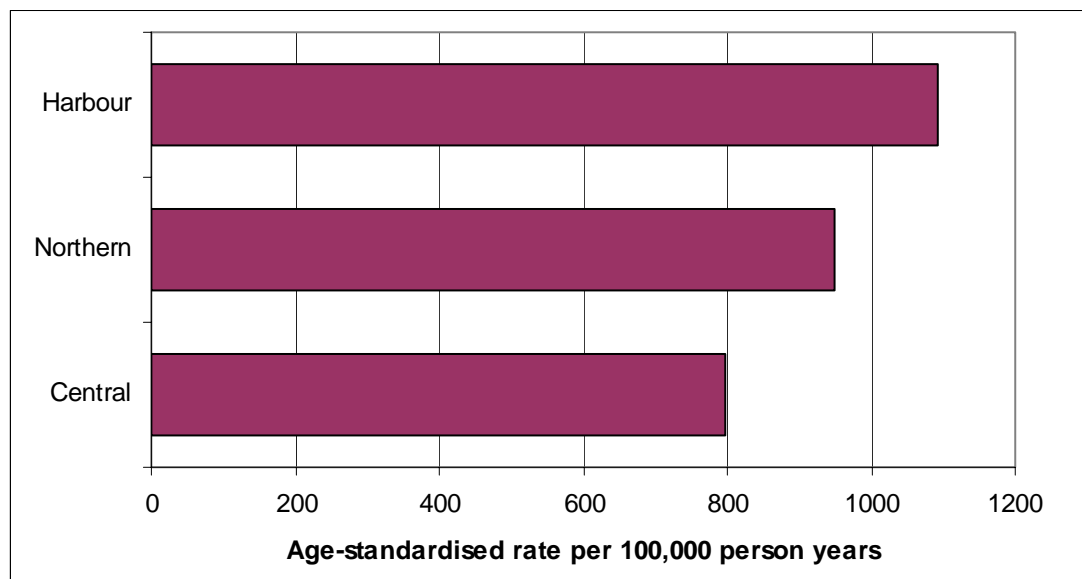
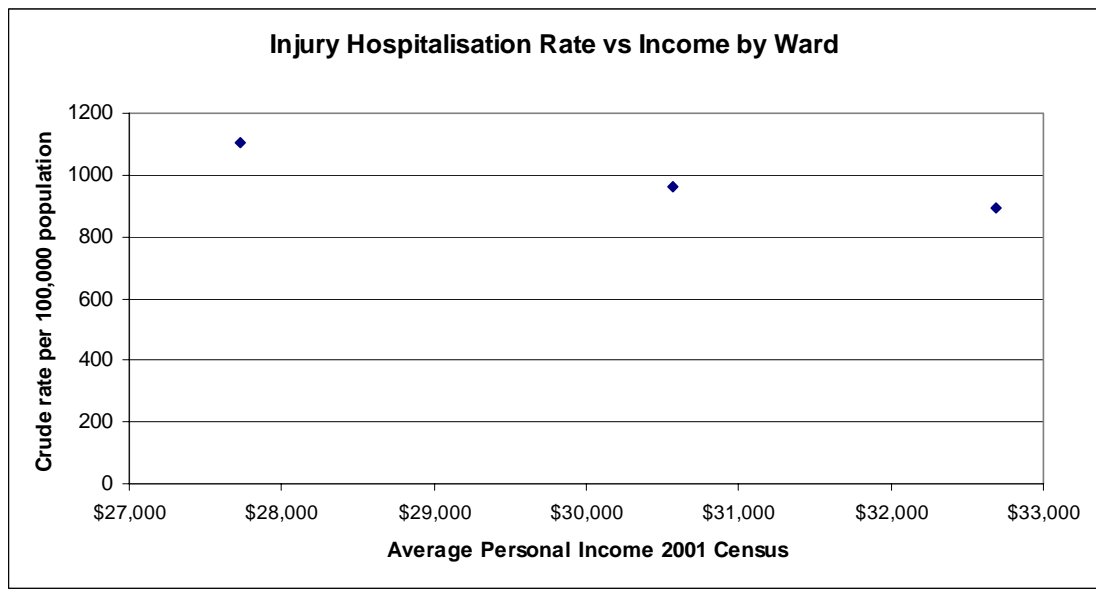


Figure 27 shows a plot of the crude injury hospitalisation rate for each Ward, graphed against the average personal income for each ward. The graph shows that the crude injury hospitalisation rate decreases as the average personal income increases. However the plot should be interpreted with caution, as there are only three points in the graph.

Figure 27: Relationship between injury hospitalisation rate and income on a Ward Basis



3.4 ACC injury statistics

The information in this section is taken from an ACC analysis of entitlement claims and injury deaths for residents of the North Shore City community. It should be noted that the number of entitlement claims will be less than the total number of injury claims made to ACC, as entitlement claims only exist for cases where some form of compensation is paid directly to the injured person.

As shown in figure 28 the total cost of new and ongoing entitlement claims in North Shore City decreased significantly from \$25.73 million in 1997/98 to \$16.92 million in 2000/01. The total cost of new and ongoing entitlement claims then increased in the subsequent years to \$21.05 million in 2003/04.

Figure 28: Costs of new and ongoing entitlement claims in North Shore City, 1994/5-2003/4

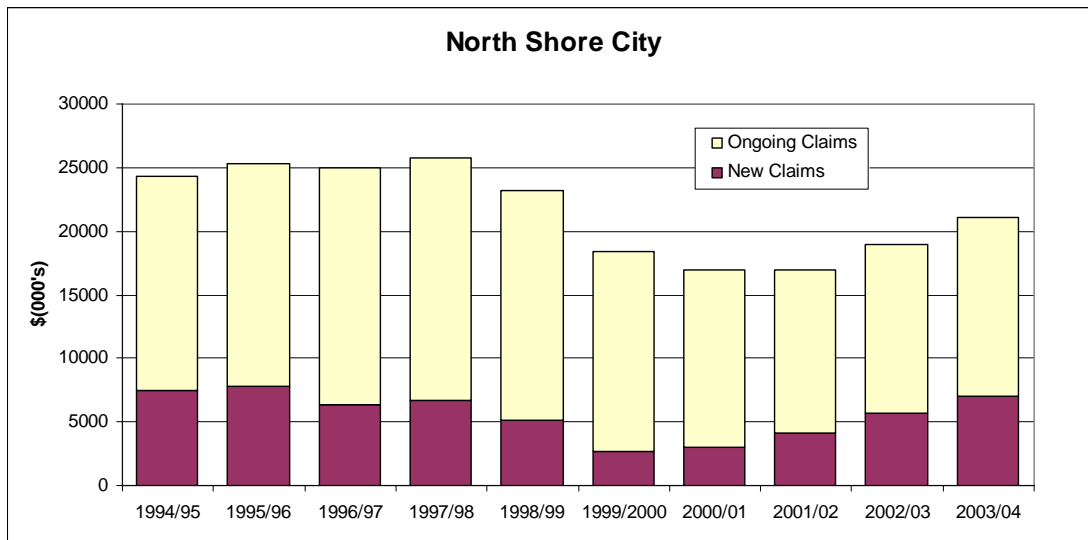


Figure 29 shows that the number of fatal claims in North Shore City fluctuated during the 1994/5 and 2003/4 period with a low of eight claims in 1999/2000. The highest number of claims (n=22) were recorded in 2002/03.

Figure 29: Fatal claims occurring in North Shore City, 1994/5 – 2003/4

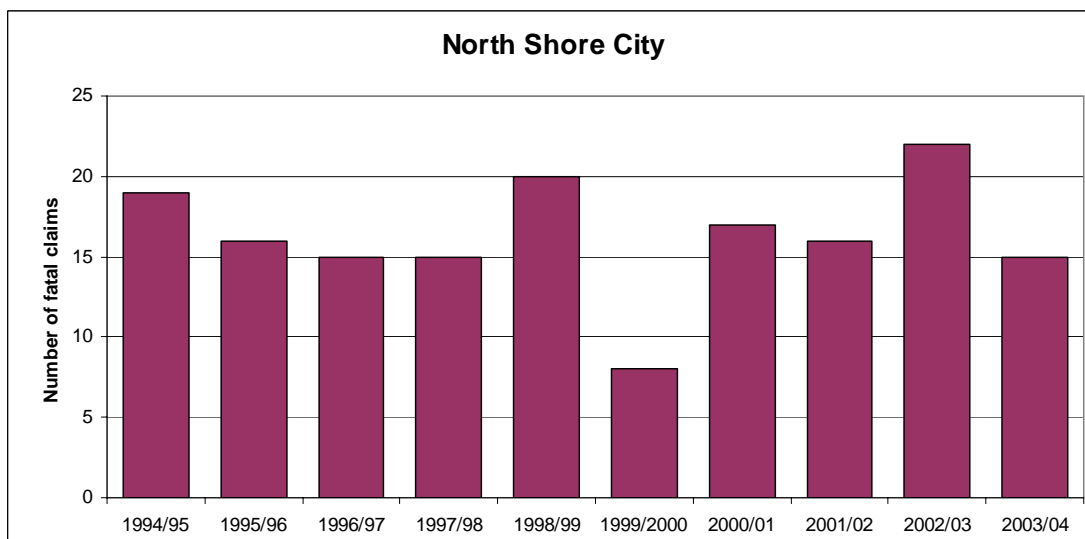


Figure 30 shows that injuries occurring at home accounted for nearly one-third (31%) of new entitlement claims registered with ACC in 2002/03. Injuries that occurred at a place for recreation or sports accounted for 16% of claims; injuries that occurred at a commercial or service location accounted for 14% of claims; injuries at an unknown place accounted for 10% of claims; and road or street injuries accounted for 9% of new entitlement claims.

Figure 30: New entitlement claims registered with ACC in 2002/03 by scene of injury, North Shore City

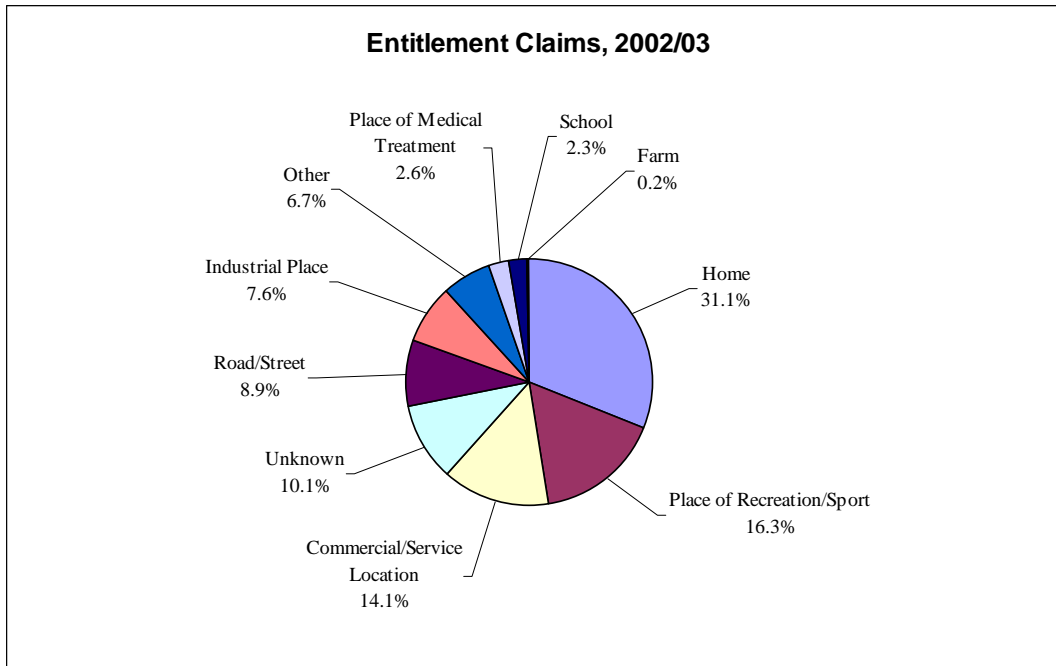
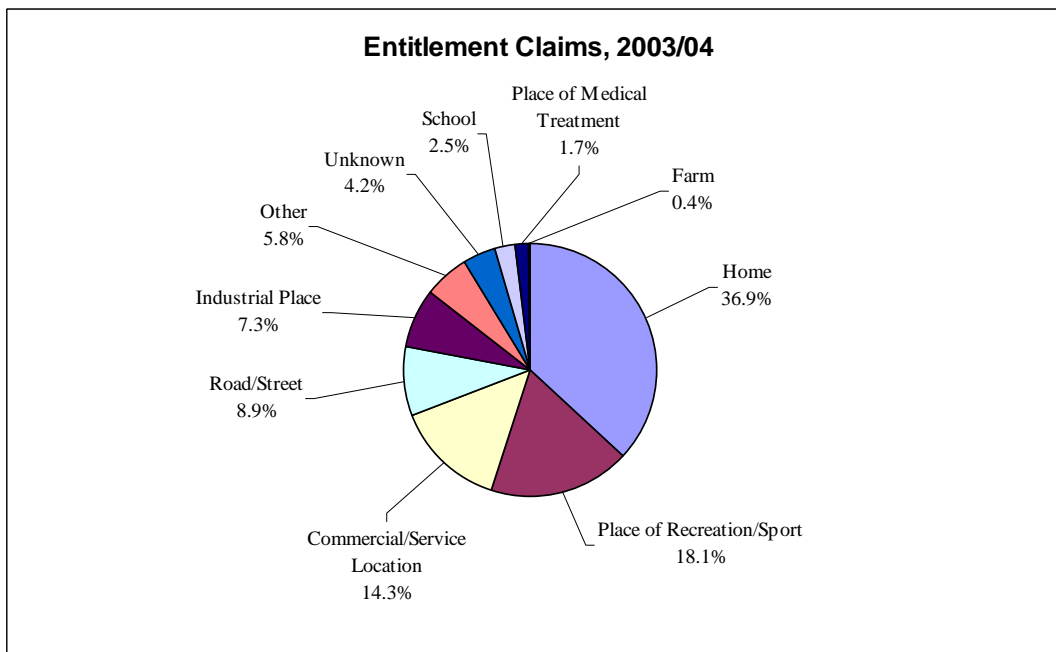


Figure 31 shows that injuries occurring at home accounted for just over one-third (37%) of entitlement claims registered with ACC in 2003/04. Injuries at a place for recreation or sport accounted for 18% of claims; injuries occurred at a commercial or service location accounted for 14% of claims; and road or street injuries accounted for 9% of new entitlement claims.

Figure 31: New entitlement claims registered with ACC in 2003/04 by scene of injury, North Shore City



A breakdown of entitlement claims by diagnosis shows that soft tissue injuries accounted for 46% of all claims (figure 32). Fractures and dislocations accounted for nearly one-third (33%) of claims, and lacerations/punctures accounted for 10% of the claims.

Figure 32: Diagnosis of entitlement claims registered with ACC in 2003/04, North Shore City

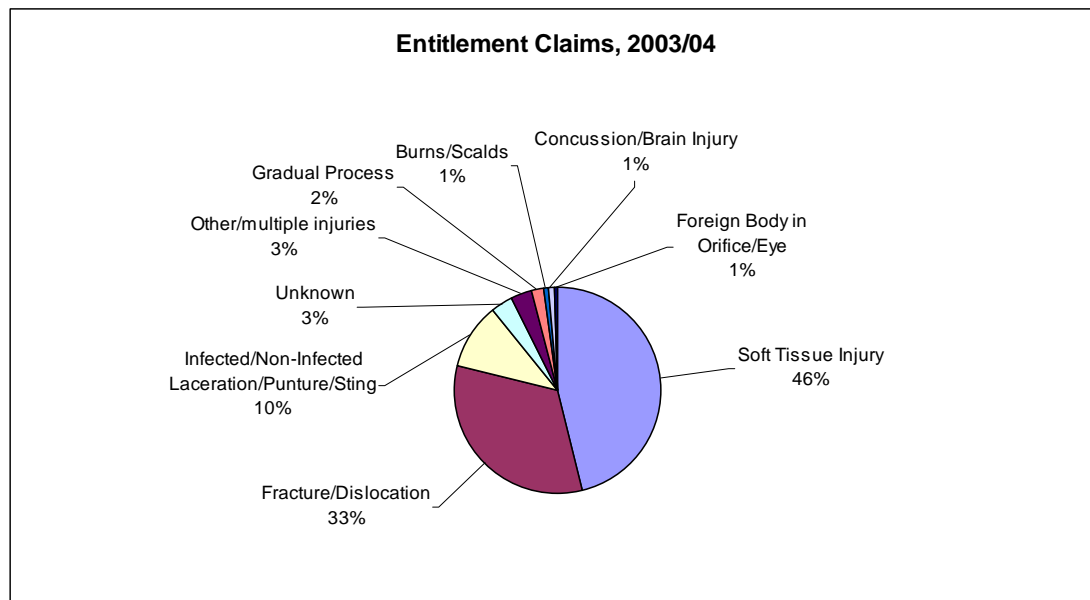
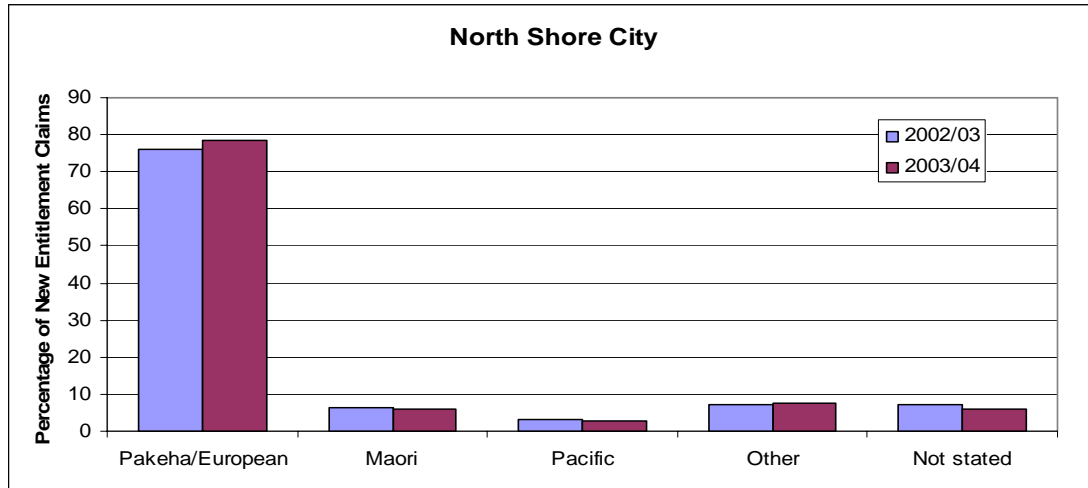


Figure 33 shows that residents who identify as New Zealand European had the highest percentage of new entitlement claims registered with ACC in both 2002/03 (76%) and 2003/04 (78%) in North Shore City. In 2003/04, Maori accounted for 6% of new entitlement claims and Pacific people accounted for 3% of the new entitlement claims. Overall, the percentage of new entitlement claims in both 2002/3 and 2003/4 were similar across all ethnic groups.

Figure 33: New entitlement claims by ethnicity registered with ACC in 2002/03 and 2003/04, North Shore City



3.5 LTSA road injury statistics

The figures quoted in this section are taken from Motor Accidents in New Zealand 2002 (LTSA, 2003), Road Safety Atlas (LTSA, 1996), and the 1997/98 Travel Survey Report (LTSA, 2000). It should be noted that not all motor vehicle crashes are reported to the Police; therefore LTSA figures underestimate the burden of injury due to motor vehicle crashes in New Zealand.

In 2002, North Shore City had a crash rate of 17.8 crashes per 10,000 population, and a casualty rate of 22.8 per 10,000 population. As shown in table six, in 2002 there were 348 road traffic crashes in North Shore City, resulting in 454 casualties.

Table 6: Reported road traffic crashes and casualties in North Shore City, 2002

Type of injury	Number of crashes	Number of injuries
Fatalities	7	8
Serious injuries	341	74
Minor injuries		372
Total	348	454

The social cost of road injury in North Shore City is \$73 million dollars/year, which is equivalent to a per capita social cost of \$665/person/year (table seven). The per capita social cost of North Shore City was slightly higher compared to Auckland Region but lower than New Zealand. North Shore City had the highest social cost per road km.

Table 7: Measures of road safety

Other road safety measures	North Shore City	Auckland Region	New Zealand
Per capita social cost (\$/person/year)	665	659	840
Social cost per road km (\$000/km/yr)	118	87	33

As defined by the Road Safety Atlas (LTSA, 1996), risk ratios for causal factors in road crashes are calculated as the social cost per unit of traffic volume and are a useful tool for measuring and comparing the contribution of causal factors to road traffic injury.

As shown in table eight, North Shore City had higher risk-ratios for driver factors such as 'speed', and 'drive - not speed or alcohol' compared to the Auckland Region and the whole of New Zealand. However North Shore City has lower risk-ratios for 'alcohol', 'alcohol and speed combined', and 'non driver factor' compared to Auckland Region and the whole of New Zealand.

Table 8: Risk ratios for driver factors

Risk –Driver factors (cents/veh-km)	North Shore City	Auckland Region	New Zealand
Alcohol	1.19	1.73	1.68
Alcohol and speed combined	0.82	0.82	1.29
Speed	0.94	0.90	1.48
Driver -not speed or alcohol eg. Overtaking, failure to give way, tiredness	3.29	2.94	3.94
Non driver factor	1.32	1.52	1.45
All causes	7.54	7.92	9.84

Table nine shows that the risk-ratios for 'no pedestrian or cyclist involvement' and 'cyclist involvement' were slightly lower in North Shore City than the Auckland Region and the whole of New Zealand. The risk-ratio for pedestrian involvement in North Shore City was lower than the risk-ratio for the Auckland Region but higher than the risk-ratio for the whole of New Zealand.

Table 9: Risk ratios for pedestrian and cyclist factors

Risk –pedestrian and cyclist factors (cents/veh-km)	North Shore City	Auckland Region	New Zealand
No pedestrian or cyclist involved	6.64	6.87	8.78
Pedestrian involvement	0.80	0.89	0.78
Cyclist involvement	0.10	0.16	0.28
All causes	7.54	7.92	9.84

As shown in table 10, the risk-ratio for non-road factor in North Shore City was lower than the risk-ratio for the Auckland Region and the whole of New Zealand. However the risk-ratio for road factors that involved e.g. slippery surface, obstructions, and road works was close to the risk-ratio for the Auckland Region but lower than the risk-ratio for the whole of New Zealand.

Table 10: Risk ratios for road factors

Risk - road factors (cents/veh-km)	North Shore City	Auckland Region	New Zealand
Non road factor	7.02	7.40	8.84
Road factor involved eg slippery surface, obstructions, road works	0.53	0.52	1.00
All causes	7.55	7.92	9.84

Table 11 shows that the risk-ratios for non vehicle factor and vehicle factor involved e.g. faulty brakes, worn tyres, and punctures in North Shore City were slightly lower than the risk-ratios for the Auckland Region and the risk-ratios for the whole of New Zealand.

Table 11: Risk ratios for vehicle factors

Risk – vehicle factors (cents/veh-km)	North Shore City	Auckland Region	New Zealand
Non vehicle factor	7.10	7.41	9.20
Vehicle factor involved eg faulty brakes, worn tyres, punctures	0.44	0.50	0.64
All causes	7.54	7.92	9.84

Overall, these risk ratios indicate that driver factors contribute the greatest amount of risk for motor vehicle crashes occurring in the North Shore City.

Table 12 shows the results of a restraint usage survey published in Motor Accidents in New Zealand 2001 (LTSA, 2002). The figures show that the use of restraints by adults and children were higher in North Shore City compared to the Auckland Region and the whole of New Zealand. However the rate of cycle helmet wearing in North Shore City was higher than the rate for the Auckland Region, but lower than the rate for the whole of New Zealand.

Table 12: Restraint usage, March 2001

Restraint Usage	North Shore City (%)	Auckland Region (%)	New Zealand (%)
Front seat adults	96	94	92
Rear seat adults	98	84	70
Child restraints	90	77	82
Cycle helmet wearing	90	86	94

The regional figures in table 13 are obtained from the 1997/98 Travel Survey Report (LTSA, 2000) and show that the travel habits of Auckland Region residents were similar to all of New Zealand.

Table 13: Travelling distances for motorists in Auckland and New Zealand 1997/98

Millions of trips per year (as a percentage of total)	Auckland (%)	New Zealand (%)
Driver	50.1	49.8
Passenger	26.3	26.6
Cyclist	1.0	1.9
Pedestrian	20.1	19.4
Bus	2.5	2.3

4.0 Central Ward

4.1 Demographics

This section provides information relating to population, age, ethnicity and income for the Central Ward.

Table 14: Central Ward- usually resident population

Population*	2001 Census	%	1996 Census	%	1991 Census	%
Maori	3090	5	3687	6	2556	5
NZ European/Other	54453	95	53700	94	49755	95
Pacific	1212	2	1209	2	822	2
Total Persons [≈]	57570	102	57141	102	52191	102

* In 1991 Maori ethnicity was determined by ancestry, whereas in 1996 and 2001 Maori ethnicity was by self-definition.

[≈] Total percentage may not add up to 100% as people may belong to more than one ethnic group.

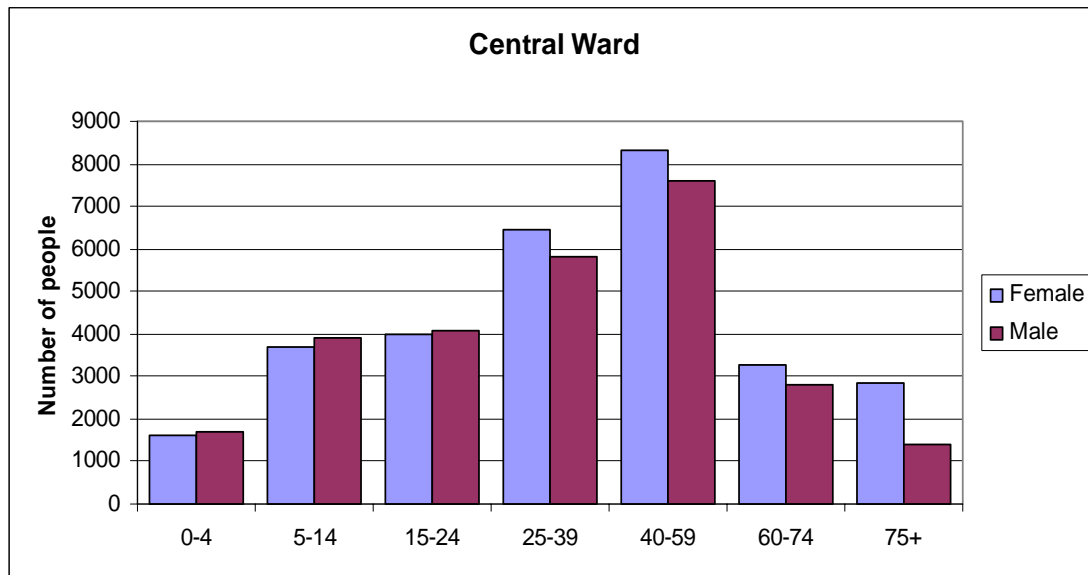
Table 15: Central Ward - age composition

Age Composition	2001 Census (%)	1996 Census (%)	1991 Census (%)
0-4	6	6	6
5-14	13	13	12
15-24	14	15	16
25-39	21	23	22
40-59	28	25	23
60-74	11	11	13
75+	7	7	7

Table 16: Central Ward- household and personal income

Income	2001 Census – number	2001 Census (%)
Households earning > \$30,000	9507	68
Personal incomes > \$30,000	15882	38
Average per capita personal income	\$32,692	

Figure 34: Central Ward- age distribution by gender in 2001 Census



4.2 Injury statistics

4.2.1 NZHIS injury death 1993-1999

Between 1993 and 1999, 132 residents of the Central Ward died as a result of injury. This is equivalent to a crude injury rate of 33 injury deaths per 100,000 person years. Males accounted for 58% of the fatalities.

As can be seen in figure 35, suicide was the leading cause of injury death (30%). The other leading causes of injury death were motor vehicle crashes on a public road (25%); falls (23%); and drowning (5%).

Figure 35: Central Ward- Leading Causes of Injury Death 1993-1999

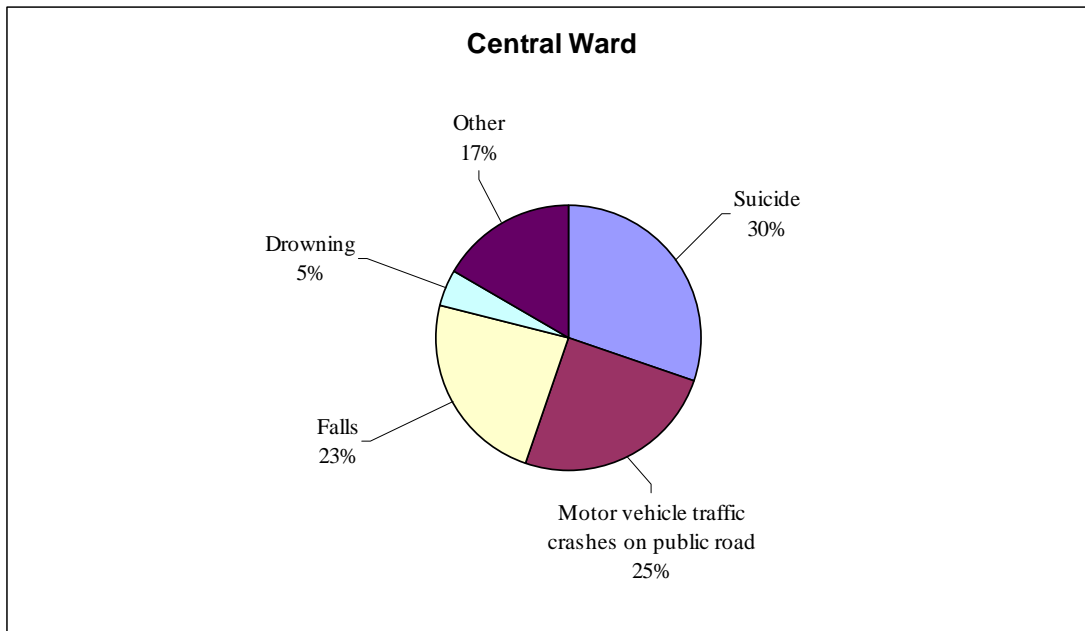
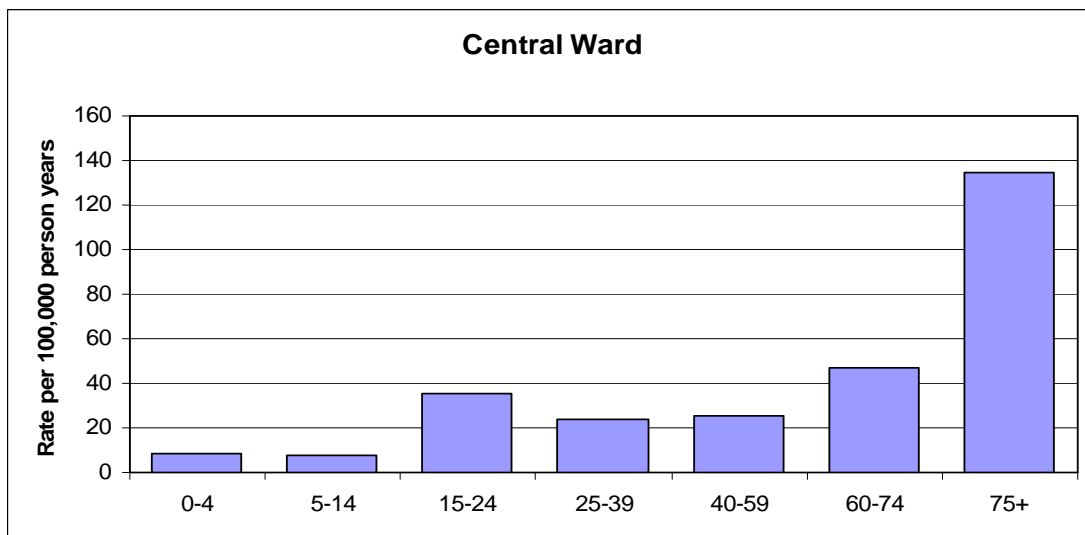


Figure 36 shows that the 75+ age group had the highest rate (134 deaths per 100,000 person years) of injury death, followed by adults aged 60-74 years (47 deaths per 100,000 person years), and young people aged 15-24 years (35 deaths per 100,000 person years).

Figure 36: Rates of Injury Death by Age Group, 1993-1999



Of the 79 people who died from injury between 1996 and 1999, the majority were New Zealand European/Other (n=74; 94%), four (5%) were Maori, and one (1%) was a Pacific person.

4.2.2 NZHIS injury hospitalisation 1993-2003

Between 1993 and 2003, 378 residents of the Central ward were hospitalised after receiving an injury. The crude injury hospitalisation rate during this period was 1,470 injury hospitalisations per 100,000 person years. Males accounted for 63% of the hospitalisations.

Figure 37 shows that falls accounted for half (50%) of the injury hospitalisations. The other leading causes of injury were motor vehicle traffic crashes on a public road (8%); cutting and piercing (7%); attempted suicide/deliberate self-harm (6%); and striking an object or person (6%).

Figure 37: Central Ward- leading causes of injury hospitalisation 1993-2003

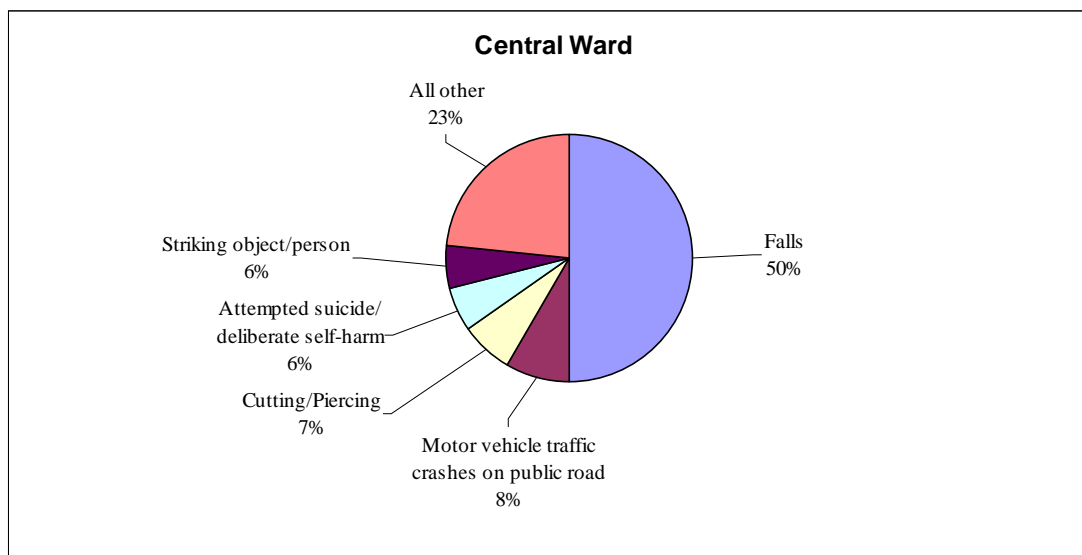


Figure 38 shows that for females, those aged 75+ had the highest rate (3,908 hospitalisations per 100,000 person years) of injury hospitalisation, followed by adults aged 60-74 years (839 hospitalisations per 100,000 person years). For males, the 75+ age group had the highest rate (2,217 hospitalisations per 100,000 person years) of injury hospitalisation, followed by young people aged 15-24 years (1,233 hospitalisations per 100,000 person years). Males had higher rates of injury hospitalisation than females across all age groups under the age of 60 years.

Figure 38: Rates of injury hospitalisation by age and gender, 1993-2003

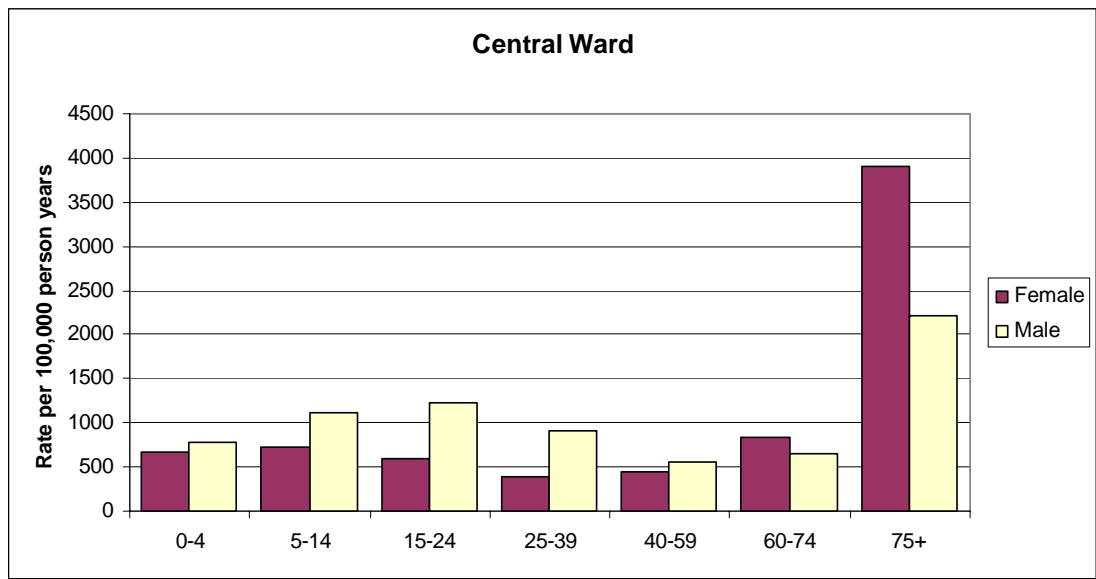


Figure 39 shows that for the period 2001-2003, New Zealand European/Other had the highest rate of hospitalised injury (803 injury hospitalisations per 100,000 person years), followed by Maori (735 injury hospitalisations per 100,000 person years), and Pacific people (637 hospitalisations per 100,000 person years). New Zealand European/Other accounted for the majority (94%) of the injuries, Maori accounted for 4%, and Pacific people accounted for 1%.

Figure 39: Injury hospitalisation rates by ethnicity for Central Ward, 2001-2003

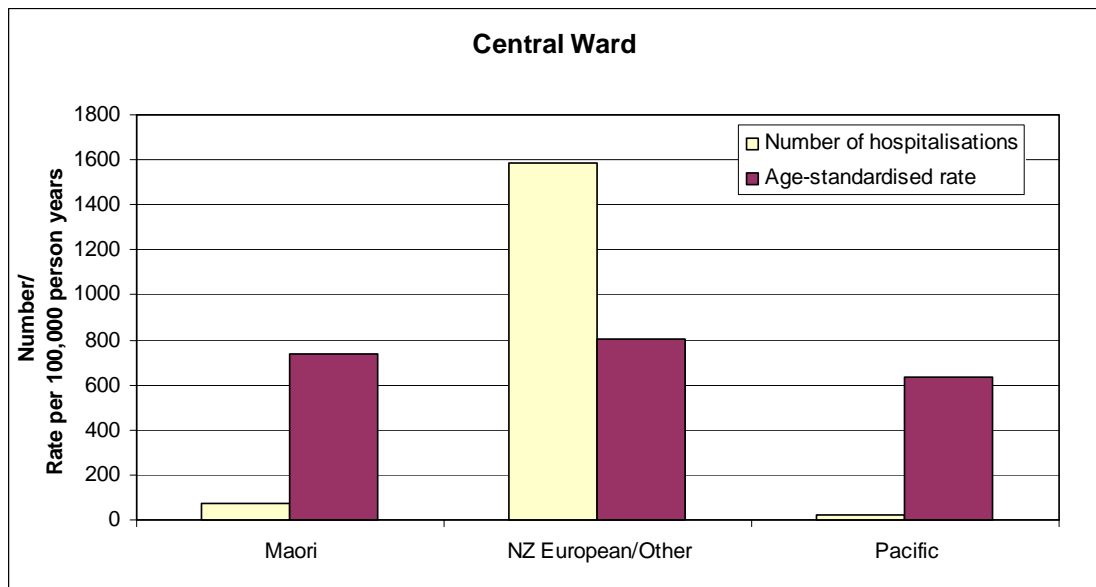


Table 17 shows that for the period of 2001-2003, falls were the leading causes of injury hospitalisation for all ethnic groups, however New Zealand European/Other had the highest percentage (49%) of hospitalised falls. A higher proportion of Pacific

people were hospitalised due to motor vehicle crashes on a public road (20%), and 14% of Maori were hospitalised as a result of attempted suicide.

Table 17: Ethnic comparison of leading causes of injury hospitalisation, 2001-2003

Maori (n=74)		NZ European/Other (n=1586)		Pacific (n=25)	
Cause	%	Cause	%	Cause	%
Falls	24	Falls	49	Falls	36
Attempted suicide/ deliberate self-harm	14	Motor vehicle crashes on public road	8	Motor vehicle crashes on public road	20
Striking an object or person	11	Attempted suicide/ deliberate self-harm	7	Cutting/Piercing	12
Motor vehicle crashes on public road	9	Cutting/Piercing	5	Overexertion/ strenuous movements	8

5.0 Harbour Ward

5.1 Demographics

This section provides information relating to population, age, ethnicity and income for the Harbour Ward.

Table 18: Harbour Ward- usually resident population

Population*	2001 Census	%	1996 Census	%	1991 Census	%
Maori	6090	9	5865	9	4221	7
NZ European/Other	61266	90	59676	91	55170	92
Pacific	3807	6	3099	5	2349	4
Total Persons [≈]	68259	105	65691	105	59832	103

* In 1991 Maori ethnicity was determined by ancestry, whereas in 1996 and 2001 Maori ethnicity was by self-definition.

[≈] Total percentage may not add up to 100% as people may belong to more than one ethnic group.

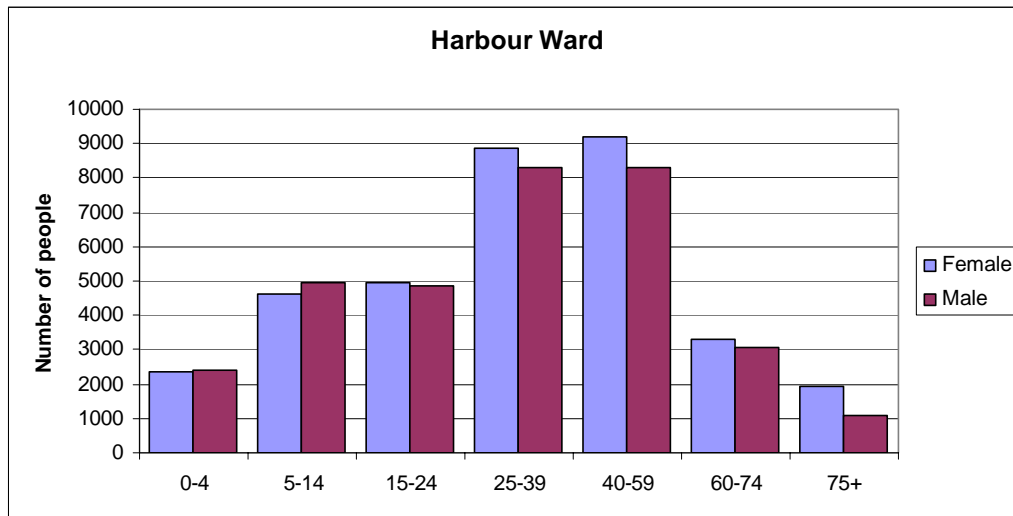
Table 19: Harbour Ward - age composition

Age Composition	2001 Census (%)	1996 Census (%)	1991 Census (%)
0-4	7	7	7
5-14	14	14	13
15-24	14	16	18
25-39	25	25	24
40-59	26	25	25
60-74	9	9	9
75+	4	4	4

Table 20: Harbour Ward- household and personal income

Income	2001 Census – number	2001 Census (%)
Households earning > \$30,000	12411	63
Personal incomes > \$30,000	19842	34
Average per capita personal income	\$27,731	

Figure 40: Harbour Ward- age distribution by gender in 2001 Census



5.2 Injury Statistics

5.2.1 NZHIS Injury Death 1993-1999

Between 1993 and 1999, 150 residents of the Harbour Ward died as a result of injury. This is equivalent to a crude injury rate of 33 injury deaths per 100,000 person years. Males accounted for 71% of the fatalities.

As can be seen in figure 41, suicide was the leading cause of injury death (40%). The other leading causes of injury death were motor vehicle crashes on a public road (30%); falls (16%); drowning (5%); and fire and flames (3%).

Figure 41: Harbour Ward- leading causes of injury death 1993-1999

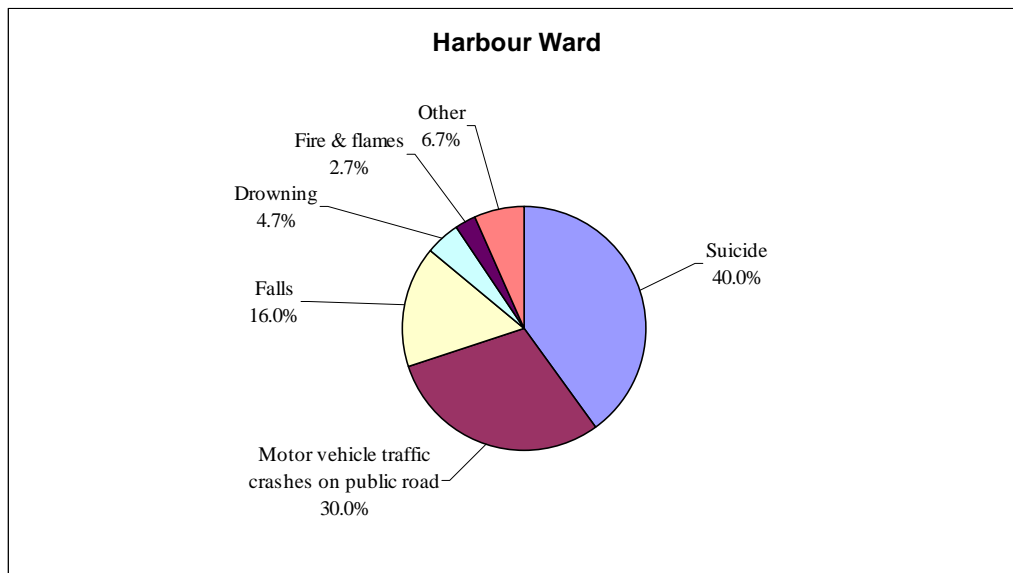
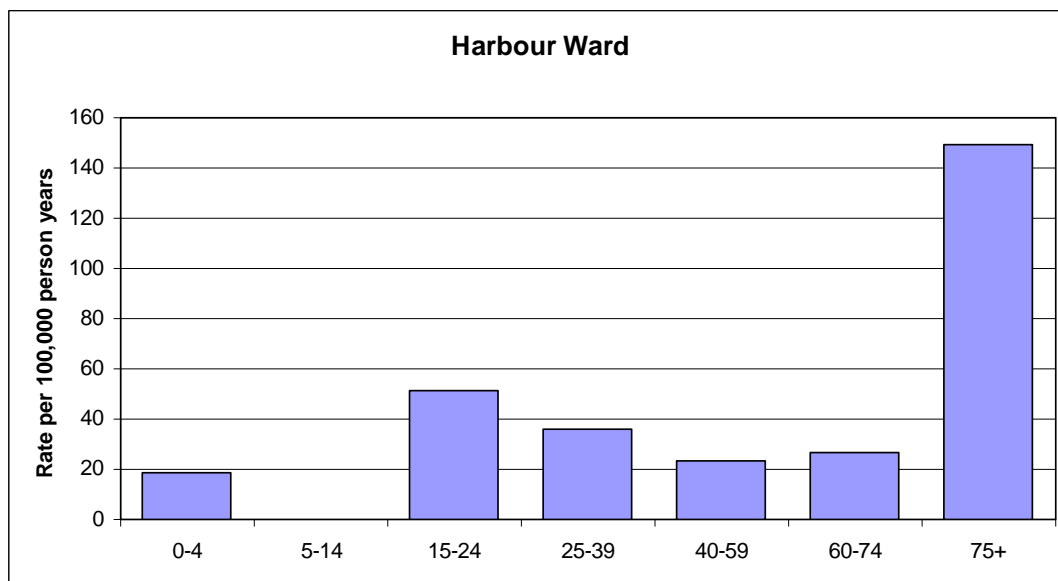


Figure 42 shows that the 75+ age group had the highest rate (150 deaths per 100,000 person years) of injury death, followed by young people aged 15-24 years (51 deaths per 100,000 person years).

Figure 42: Rates of injury death by age group, 1993-1999



Of the 93 people who died from injury between 1996 and 1999, the majority (n=76; 82%) were of New Zealand European/Other ethnicity; 10 (11%) were Maori; and seven (8%) were Pacific.

5.2.2 NZHIS injury hospitalisation 1993-2003

Between 1993 and 2003, 8,070 residents of the Harbour Ward were hospitalised after receiving an injury. The crude injury hospitalisation rate during this period was 1,104 injury hospitalisations per 100,000 person years. Males accounted for 57% of the hospitalisations.

Figure 43 shows that falls accounted for the greatest number of injury hospitalisations (41%). The other leading causes of injury were cutting and piercing (9%); motor vehicle traffic crashes on a public road (9%); attempted suicide/deliberate self-harm (7%); striking an object or person (7%); and assault (3%).

Figure 43: Harbour Ward - leading causes of injury hospitalisation 1993-2003

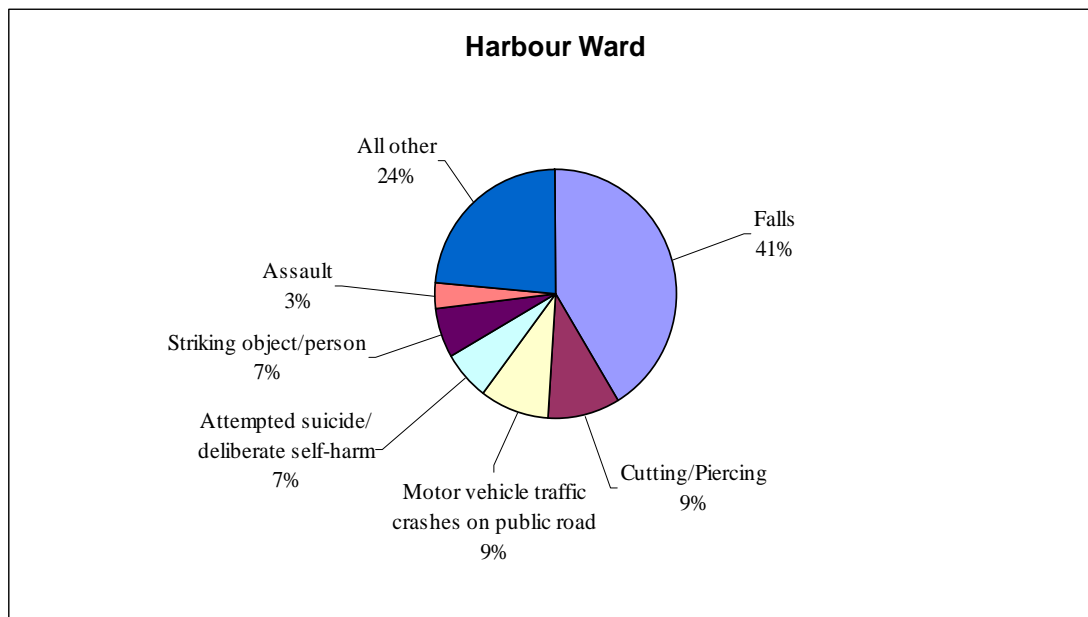


Figure 44 shows that for females, those aged 75+ had the highest rate (4,440 hospitalisations per 100,000 person years) of injury hospitalisation, followed by adults aged 60-74 years (1,057 hospitalisations per 100,000 person years). For males, the age group of 75+ years had the highest rate of injury hospitalisation (2,315 hospitalisations per 100,000 person years), followed by adults aged 15-24 years (1,701 hospitalisations per 100,000 person years). Males had higher rates of injury hospitalisation than females across all age groups under 60 years.

Figure 44: Rates of injury hospitalisation by age and gender, 1993-2001

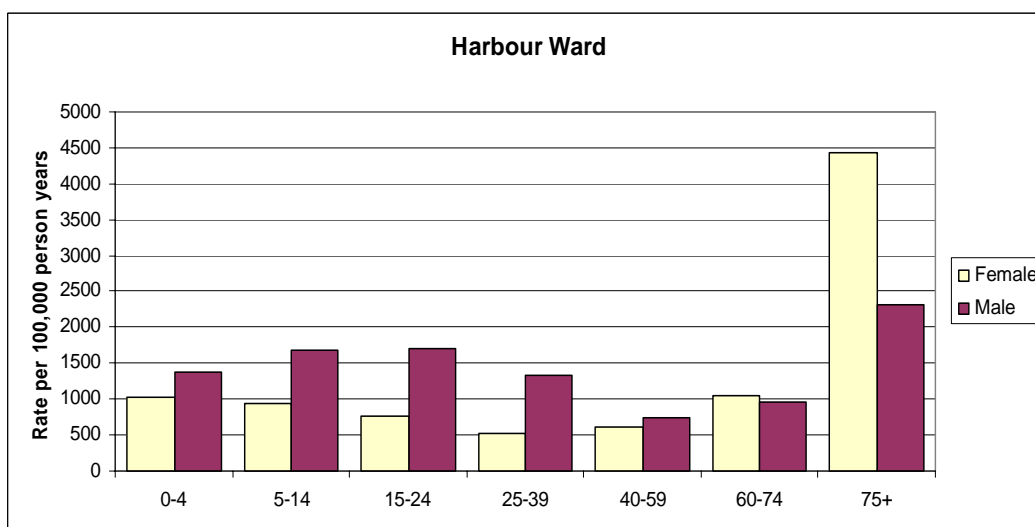


Figure 45 shows that for the period 2001-2003, Maori had the highest rate of hospitalised injury (1,159 injury hospitalisations per 100,000 person years), followed

by New Zealand European/Other (1,108 injury hospitalisations per 100,000 person years) and Pacific people (1,094 injury hospitalisations per 100,000 person years). New Zealand European/Other accounted for 86% of the injuries; Maori accounted for 9%; and Pacific people accounted for 6%.

Figure 45: Injury hospitalisation rates by ethnicity for Harbour Ward, 2001-2003

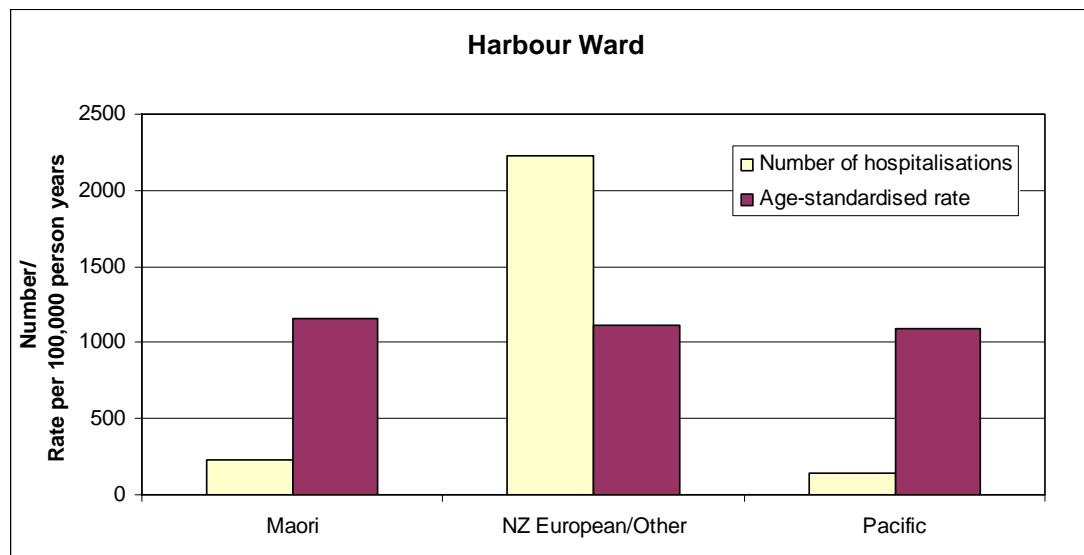


Table 21 shows that falls were the leading cause of injury hospitalisation for all the ethnic groups, with New Zealand European/Other having the highest proportion (40%) of falls during the period 2001-2003. Pacific people had a much higher proportion of motor vehicle crashes on public road (12%) compared to the other ethnic groups. Maori had a higher proportion of injury hospitalisation due to being struck by an object or person (11%).

Table 21: Ethnic comparison of leading causes of injury hospitalisation, 2001-2003

Maori (n=227)		NZ European/Other (n=2223)		Pacific (n=146)	
Cause	%	Cause	%	Cause	%
Falls	26	Falls	40	Falls	31
Cutting/Piercing	11	Attempted suicide/ deliberate self-harm	11	Cutting/Piercing	12
Striking an object or person	11	Motor vehicle crashes on public road	7	Motor vehicle crashes on public road	12
Motor vehicle crashes on public road	9	Cutting/Piercing	7	Assault	9
Assault	7	Striking an object or person	6	Striking an object or person	7

6.0 Northern Ward

6.1 Demographics

This section provides information relating to population, age, ethnicity and income for the Northern Ward.

Table 22: Northern Ward- usually resident population

Population*	2001 Census	%	1996 Census	%	1991 Census	%
Maori	2796	5	2595	5	1677	4
NZ European/Other	56256	95	47022	95	39174	96
Pacific	885	2	828	2	480	1
Total Persons [≈]	58992	102	49329	102	40623	101

* In 1991 Maori ethnicity was determined by ancestry, whereas in 1996 and 2001 Maori ethnicity was by self-definition.

[≈] Total percentage may not add up to 100% as people may belong to more than one ethnic group.

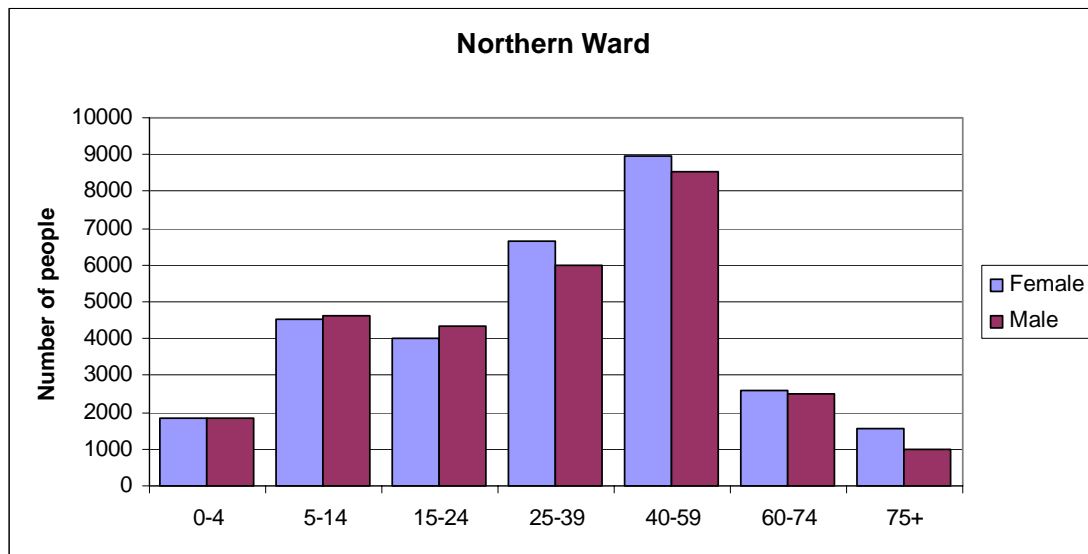
Table 23: Northern Ward - age composition

Age Composition	2001 Census (%)	1996 Census (%)	1991 Census (%)
0-4	6	7	7
5-14	16	15	15
15-24	14	15	16
25-39	21	23	23
40-59	30	28	26
60-74	9	9	10
75+	4	4	3

Table 24: Northern Ward- household and personal income

Income	2001 Census – number	2001 Census (%)
Households earning > \$30,000	11202	69
Personal incomes > \$30,000	17505	38
Average per capita personal income	\$30,572	

Figure 46: Northern Ward- age distribution by gender in 2001 Census



6.2 Injury statistics

6.2.1 NZHIS injury death 1993-1999

Between 1993 and 1999, 116 residents of the Northern Ward died as the result of receiving an injury. This is equivalent to a crude injury rate of 33 injury deaths per 100,000 person years. Males accounted for 61% of the fatalities.

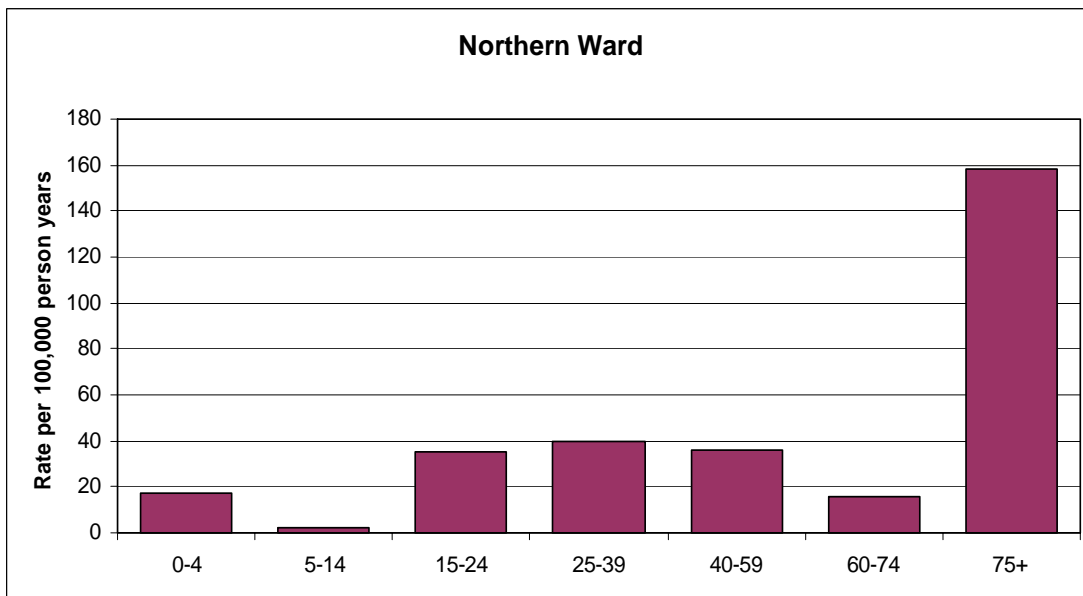
As can be seen in figure 47, suicide (31%) and motor vehicle crashes on a public road (31%) were the leading causes of injury death. Other causes of injury death were falls (17%); unintentional poisoning (5%); and drowning (4%).

Figure 47: Northern Ward- leading causes of injury death 1993-1999



Figure 48 shows that the 75+ age group had the highest rate (158 deaths per 100,000 person years) of injury death, followed by the 25-39 year age group (40 deaths per 100,000 person years).

Figure 48: Rates of injury death by age group, 1993-1999



Of the 59 people who died from injury between 1996 and 1999, the majority (n=52; 88%) were of New Zealand European/Other ethnicity, four (7%) were Maori, and three (5%) were Pacific people.

6.2.2 NZHIS injury hospitalisation 1993-2003

Between 1993 and 2003, 508 residents of the Northern Ward were hospitalised after receiving an injury. The crude injury hospitalisation rate during this period was 1230 injury hospitalisations per 100,000 person years. Males accounted for 62% of the hospitalisations.

Figure 49 shows that falls accounted for the greatest number of injury hospitalisations (45%). The other leading causes of injury were cutting and piercing (9%); motor vehicle traffic crashes on a public road (9%); striking an object or person (6%); attempted suicide/deliberate self-harm (5%); and overexertion and strenuous movements (3%).

Figure 49: Northern Ward - leading causes of injury hospitalisation 1993-2003

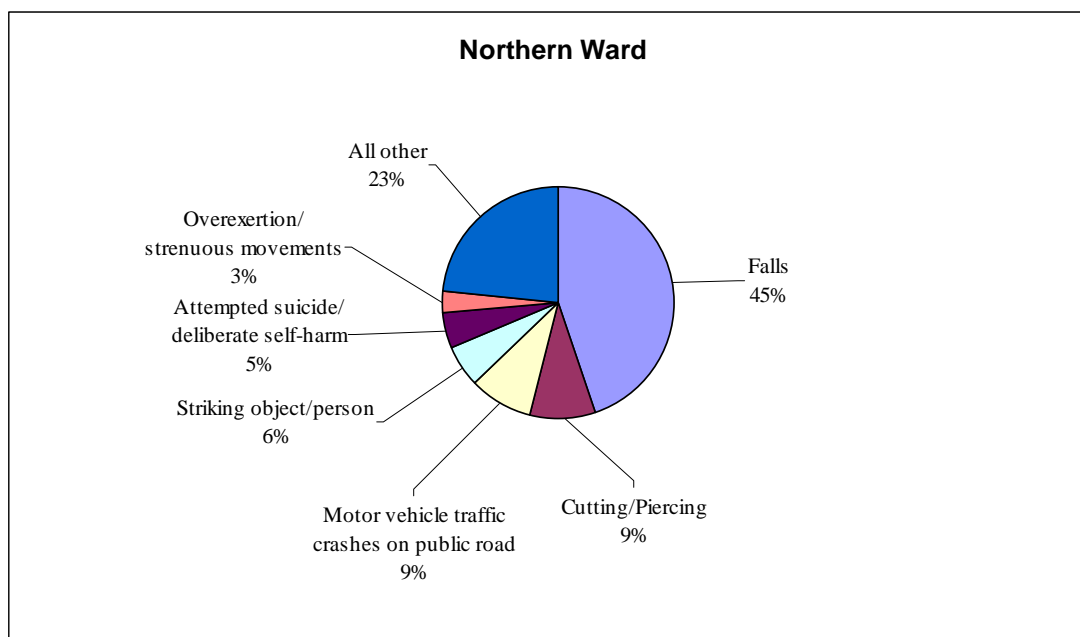


Figure 50 shows that for females, those aged 75+ had the highest rate (4,347 hospitalisations per 100,000 person years) of injury hospitalisation, followed by adults aged 60-74 years (1,023 hospitalisations per 100,000 person years). For males, the 75+ age group had the highest rate (1,898 hospitalisations per 100,000 person years) of injury hospitalisation, followed by young people aged 15-24 years (1,605 hospitalisations per 100,000 person years). Males had higher rates of injury hospitalisation than females across all age groups under 60 years.

Figure 50: Rates of injury hospitalisation by age and gender for the Northern Ward, 1993-2003

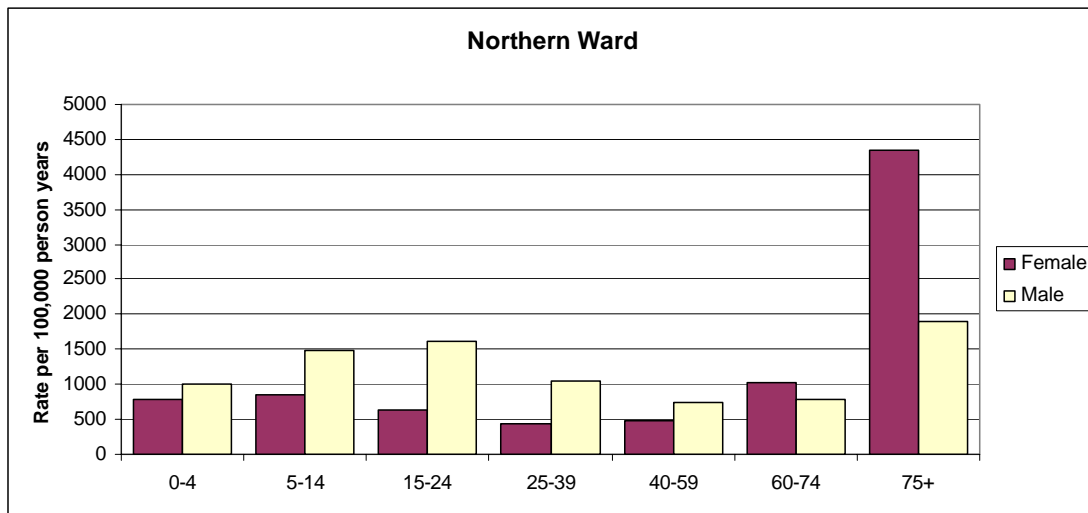


Figure 51 shows that for the period 2001-2003, Pacific people had the highest rate of hospitalised injury (1,006 injury hospitalisations per 100,000 person years), followed by New Zealand European/Other (975 hospitalisations per 100,000 person years), and Maori (907 injury hospitalisations per 100,000 person years). New Zealand European/Other accounted for the majority (94%) of the injuries.

Figure 51: Injury hospitalisation rates by ethnicity for Northern Ward, 2001-2003

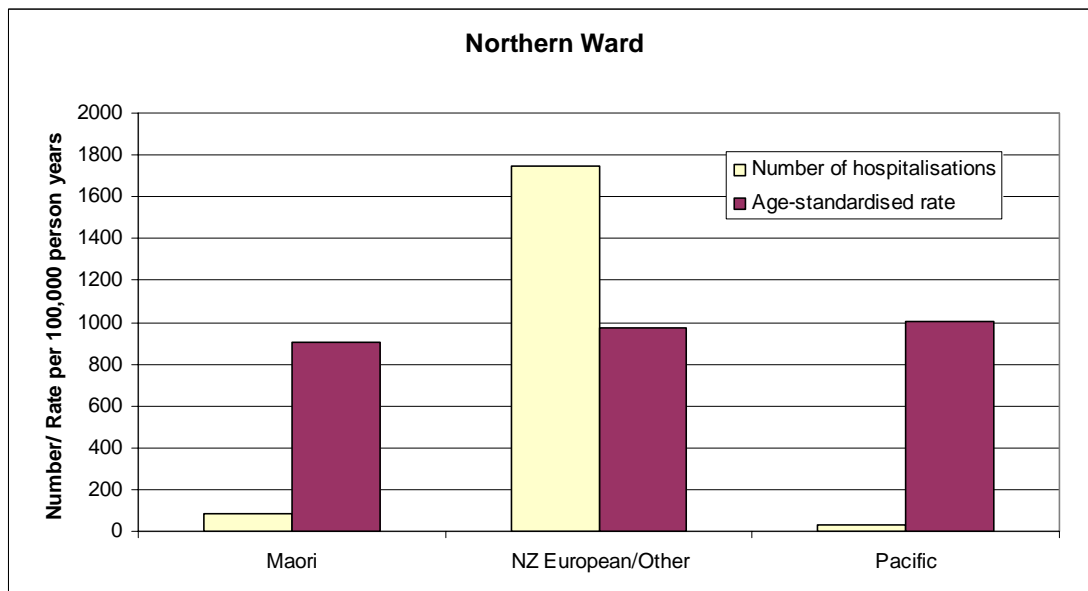


Table 25 shows that for the period of 2001-2003, falls were the leading cause of injury hospitalisation for all ethnic groups, with New Zealand European/Other having the highest percentage of hospitalised falls (43%). Maori had a higher percentage of motor vehicle crashes on public road (17%) compared to the other ethnic groups. A higher proportion of Pacific people were hospitalised due to being struck by an object or person (11%).

Table 25: Ethnic comparison of leading causes of injury hospitalisation, 2001-2003

Maori (n=83)		NZ European/Other (n=1746)		Pacific (n=28)	
Cause	%	Cause	%	Cause	%
Falls	22	Falls	43	Falls	29
Motor vehicle crashes on public road	17	Motor vehicle crashes on public road	8	Cutting/Piercing	11
Assault	13	Cutting/Piercing	7	Striking an object or person	11
Attempted suicide/ deliberate self-harm	12	Attempted suicide/ deliberate self-harm	7	Assault	7
Cutting/Piercing	11	Striking an object or person	5	Motor vehicle crashes on public road	7

7.0 Key Findings

The data detailed in this report indicates that injury is a significant cause of death and hospitalisation for people in North Shore City. The injury hospitalisation data discussed in sections three to six clearly indicates that falls; motor vehicle crashes; suicidal behaviours; cutting and piercing; striking an object or person; and attempted suicide are leading injury concerns for North Shore City. Suicide or deliberate self-harm and motor vehicle traffic crashes were the leading causes of injury deaths for North Shore City residents.

Analysis of injury data by Ward identified some variation, with the Northern Ward having the highest injury death rate. The Harbour Ward had the highest injury hospitalisation rate. The Central Ward consistently had the lowest death and hospitalisation injury rates.

In addition to those aged 75+ years, who had the highest rates of injury hospitalisations, other age groups at high risk of injury hospitalisations were children and adults aged under 40 years (particularly males). Pacific peoples were more likely to be hospitalised due to an injury compared to their Maori and New Zealand European/Other counterparts for all age groups under 60 years except the 25-39 age group. Maori aged 25-39 years had the highest injury hospitalisation rate compared to the other ethnic groups. New Zealand European/Other people aged 60 years and older were more likely to be hospitalised as a result of injury than Maori and Pacific people. Overall, New Zealand European/Other accounted for the majority (91%) of injury hospitalisations; Maori accounted for six percent; and Pacific people accounted for three percent.

For injury deaths, other than those aged 75+ years who had the highest rates of injury deaths, young people 15-24 years had the second highest injury death rates, followed by adults aged between 25 and 74 years. In general, Pacific people were more likely to have higher injury death rates than Maori and the New Zealand European/Other group, although Pacific peoples accounted for only five percent of the injury deaths. New Zealand European/Other accounted for the majority of injury deaths (87%). However New Zealand European/Other had the lowest injury death rates for children aged under 15 years, adults aged 25-39 years and adults aged over 60 years

compared to Maori and Pacific people. Maori accounted for eight percent of the injury deaths with twice the injury death rate in the 75+ age group than the rate for New Zealand European/Other.

8.0 References

Brewin M., & Coggan C. Evaluation of a New Zealand indigenous community injury prevention project. *Injury Control and Safety Promotion* 2002; 9 (2): 83-88.

Brewin M, Coggan C. Evaluation of the Ngati Porou Community Injury Prevention Project. *Ethnicity and Health*. 2004; 9(1).

Coggan C, Bennett S, Patterson P, Borne H. The ACC ThinkSafe Community Projects: Formative Evaluation. Auckland: Injury Prevention Research Centre, 2003.

Coggan C, Lee M, Patterson P, Fill J. Safe Waitakere Injury Prevention: re-assessing the evidence. Auckland: Injury Prevention Research Centre, 2003.

Coggan C., Langley J., Dawe M., et al. *A proposed strategy for Vote Health funding for injury prevention: Funding advice commissioned by the Health Funding Authority*. Auckland: Injury Prevention Research Centre, 2000.

Coggan C., Patterson P., Brewin M., Hooper R., Robinson E. Evaluation of the Waitakere Community Injury Prevention Project. *Injury Prevention* 2000; 6(2):130-134.

Day L.M., Ozanne-Smith J., Cassell E., Li L. Evaluation of the La Trobe Valley Better Health Injury Prevention Project. *Injury Prevention* 2001; 7:66-69.

Svanstrom L. More Safe Communities Programs in Scandinavia have been evaluated: Repeating the results from Falkoping. *Injury Prevention* 1997; 3:230-1.