



Safe Communities Foundation New Zealand

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Manukau Injury Data ACC ThinkSafe Report

Report Number: Six

February, 2005

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Acknowledgements

We acknowledge the significant contribution of the Injury Prevention Research Centre who were responsible for accessing data for this report.

This study was funded and supported by the Accident Compensation Corporation (ACC), Wellington, New Zealand. Views and/or conclusions in this report are those of the Safe Communities Foundation New Zealand (SCFNZ) and may not reflect the position of ACC.

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 Manukau City, more than twenty other communities at various stages of implementing community action in injury prevention, including Whangarei City, Auckland City, Waitakere 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 CIPP 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 per 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 Manukau City injury statistics. Firstly, this section begins by providing an overview of the leading causes of mortality and morbidity for Manukau City. Demographic data relating to Manukau 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 Manukau 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 10 outline demographic and injury statistics for the seven wards which comprise Manukau City (Section Four: Clevedon Ward; Section Five: Howick Ward; Section Six: Mangere Ward; Section Seven: Manurewa Ward; Section Eight: Otara Ward; Section Nine: Pakuranga Ward; and Section Ten: Papatoetoe 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 Manukau 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 Manukau 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 Manukau 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 Manukau 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. Therefore all ethnicity statistics for injury death data in this document refer only to the period from 1996 onwards. 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, ethnicity statistics for injury hospitalisation data refer only

to the period from 2001 onwards (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 10 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. Some domicile codes may fall into two ward boundaries, however these records are counted only once in one ward according to the list provided by Statistics New Zealand. 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 Manukau 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.

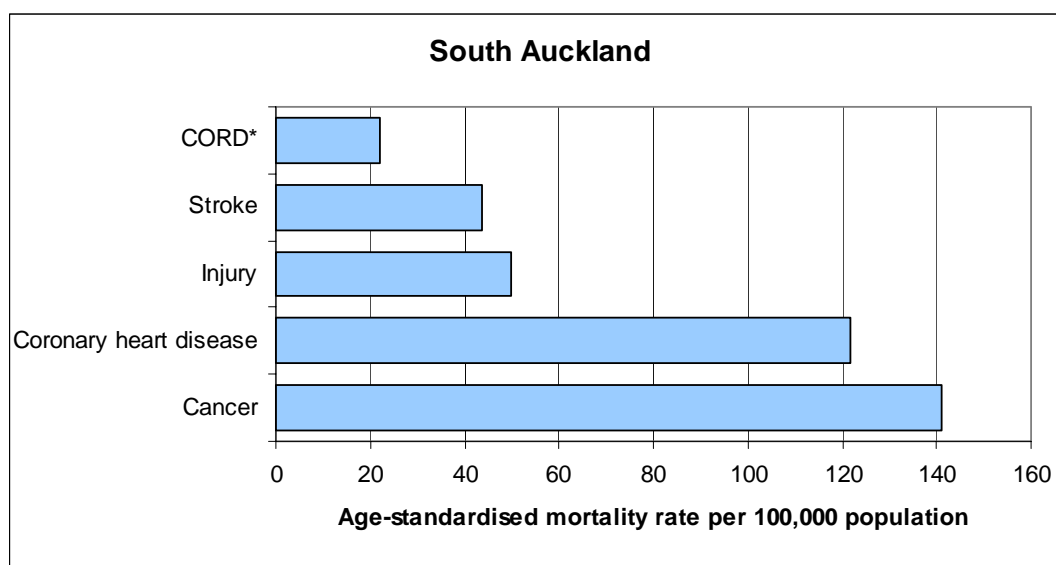
The LTSA data are taken from Motor Accidents in New Zealand 2002 (LTSA, 2003), Road Safety Atlas (LTSA, 1996), and 1997/98 Travel Survey Report (LTSA, 2000). It should be noted that not all motor vehicle crashes are reported to the Police; therefore LTSA figures underestimate the burden of injury due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

3.0 Manukau City Injury Statistics

3.1 Introduction: Injury in South Auckland

Figure one shows that after cancer and coronary heart disease, injury was the third leading cause of mortality in South Auckland (i.e. Manukau City and Franklin District Council) for the period 1988-1992. When compared to other areas within the northern region of the Ministry of Health (MoH), South Auckland had the highest rate of chronic rheumatic heart disease; and second highest rate of asthma, chronic obstructive respiratory disease, injury and suicide.

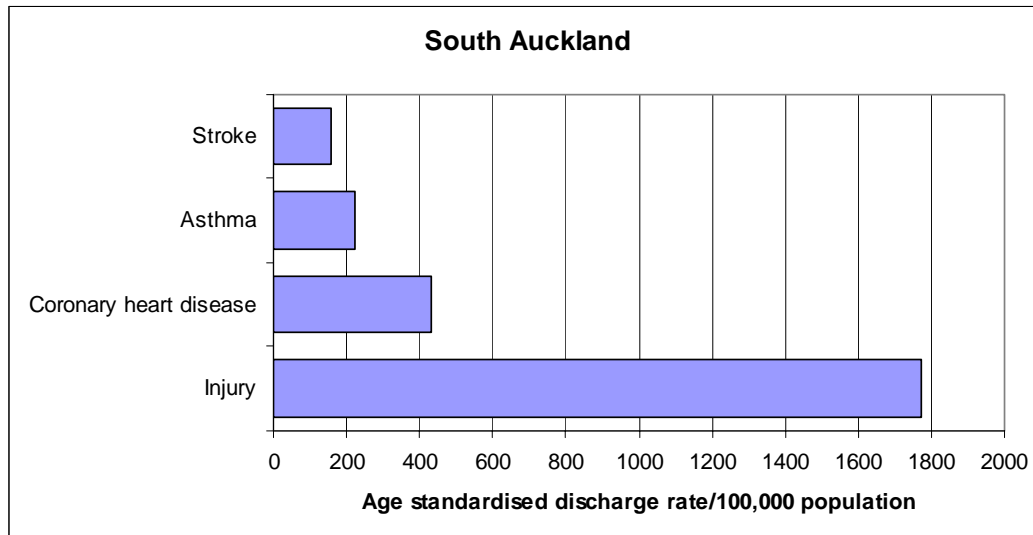
Figure 1: Leading causes of mortality for South Auckland 1988-1992



*Chronic Obstructive Respiratory Disease

Figure two shows that for the period 1989-1994, injury was the leading cause of hospital admission in South Auckland with a rate that was approximately four 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 Authorities (TLA) level. As an indication, for the whole of the then called North Health region, cancer was the third leading cause of hospitalisation.

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



3.2 Manukau City demographics

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

Table 1: Manukau City- usually resident population

Population*	2001 Census	%	1996 Census	%	1991 Census	%
Maori	44274	16	42762	17	37296	17
NZ European/Other	182676	65	171978	68	152481	67
Pacific	72381	26	57867	23	48171	21
Total Persons [≈]	283197	107	254280	108	226002	105

* 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.

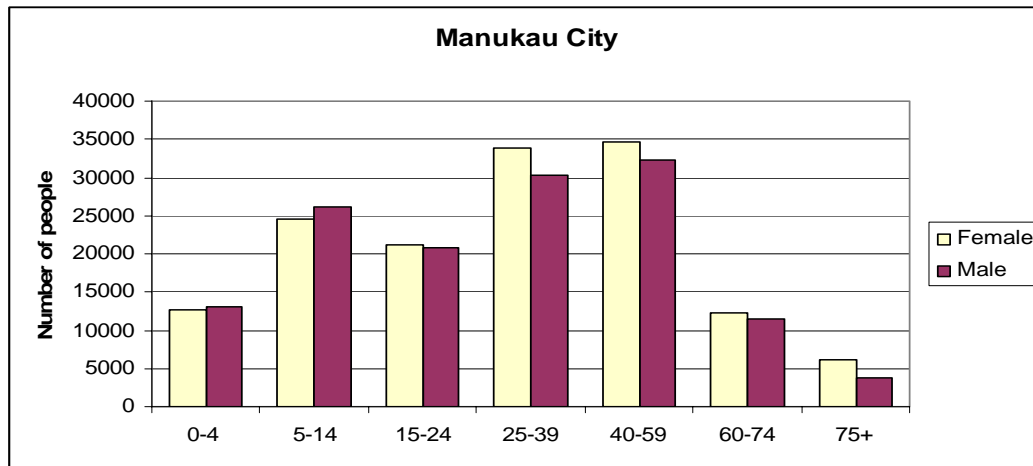
Table 2: Manukau City - age composition

Age Composition	2001 Census (%)	1996 Census (%)	1991 Census (%)
0-4	9	9	10
5-14	18	17	17
15-24	15	16	18
25-39	23	23	23
40-59	23	22	21
60-74	8	8	8
75+	4	3	3

Table 3: Manukau City- household and personal income

Income	2001 Census – number	2001 Census (%)
Households earning > \$30,000	42024	51
Personal incomes > \$30,000	54225	26
Average per capita personal income	\$24,307	

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



3.3 Injury statistics

3.3.1 NZHIS injury mortality 1993-1999

Between 1993 and 1999, 656 residents of Manukau City died as the result of receiving an injury. This is equivalent to a crude injury rate of 37 injury deaths per 100,000 person years. Males accounted for the majority (73%) of fatalities.

Figure four shows that the leading cause of injury deaths was suicide (34%). One-third (33%) of the injury deaths were motor vehicle crashes on a public road; 9% were caused by falls; 7% were the result of drowning; and 6% were the result of homicide.

Figure 4: Manukau City- leading causes of injury mortality 1993-1999

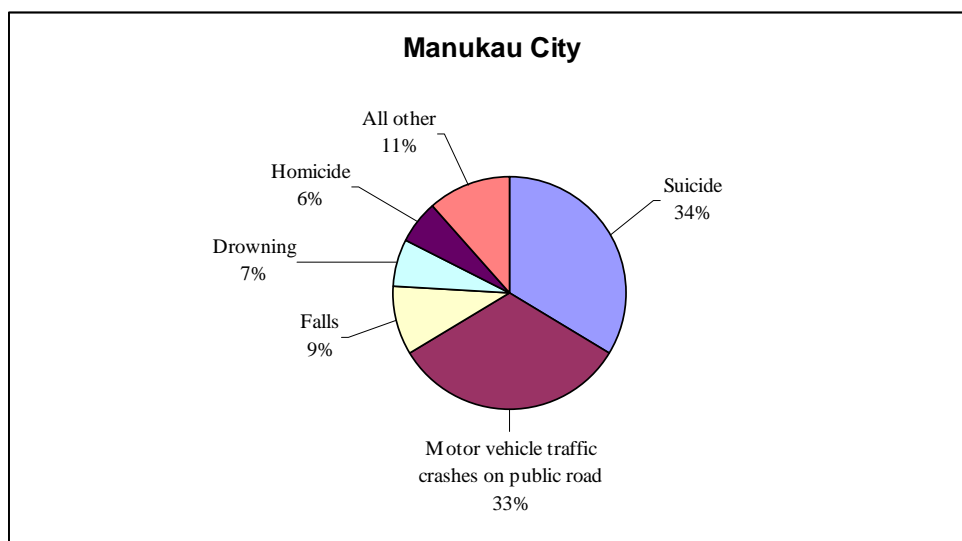
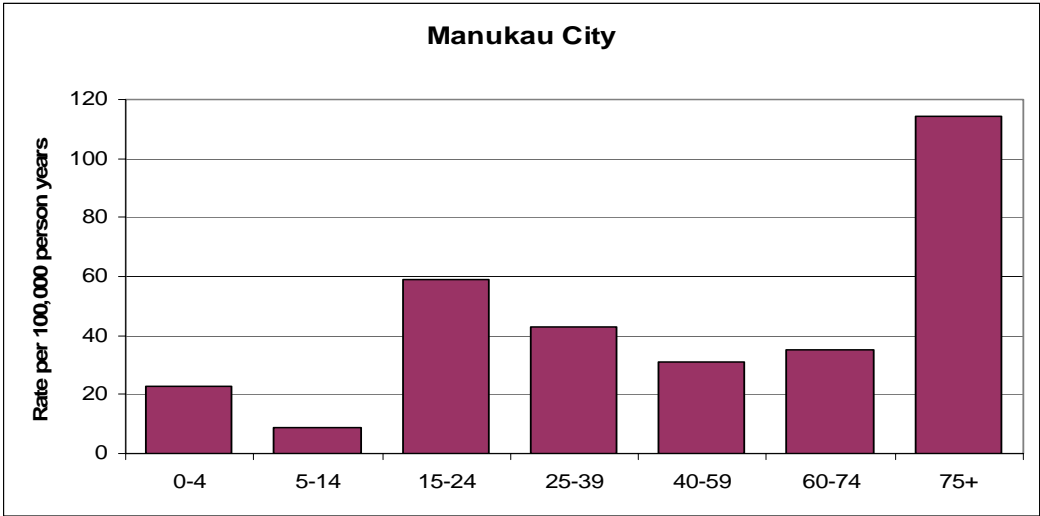


Figure five shows that the 75+ age group had the highest rate of injury death followed by young people aged 15-24 years.

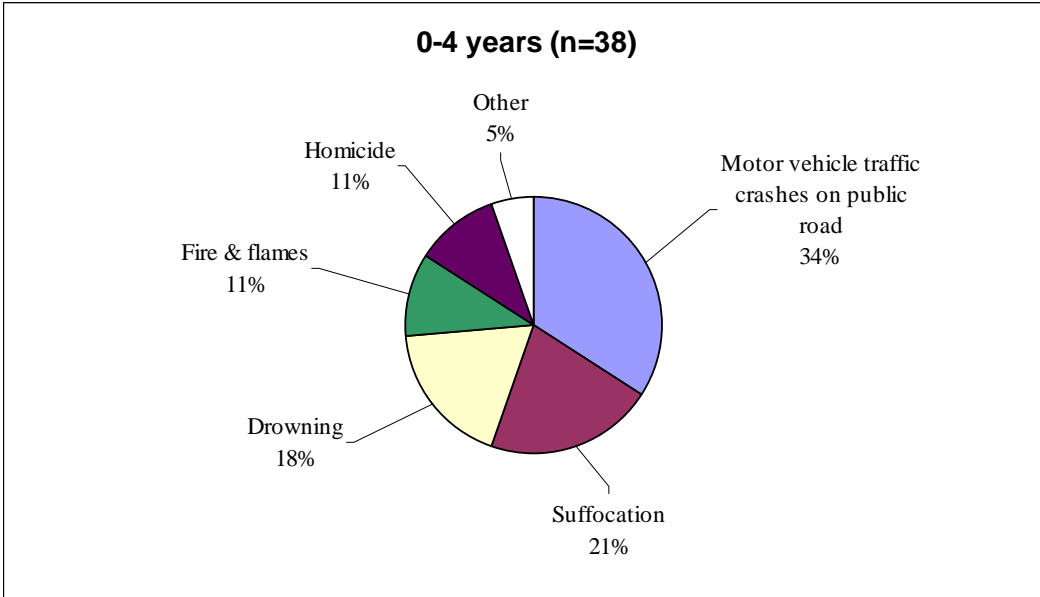
Figure 5: Rates of injury death by age group, 1993-1999



3.3.1.1 Leading causes of injury death by age group

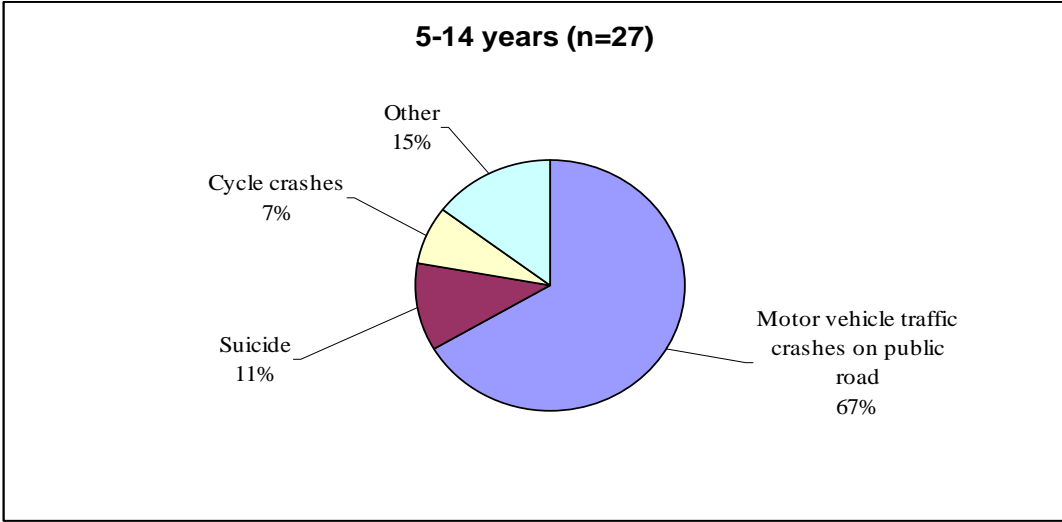
Figure six shows that motor vehicle traffic crashes on a public road were the leading cause of injury death (34%) for children aged 0-4 years. One-fifth of the deaths were caused by suffocation (21%); 18% of the fatalities were caused by drowning; 11% were the result of fire and flames; and 11% were the result of homicide.

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



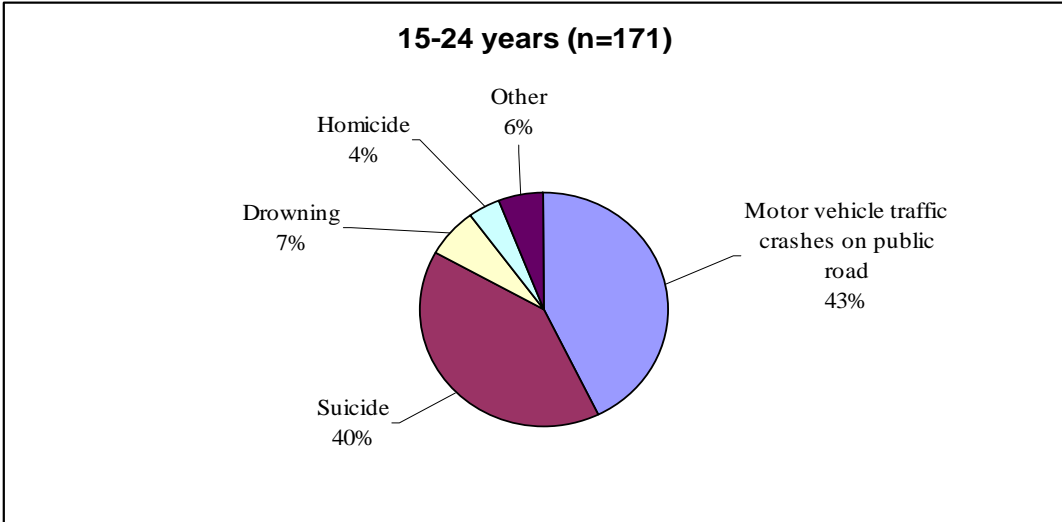
As shown by figure seven, in the 5-14 year age group two-thirds of the injury deaths were caused by motor vehicle crashes on a public road (67%); suicide accounted for 11% of the injury deaths; and 7% were the result of cycle crashes.

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



For 15-24 year olds, motor vehicle crashes on a public road were the leading cause of injury death (43%, figure eight). Suicide accounted for more than a third (40%) of the deaths; 7% were the result of drowning; and 3% of the fatalities were as a result of assault.

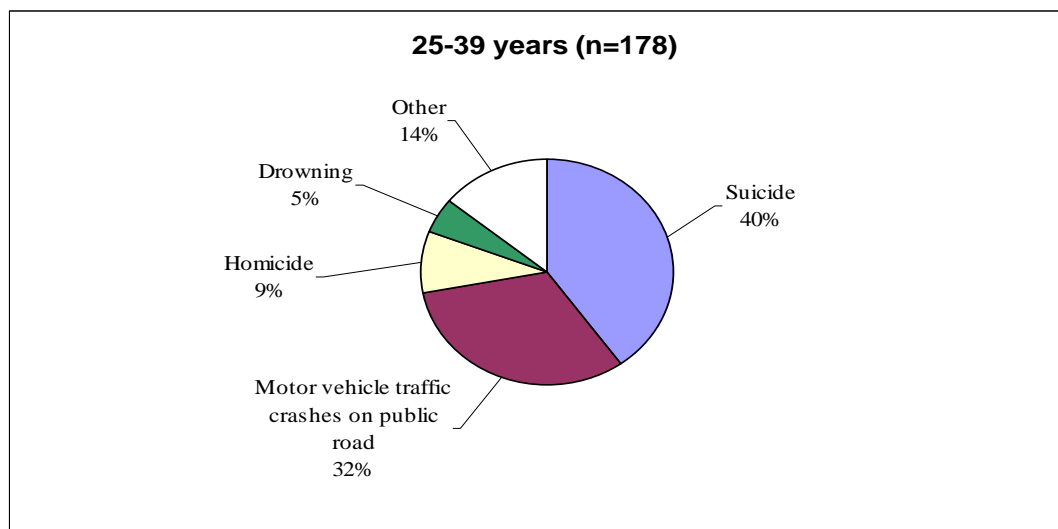
Figure 8: Leading causes of injury mortality for 15-24 year olds, 1993-1999



In the 25-39 age group, suicide accounted for 40% of the deaths (figure nine). Just under one-third (32%) of the injury deaths were caused by motor vehicle crashes on a

public road; 9% were the result of homicide; and 5% of the fatalities were as a result of drowning.

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



For 40-59 year olds, 39% 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 (27%); followed by drowning (10%); homicide (9%); and falls (5%).

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

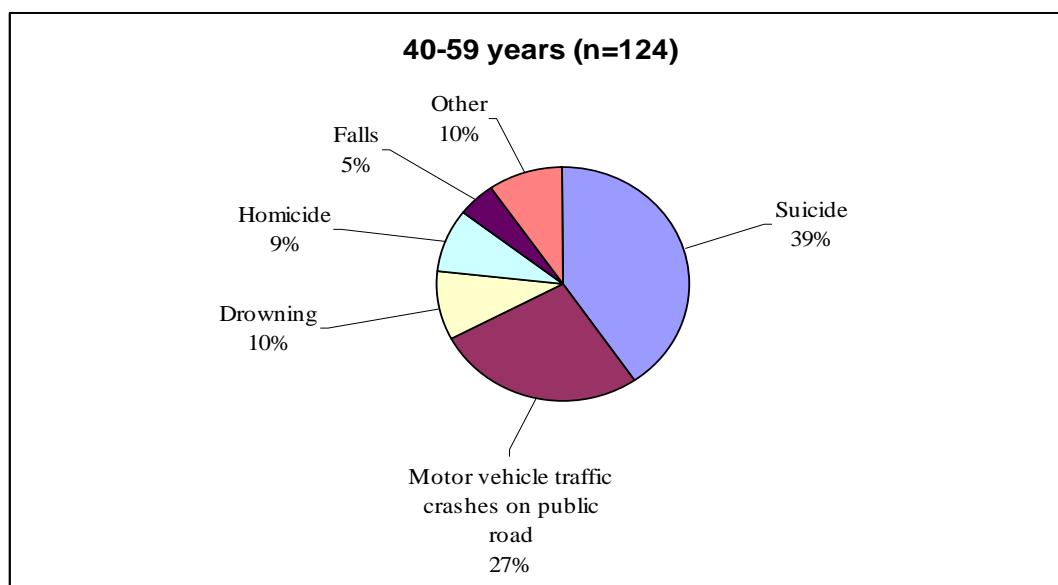
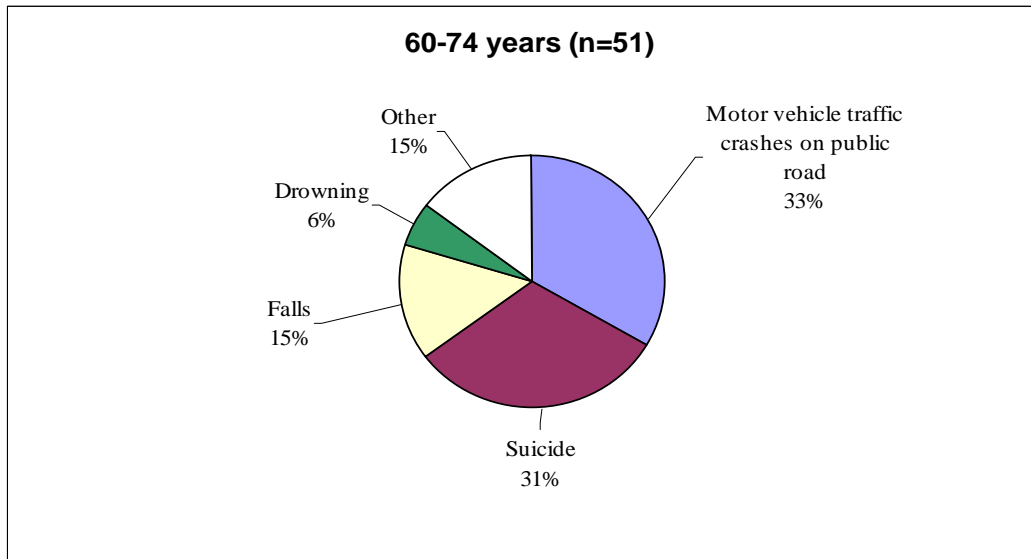


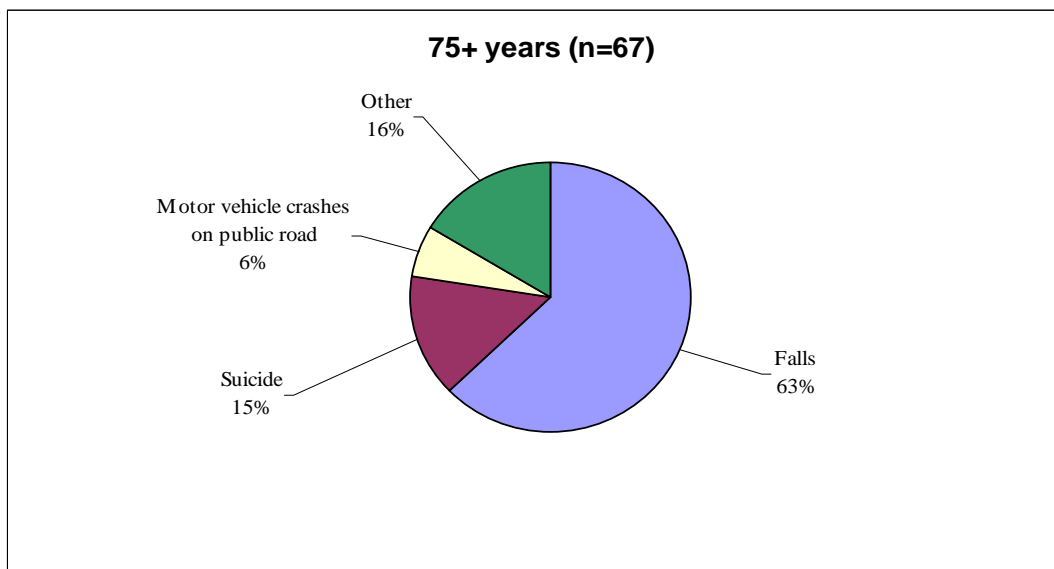
Figure 11 shows that for people aged between 60-74 years of age, one-third (33%) of the deaths were the result of motor vehicle crashes on a public road. Suicide was the second leading cause of injury death (31%); followed by falls (15%); and drowning (6%).

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



For older people aged 75+, nearly two-thirds (63%) of the deaths were the result of a fall (figure 12). Suicide accounted for 15% of the injury deaths, and motor vehicle crashes on a public road accounted for 6%.

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



3.3.1.2 Ethnic comparison

For the period 1996-1999, Maori had the highest age-standardised rate of injury deaths (56 per 100,000 person years), followed by Pacific (29 per 100,000 person years), and New Zealand European/Other (27 per 100,000 person years). Of the 377

people who died from injury, New Zealand European/Other accounted for the majority of injury deaths (57%), Maori accounted for 25%, and Pacific accounted for 18%.

Figure 13 gives a breakdown of injury death rates by ethnicity and age group. All the ethnic groups had the highest injury death rates in the older age groups (75+). Maori people had the highest rate of injury death for age groups below 60 years compared to other ethnic groups.

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

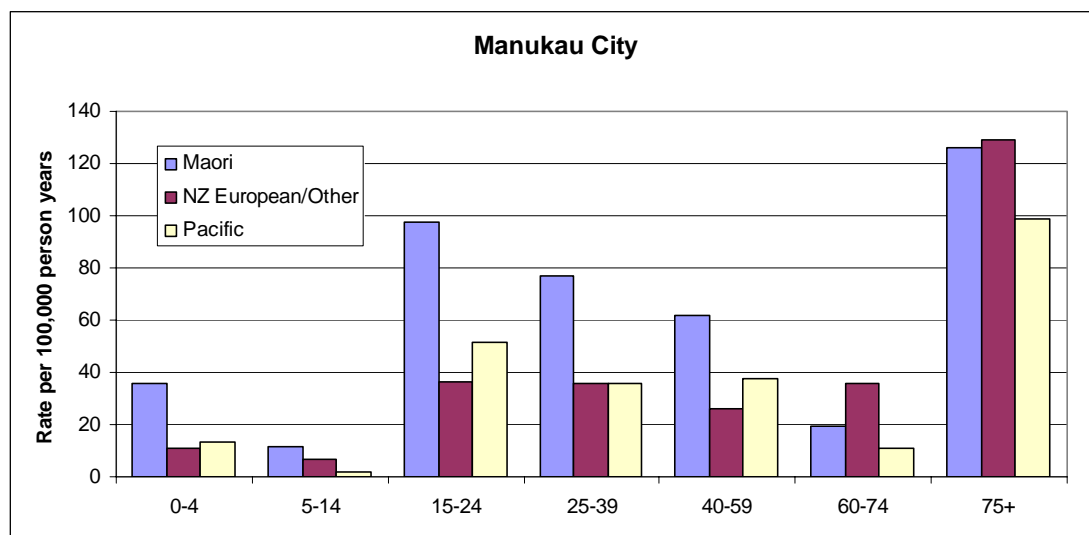


Table four shows that the leading causes of injury deaths were similar across all ethnic groups. However, a higher injury death percentage of Maori was caused by motor vehicle crashes on public roads (41%) compared to the other ethnic groups. Suicide/deliberate self-harm was the leading cause of injury deaths for New Zealand European/Other (39%).

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

Maori (n=95)		NZ European/Other (n=216)		Pacific (n=66)	
Cause	%	Cause	%	Cause	%
Motor vehicle crashes on public road	41	Suicide	39	Motor vehicle crashes on public road	30
Suicide	31	Motor vehicle crashes on public road	26	Suicide	30
Drowning	11	Falls	14	Homicide	14
Homicide	9	Drowning	6	Drowning	12

3.3.1.3 Comparison by Ward

The ward comparison in Figure 14 shows that the Otara Ward had the highest rate of injury death, while Howick had the lowest.

Figure 14: Age-standardised injury death rates by ward for Manukau City, 1993-1999

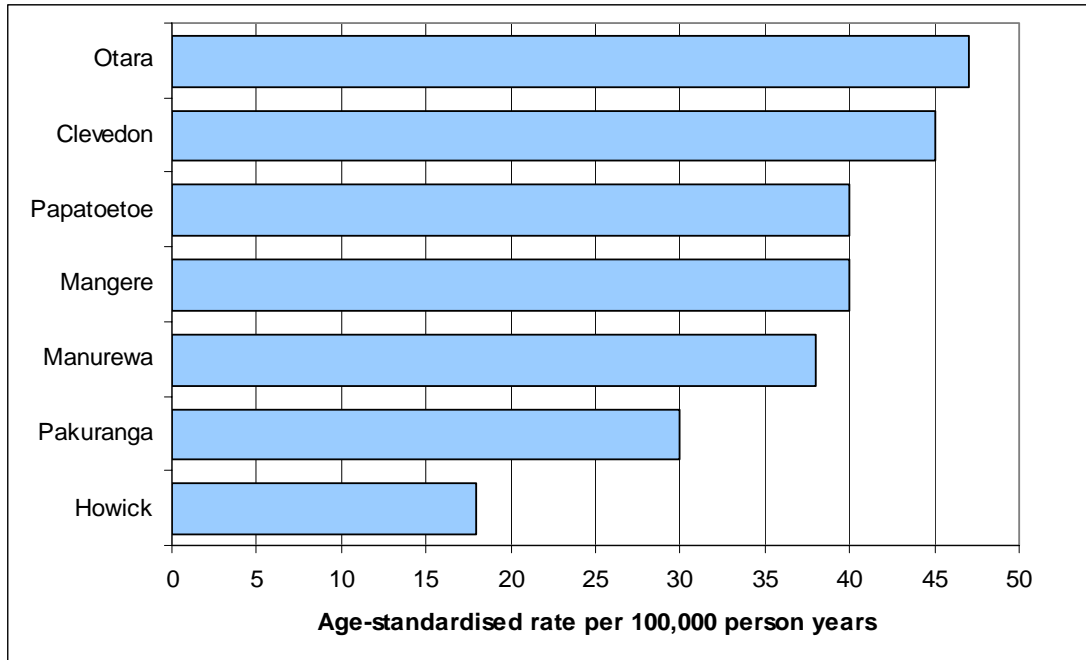
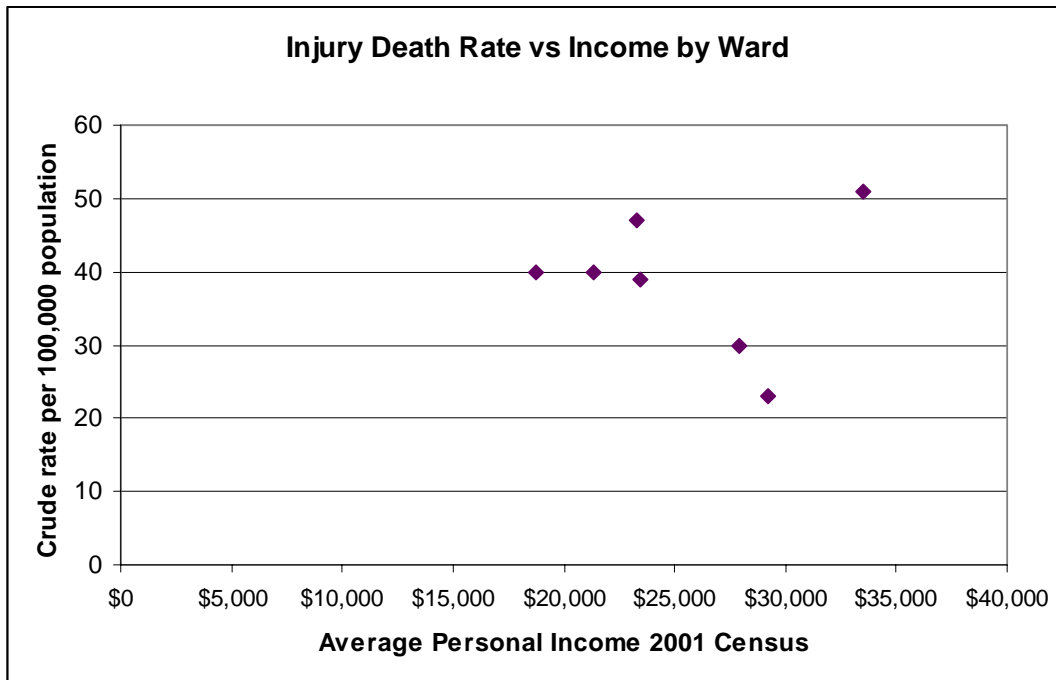


Figure 15 shows a plot of the crude injury mortality rate for each Ward, graphed against the average personal income for each ward. The graph shows that beside the point that has the highest crude injury death rate and the average income, the injury death rate tends to decrease with increasing average income.

Figure 15: Relationship between Injury mortality rate and income on a ward basis

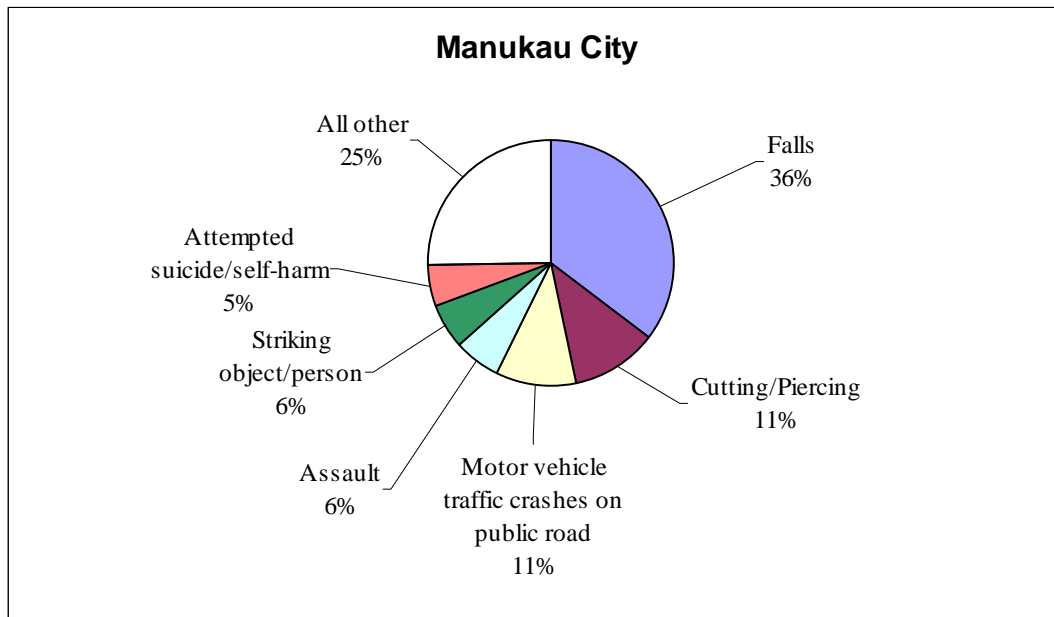


3.3.2 NZHIS injury morbidity 1993-2003

Between 1993 and 2003, 32,939 residents of Manukau City were hospitalised for 24 hours or more for an injury. The crude injury hospitalisation rate during this period was 1,127 injury hospitalisations per 100,000 person years. Males accounted for the majority (62%) of the injury hospitalisations.

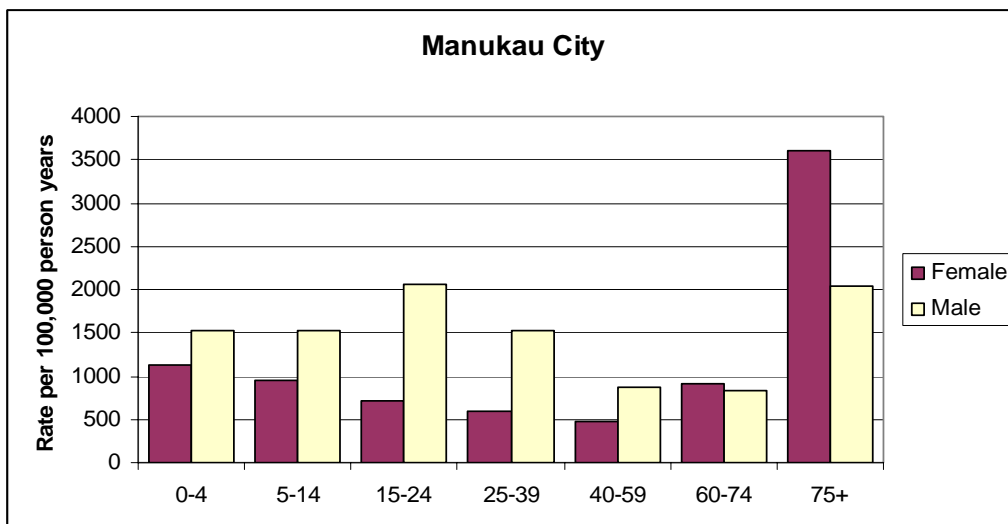
Figure 16 shows that the leading cause of injury hospitalisation was falls (36%). The other leading causes of injury hospitalisations were cutting and piercing (11%); motor vehicle traffic crashes on a public road (11%); assault (6%); striking an object or person (6%); and attempted suicide/deliberate self-harm (5%).

Figure 16: Manukau City- leading causes of injury morbidity 1993-2003



As shown by figure 17, for females, the 75+ age group had the highest rates of injury hospitalisation, followed by children aged 0-4 years. For males, the 15-24 age group had the highest rates of injury hospitalisation, followed by adults aged 75+ 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

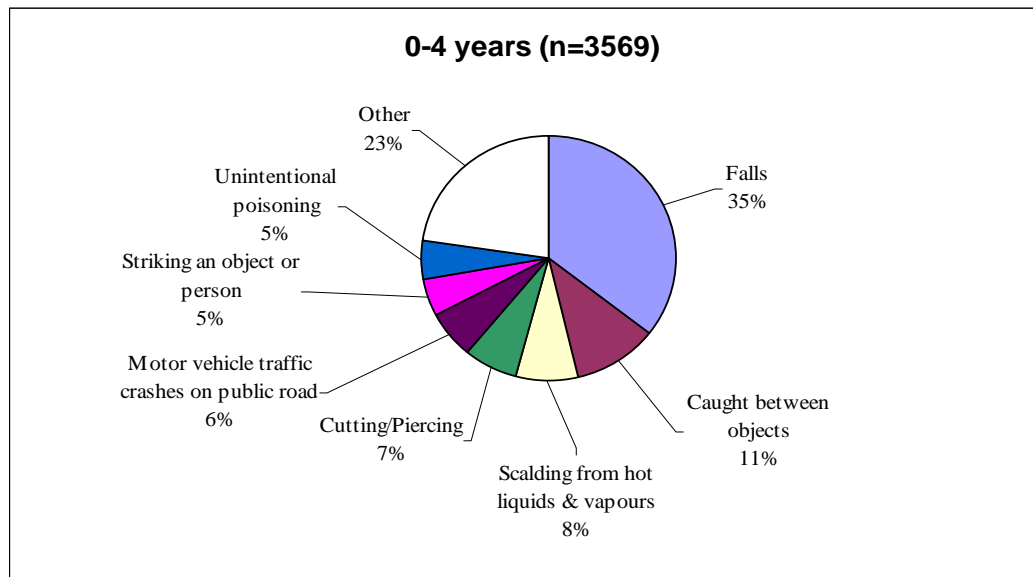


3.3.2.1 Leading causes of injury hospitalisation by age group

Figure 18 shows that for 0-4 year-olds, falls were the leading cause of injury hospitalisation (35%). Eleven percent of the hospitalisations were the result of being caught between objects; 8% were the result of scalding by a hot liquid or vapour; 7%

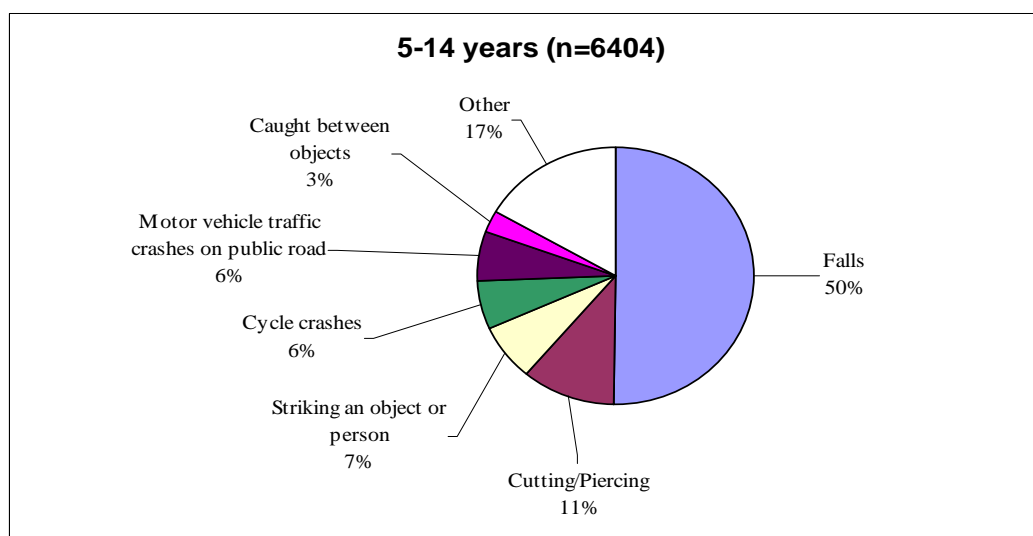
were the result of cutting and piercing; 6% were the result of motor vehicle crashes on a public road; 5% were the result of being struck by a person or object; and 5% were the result of unintentional poisoning.

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



For 5-14 year olds, falls accounted for half (50%) of the injury hospitalisations (figure 19). The other leading causes were cutting and piercing (11%); being struck by a person or object (7%); cycle crashes (6%); motor vehicle crashes on a public road (6%); and being caught between objects (3%).

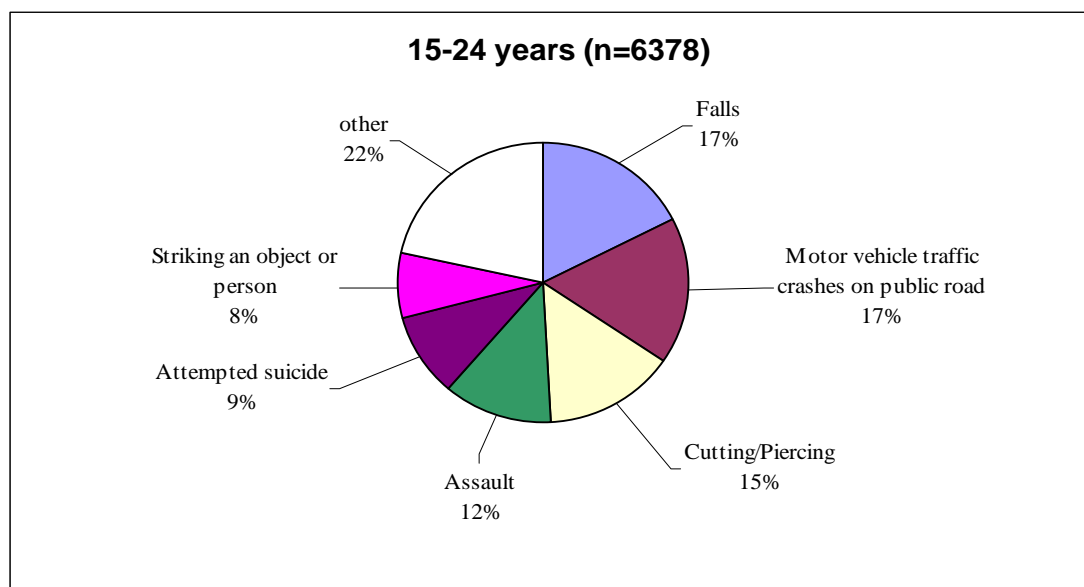
Figure 19: Leading causes of injury hospitalisation for 5-14 year olds, 1993-2003



For 15-24 year olds, falls were the leading cause of injury hospitalisation (17%), followed by motor vehicle crashes on a public road (17%; figure 20). The other

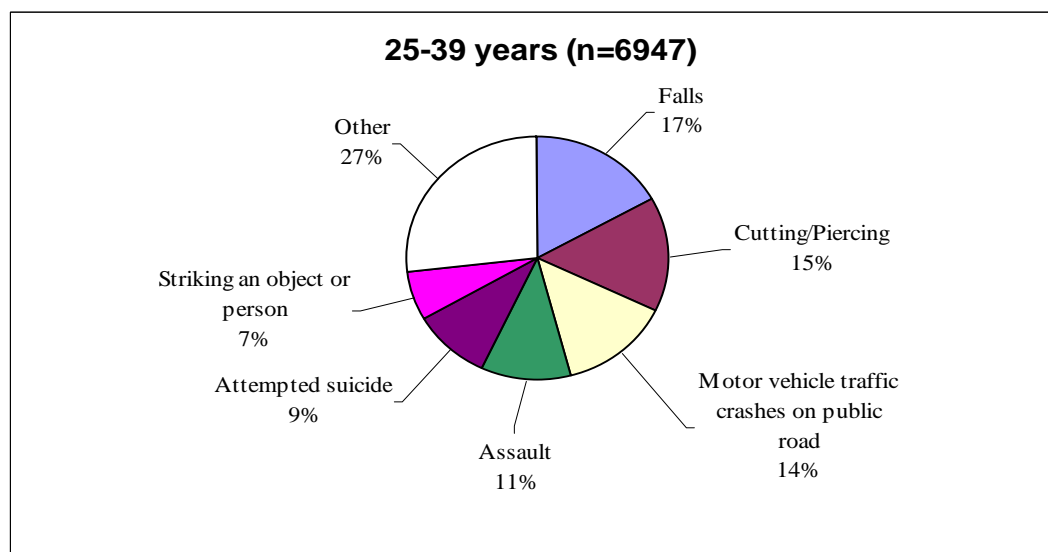
leading causes were cutting and piercing (15%); assault (12%); attempted suicide (9%); and striking a person or object (8%).

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



For 25-39 year olds, falls (17%) were the leading cause of injury hospitalisation (Figure 21). The other leading causes were cutting and piercing (15%); motor vehicle crashes on a public road (14%); assault (11%); attempted suicide (9%); and striking a person or object (7%).

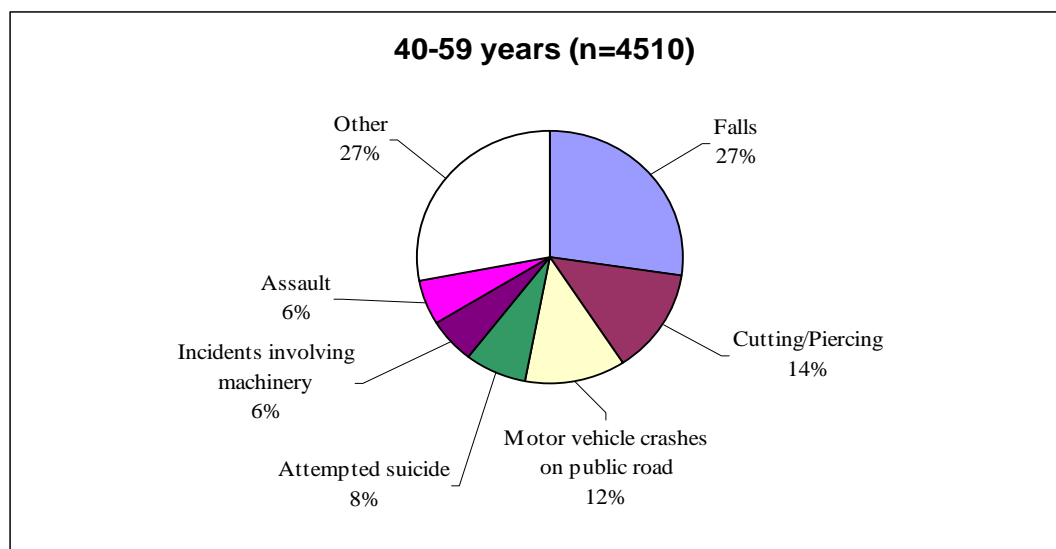
Figure 21: Leading causes of injury hospitalisation for 25-39 year olds, 1993-2003



For 40-59 year olds, falls (27%) were the leading cause of injury hospitalisation (figure 22). The other leading causes were cutting and piercing (14%); motor vehicle

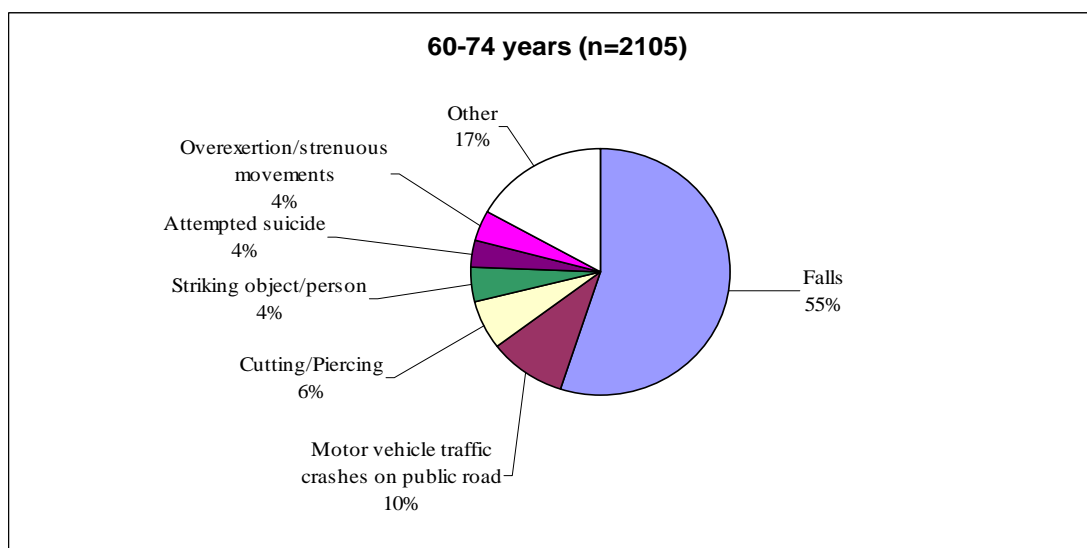
crashes on a public road (12%); attempted suicide (8%); incidents involving machinery (6%); and assault (6%).

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



For 60-74 year olds, falls (55%) were the leading cause of injury hospitalisation (figure 23). The other leading causes were motor vehicle crashes on a public road (10%); cutting and piercing (6%); striking a person or object (4%); attempted suicide (4%); and overexertion and strenuous movements (4%).

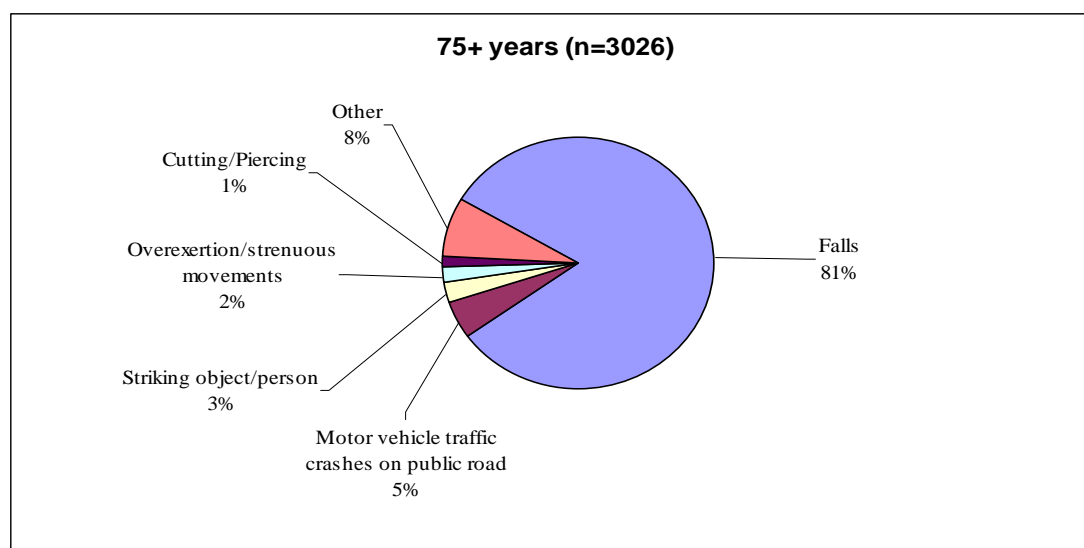
Figure 23: Leading causes of injury hospitalisation for 60-74 year olds, 1993-2003



For 75+ year olds, falls (81%) were the leading cause of injury hospitalisation (figure 24). The other leading causes were motor vehicle crashes on a public road (5%);

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, Maori had the highest age-standardised rate of hospitalised injuries (1,500 per 100,000 person years), followed by Pacific (1,137 per 100,000 person years), and New Zealand European (842 per 100,000 person years). New Zealand European/Other accounted for over half (52%) of the injury hospitalisations; Pacific accounted for 27%; and Maori accounted for 22%.

Figure 25 gives a breakdown of injury hospitalisation rates by ethnicity and age group. The New Zealand European/Other ethnic group had the highest injury rate (3,553 hospitalisations per 100,000 person years) in the older age group (75+). Similarly for Maori, those aged 75+ years tended to have the highest rate (2,244 hospitalisation per 100,000 person years) of injury. Pacific peoples had the highest rate (1,784 hospitalisations per 100,000 person years) of injury for young children aged 0-4.

Figure 25: Injury hospitalisation rates by ethnicity and age group for Manukau City, 2001-2003

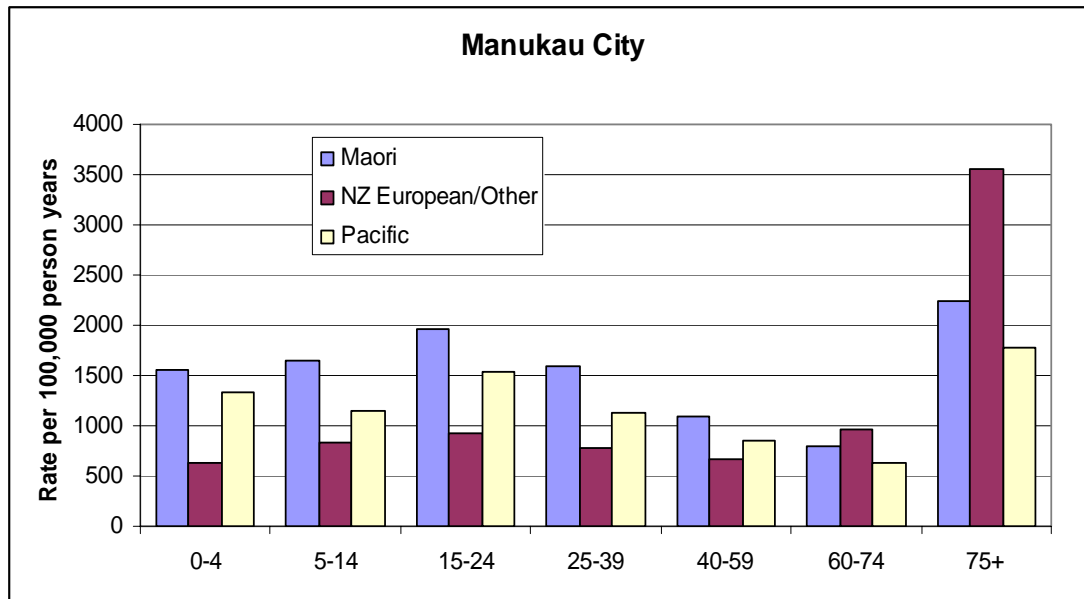


Table five shows that the leading causes of injury hospitalisation during the period 2001-2003 were similar across all ethnic groups. However, a higher percentage of New Zealand European/Other were injured by falls (42%) compared to the other ethnic groups, and Pacific peoples had a higher proportion of injuries caused by cutting and piercing (15%). Injuries caused by attempted suicide/self-harm only featured as a leading cause of injury hospitalisation for New Zealand European/Other.

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

Maori (n=2108)		NZ European/Other (n=5090)		Pacific (n=2604)	
Cause	%	Cause	%	Cause	%
Falls	28	Falls	42	Falls	27
Cutting/Piercing	11	Motor vehicle crashes on public road	10	Cutting/Piercing	15
Assault	11	Cutting/Piercing	8	Assault	10
Motor vehicle crashes on public road	10	Attempted suicide/ self-harm	7	Motor vehicle crashes on public road	8
Striking an object or person	6	Assault	4	Striking an object or person	6

3.3.2.3 Comparison by Ward

The comparison of Ward rates in figure 26 shows that the Papatoetoe Ward had the highest rate of injury hospitalisation, while Howick Ward had the lowest.

Figure 26: Age-standardised injury hospitalisation rates by ward for Manukau City, 1993-2003

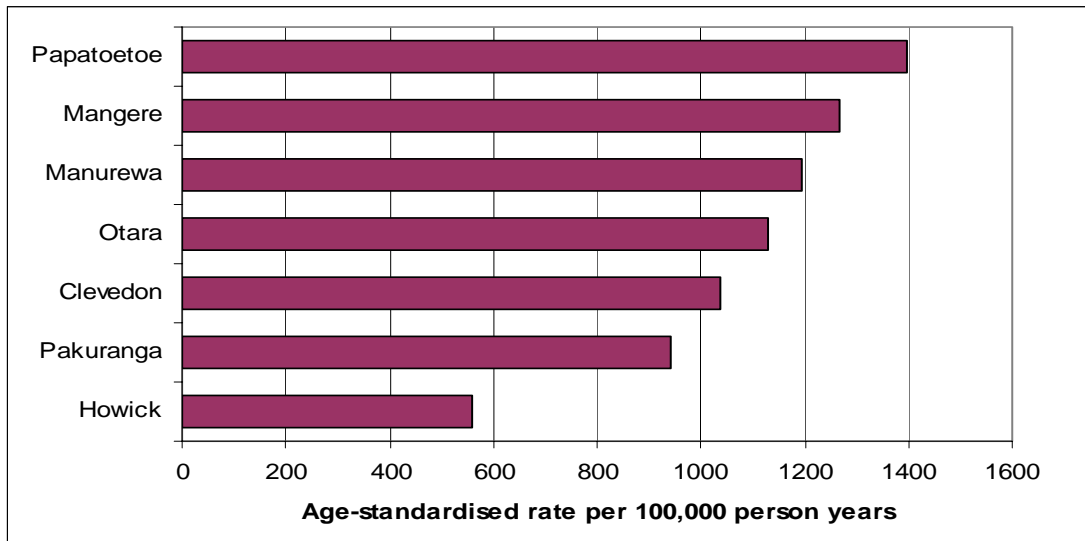
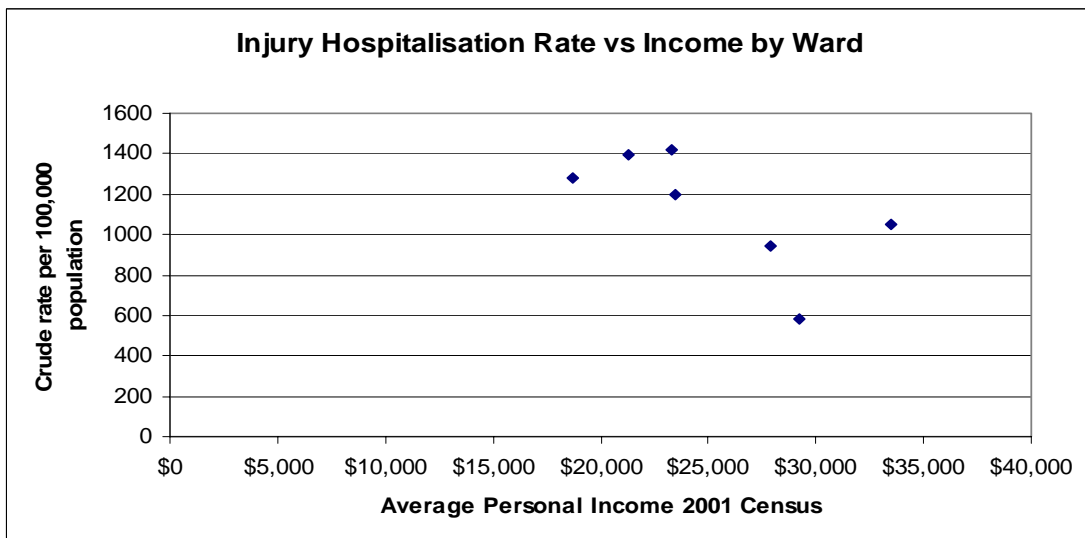


Figure 27 shows a plot of the crude injury hospitalisation rate for each ward, graphed against the average personal income for each ward. The graph shows that the injury hospitalisation rate tends to decrease with increasing average income.

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 Manukau 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 Manukau City increased from \$31.7 million in 1994/95 to \$35.2 million in 1995/96. The total cost of new and ongoing entitlement claims then decreased in the subsequent years to the lowest of \$21.8 million in 2000/01 however increased again to \$28 million in 2002/03.

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

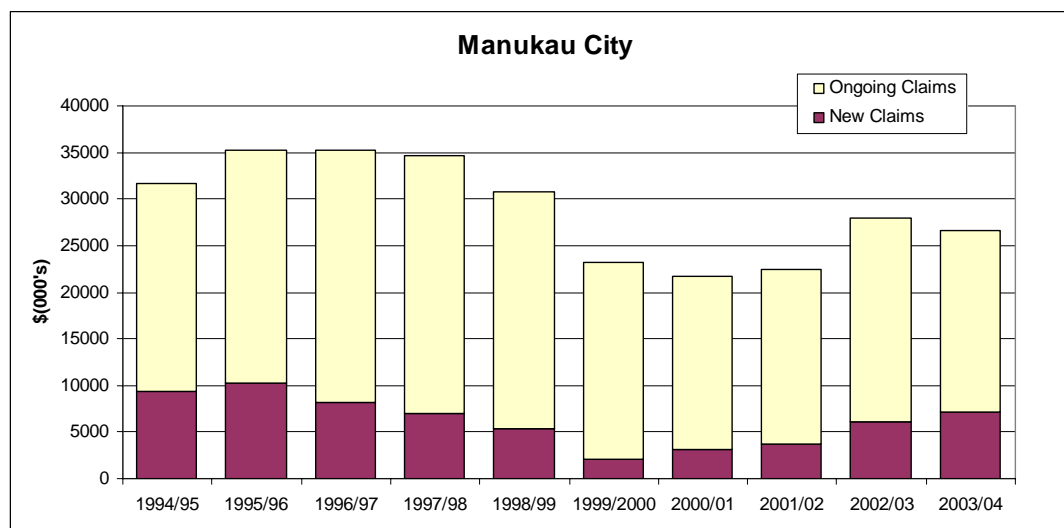


Figure 29 shows that the number of fatal claims in Manukau City has decreased from 36 in 1995/96 and 1996/97 to 13 in 1999/2000, but increased significantly to 42 in 2001/02.

Figure 29: Fatal claims occurring in Manukau City, 1994/5 – 2002/3

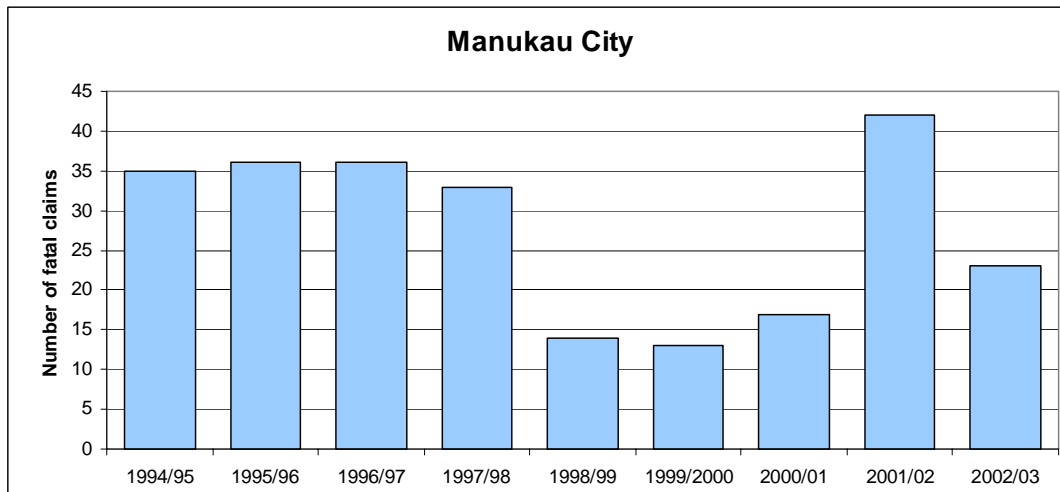


Figure 30 shows that injuries occurring at home accounted for nearly one-quarter (23%) of new entitlement claims registered with ACC in 2002/03. Injuries occurred at an industrial place accounted for 22% of claims; 16% of injuries occurred at a commercial or service location; 12% of injuries happened at a place for recreation or sports; and road or street injuries accounted for 9%.

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

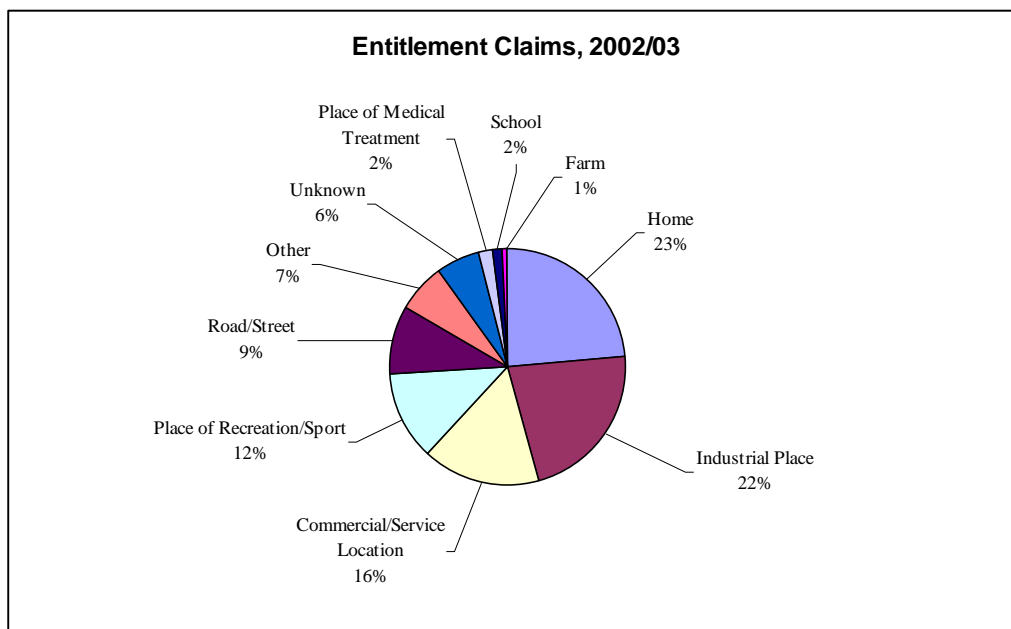
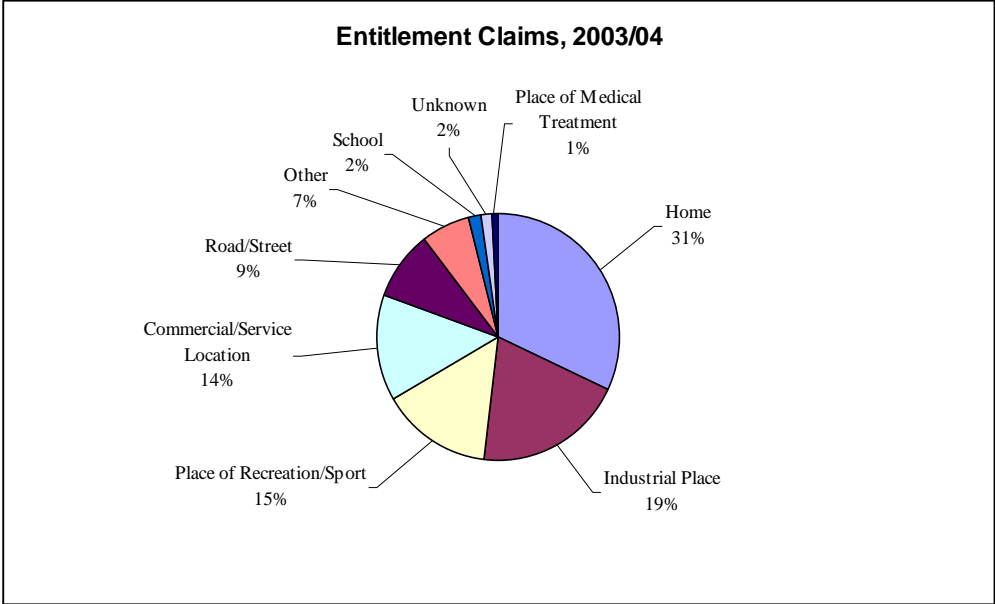


Figure 31 shows that injuries occurring at home accounted for approximately one-third (31%) of entitlement claims registered with ACC in 2003/04. Injuries at an industrial place accounted for 19% of claims; sporting and recreation injuries

accounted for 15%; 14% of injuries occurred at a commercial or service location; and road or street injuries accounted for 9%.

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



A breakdown of entitlement claims by diagnosis shows that soft tissue injuries accounted for 43% of all claims (figure 32). Fractures and dislocations accounted for more than one-quarter (28%) of claims, and lacerations/punctures accounted for 13% of the claims.

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

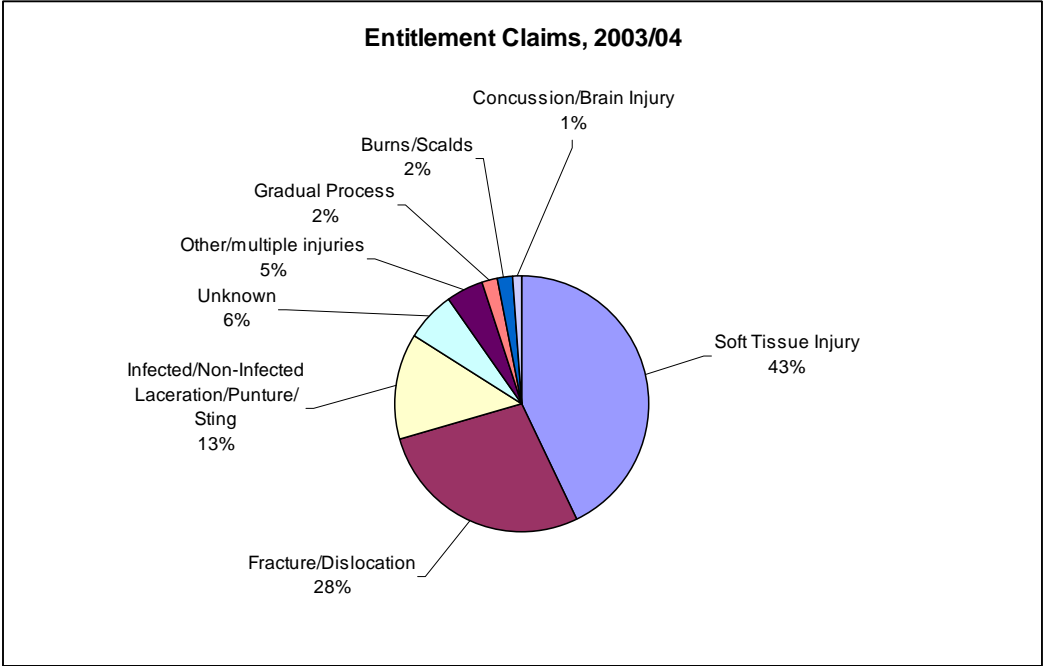
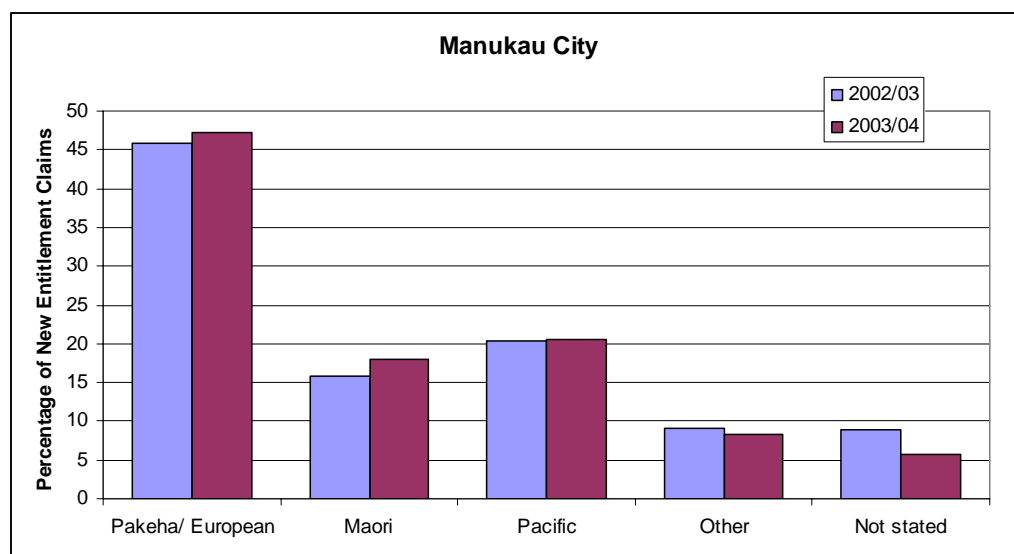


Figure 33 shows that New Zealand European had the highest percentage of new entitlement claims registered with ACC in both 2002/03 and 2003/04 (46% and 47% respectively) in Manukau City. In 2003/04, Maori accounted for 18% of new entitlement claims whereas Pacific people accounted for 21% of the new claims. The percentages of new entitlement claims for New Zealand European, Maori and Pacific people in 2003/04 were slightly higher than the previous year.

Figure 33: New entitlement claims by ethnicity registered with ACC in 2002/03 and 2003/04, Manukau 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 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, Manukau City had a crash rate of 19.9 crashes per 10,000 population, and a casualty rate of 26.9 per 10,000 population. As shown in table six, in 2002 there were 597 road traffic crashes in Manukau, resulting in 827 casualties.

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

Type of injury	Number of crashes	Number of injuries
Fatalities	15	20
Serious injuries	582	122
Minor injuries		685
Total	597	827

The social cost of road injury in Manukau City is \$124 million dollars/year, which is equivalent to a per capita social cost of \$721/person/year (table seven). The per capita social cost for Manukau City was higher when compared with the Auckland region but lower than the whole of New Zealand, yet Manukau City had the highest social cost per road km.

Table 7: Measures of road safety

Other road safety measures	Manukau City	Auckland Region	New Zealand
Per capita social cost (\$/person/year)	721	659	840
Social cost per road km (\$000/km/yr)	113	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 can be seen from Table eight, Manukau City has lower risk-ratios for driver factors such as 'speed, and driver - not speed or alcohol' compared to the Auckland region and the whole of New Zealand. However Manukau City has higher risk-ratios for 'alcohol', 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)	Manukau City	Auckland Region	New Zealand
Alcohol	2.36	1.73	1.68
Alcohol and speed combined	0.99	0.82	1.29
Speed	0.58	0.90	1.48
Driver -not speed or alcohol eg. Overtaking, failure to give way, tiredness	2.54	2.94	3.94
Non driver factor	1.71	1.52	1.45
All causes	8.17	7.92	9.84

Table nine shows that the risk-ratios for pedestrian involvement and cyclist involvement were slightly higher in Manukau City than the Auckland Region and all of

New Zealand. However the risk-ratio for no pedestrian or cyclist involved in Manukau City were lower than the risk-ratio for the Auckland region and all New Zealand.

Table 9: Risk ratios for pedestrian and cyclist factors

Risk –pedestrian and cyclist factors (cents/veh-km)	Manukau City	Auckland Region	New Zealand
No pedestrian or cyclist involved	6.72	6.87	8.78
Pedestrian involvement	1.10	0.89	0.78
Cyclist involvement	0.35	0.16	0.28
All causes	8.17	7.92	9.84

As shown in table 10, the risk-ratio for non-road factors in Manukau City was considerably lower than the risk-ratio for the whole of New Zealand, but higher than the Auckland region. However the risk-ratio for road factors involved e.g. slippery surface, obstructions, and road works was lower than for the Auckland region and all New Zealand.

Table 10: Risk ratios for road factors

Risk - road factors (cents/veh-km)	Manukau City	Auckland Region	New Zealand
Non road factor	7.71	7.40	8.84
Road factor involved eg slippery surface, obstructions, road works	0.47	0.52	1.00
All causes	8.17	7.92	9.84

Table 11 shows that the risk-ratio for vehicle factor involved e.g. faulty brakes, worn tyres, and punctures in Manukau City was considerably lower than the risk-ratio for both the Auckland region and all New Zealand. The risk-ratio for non vehicle factor in Manukau City was lower than risk-ratio in the Auckland Region, but lower than that for all New Zealand. Overall, these risk ratios indicate that driver factors contribute the greatest amount of risk for motor vehicle crashes occurring in the Manukau City.

Table 11: Risk ratios for vehicle factors

Risk – vehicle factors (cents/veh-km)	Manukau City	Auckland Region	New Zealand
Non vehicle factor	7.81	7.41	9.20
Vehicle factor involved eg faulty brakes, worn tyres, punctures	0.37	0.50	0.64
All causes	8.17	7.92	9.84

Table 12 shows the results of a restraint usage survey published on Motor Accidents in New Zealand 2001 (LTSA, 2002). The figures show that the use of restraints by adults and children were lower in Manukau City compared to the Auckland region.

However, Manukau City had a higher rate of rear seat belt wearing compared to all New Zealand. There was no information available for cycle helmet wearing in Manukau City.

Table 12: Restraint usage, March 2001

Restraint Usage	Manukau City (%)	Auckland Region (%)	New Zealand (%)
Front seat adults	89	94	92
Rear seat adults	79	84	70
Child restraints	69	77	82
Cycle helmet wearing	-	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 Clevedon Ward

4.1 Demographics

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

Table 14: Clevedon Ward- usually resident population

Population*	2001 Census	%	1996 Census	%	1991 Census	%
Maori	795	7	681	7	432	5
NZ European/Other	10065	91	9069	91	7935	95
Pacific	195	2	135	1	78	1
Total Persons [≈]	11115	100	9930	99	8337	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.

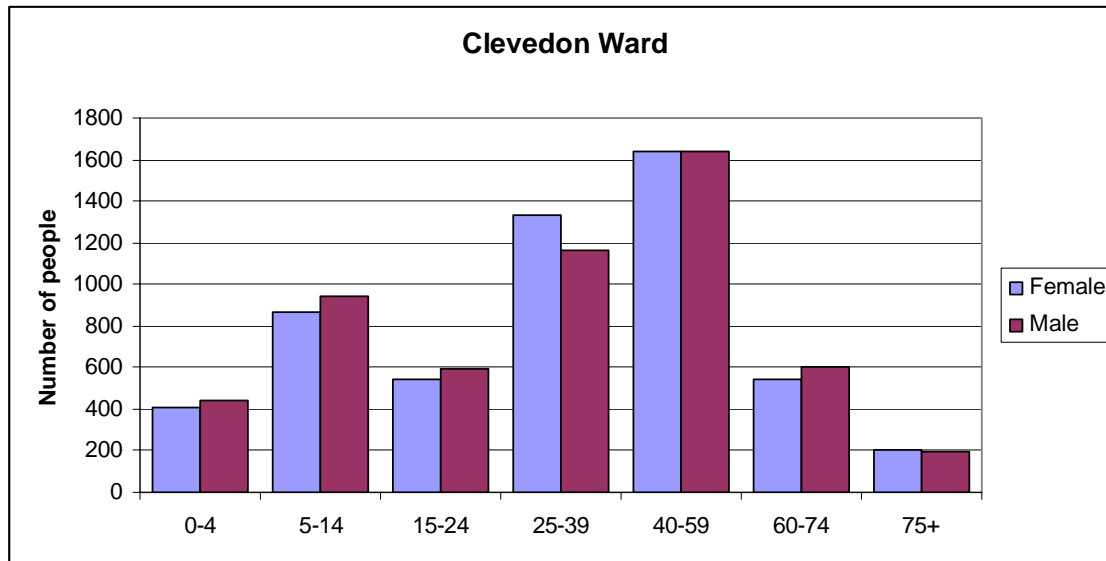
Table 15: Clevedon Ward - age composition

Age Composition	2001 Census (%)	1996 Census (%)	1991 Census (%)
0-4	8	8	8
5-14	16	15	15
15-24	10	11	13
25-39	22	25	24
40-59	29	27	25
60-74	10	10	12
75+	4	3	3

Table 16: Clevedon Ward- household and personal income

Income	2001 Census – number	2001 Census (%)
Households earning > \$30,000	2271	62
Personal incomes > \$30,000	3081	39
Average per capita personal income	\$33,512	

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



4.2 Injury statistics

4.2.1 NZHIS injury mortality 1993-1999

Between 1993 and 1999, 35 residents of the Clevedon Ward died as the result of receiving an injury. This is equivalent to a crude injury rate of 51 injury deaths per 100,000 person years. Males accounted for 77% of the fatalities.

As can be seen in figure 35, motor vehicle crashes on a public road were the leading cause of injury death (31%). The other leading causes of injury death were suicide (29%); drowning (14%); and falls (9%).

Figure 35: Clevedon Ward- leading causes of injury mortality 1993-1999

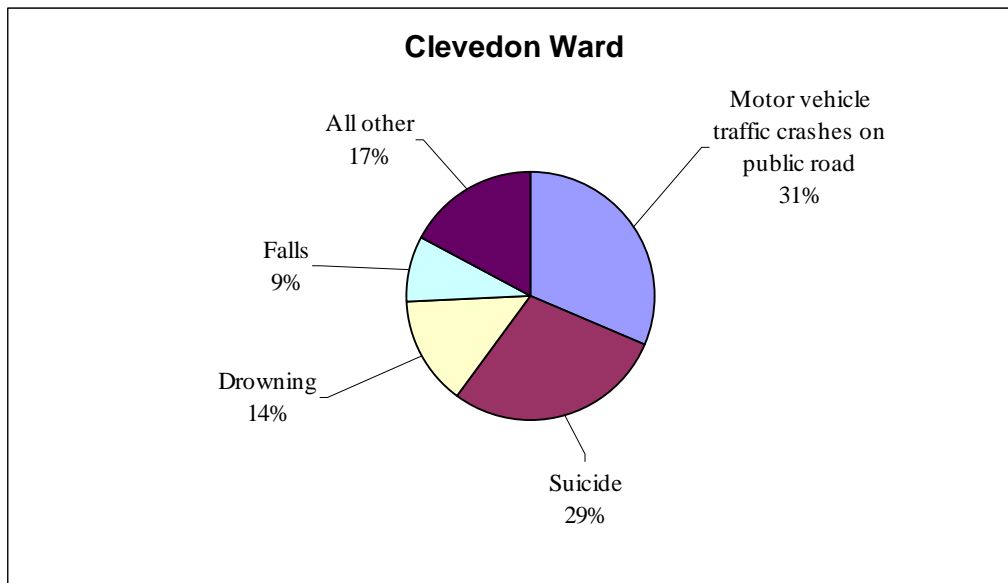
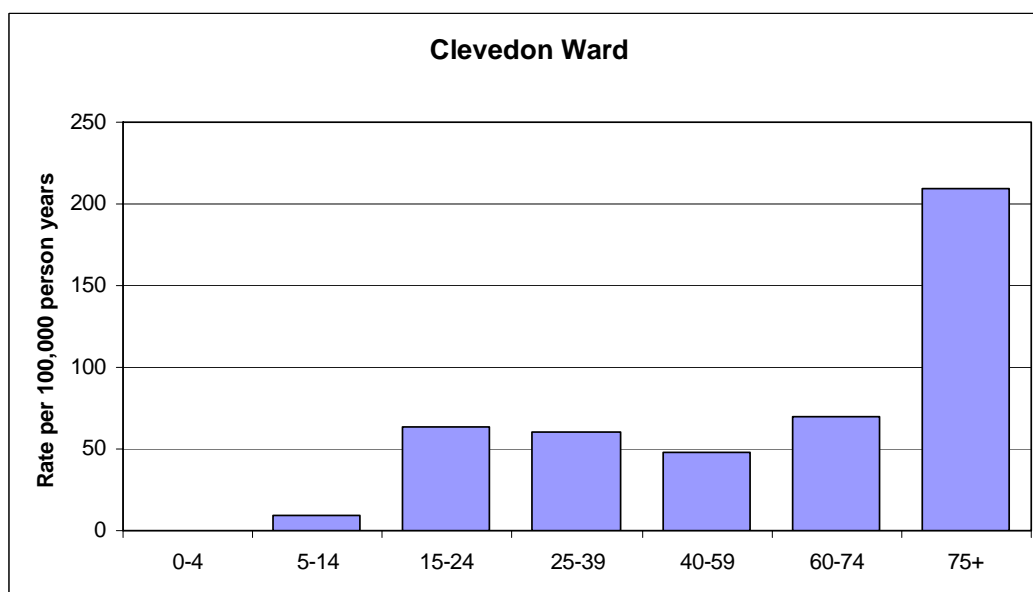


Figure 36 shows that the 75+ age group had the highest rate (210 deaths per 100,000 person years) of injury death, followed by adults aged 60-74 years (70 deaths per 100,000 person years).

Figure 36: Rates of injury death by age group, 1993-1999



Of the 18 people who died from injury between 1996 and 1999, 15 (83%) were of New Zealand European/Other ethnicity, and the remaining (17%) were Maori.

4.2.2 NZHIS injury morbidity 1993-2003

Between 1993 and 2003, 1,190 residents of the Clevedon Ward were hospitalised after receiving an injury. The crude injury hospitalisation rate during this period was 1,046 injury hospitalisations per 100,000 person years. Males accounted for 60% of the hospitalisations.

Figure 37 shows that falls accounted for the greatest number of injury hospitalisations (41%). The other leading causes of injury were motor vehicle traffic crashes on a public road (12%); cutting and piercing (10%); striking an object or person (5%); and attempted suicide/deliberate self-harm (4%).

Figure 37: Clevedon Ward - leading causes of injury morbidity 1993-2003

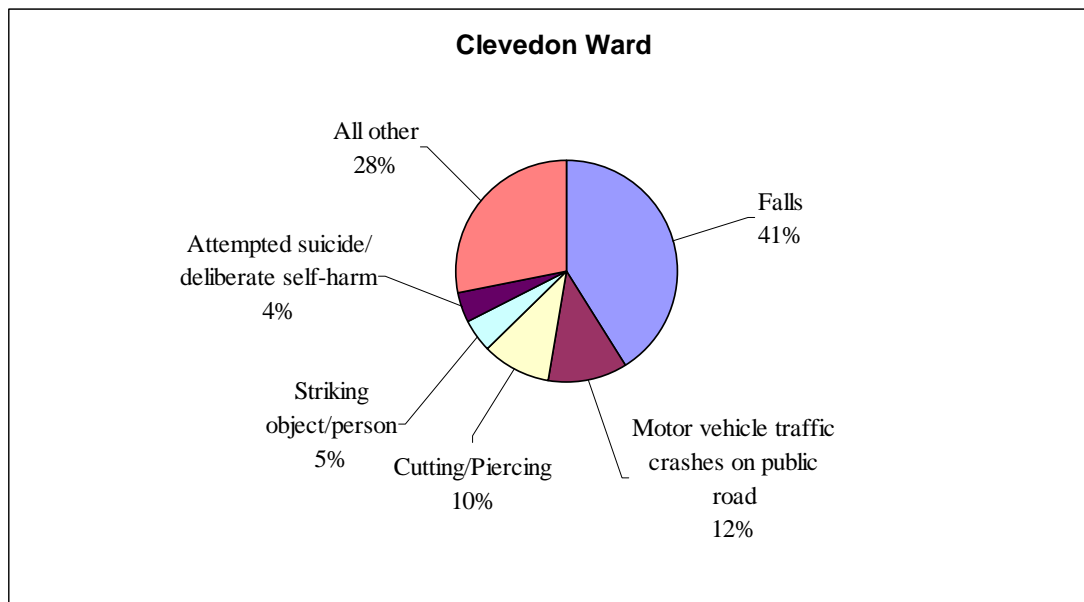


Figure 38 shows that for females, those aged 75+ had the highest rate (5,405 hospitalisations per 100,000 person years) of injury hospitalisation, followed by children aged 5-14 years (1,157 hospitalisations per 100,000 person years). For males, the 75+ age group had the highest rate (2,126 hospitalisations per 100,000 person years) of injury hospitalisation, followed by young people aged 15-24 years (1,621 hospitalisations per 100,000 person years). Males had higher rates of injury hospitalisation than females across all age groups under 60.

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

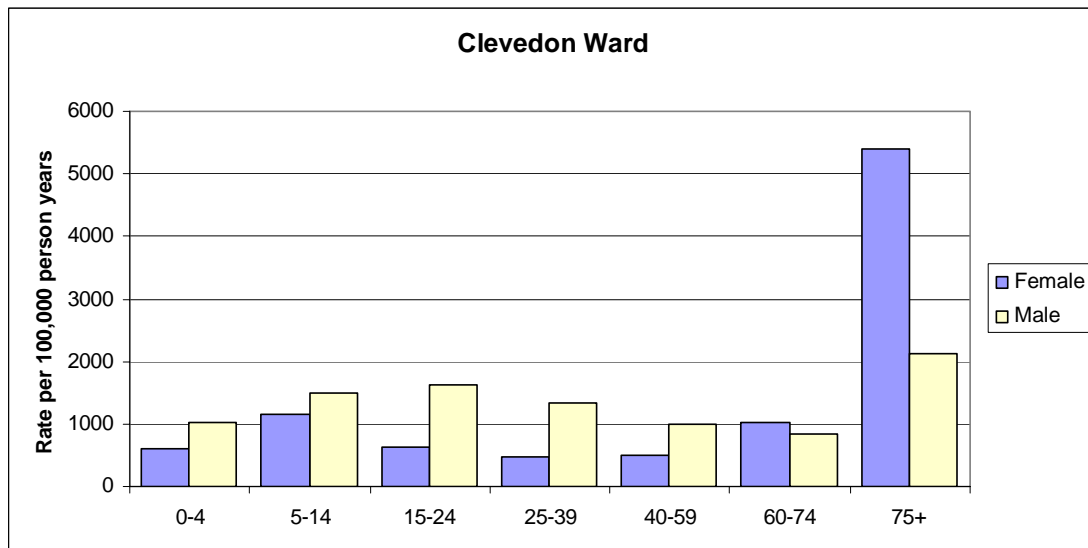


Figure 39 shows that for the period 2001-2003, Pacific had the highest rate of hospitalised injury (2,359 injury hospitalisations per 100,000 person years), followed by New Zealand European/Other (1,070 injury hospitalisations per 100,000 person years) and Maori (949 injury hospitalisations per 100,000 person years). New Zealand European/Other accounted for the majority (92%) of the injuries.

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

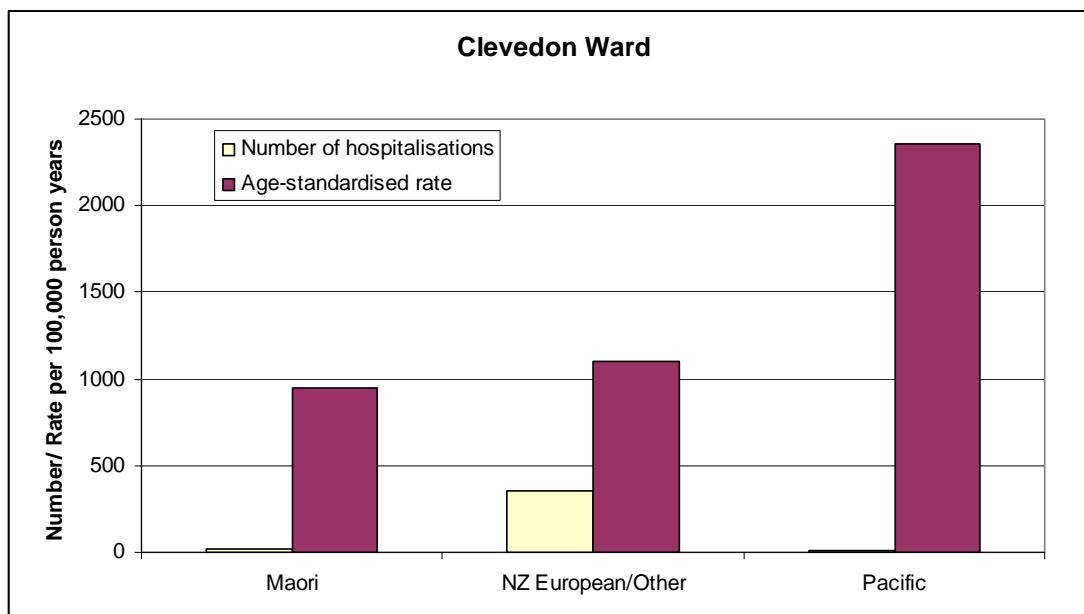


Table 17 shows that for the period of 2001-2003, there were some ethnic differences in the leading causes of injury hospitalisation. New Zealand European/Other had a much higher proportion of falls (42%) compared to Maori and Pacific ethnic groups. In

addition, to falls, Pacific peoples were more likely to be injured by cutting or piercing (17%), and attempted suicide/self-harm (17%) and receive dog bites (8%) compared to Maori and New Zealand European/Other ethnic groups.

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

Maori (n=20)		NZ European/Other (n=354)		Pacific (n=12)	
Cause	%	Cause	%	Cause	%
Falls	25	Falls	42	Falls	33
Overexertion/ strenuous movements	15	Motor vehicle crashes on public road	12	Cutting/Piercing	17
Assault	10	Cutting/Piercing	9	Attempted suicide/ self- harm	17
Motor vehicle crashes on public road	10	Attempted suicide/ self- harm	6	Dog bite	8
Striking an object or person	10	Overexertion/ strenuous movements	5	Hit by falling object	8

5.0 Howick Ward

5.1 Demographics

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

Table 18: Howick Ward- usually resident population

Population*	2001 Census	%	1996 Census	%	1991 Census	%
Maori	1662	3	1392	4	861	3
NZ European/Other	47142	97	38517	97	29751	98
Pacific	735	2	531	1	345	1
Total Persons [≈]	48828	102	39672	102	30381	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.

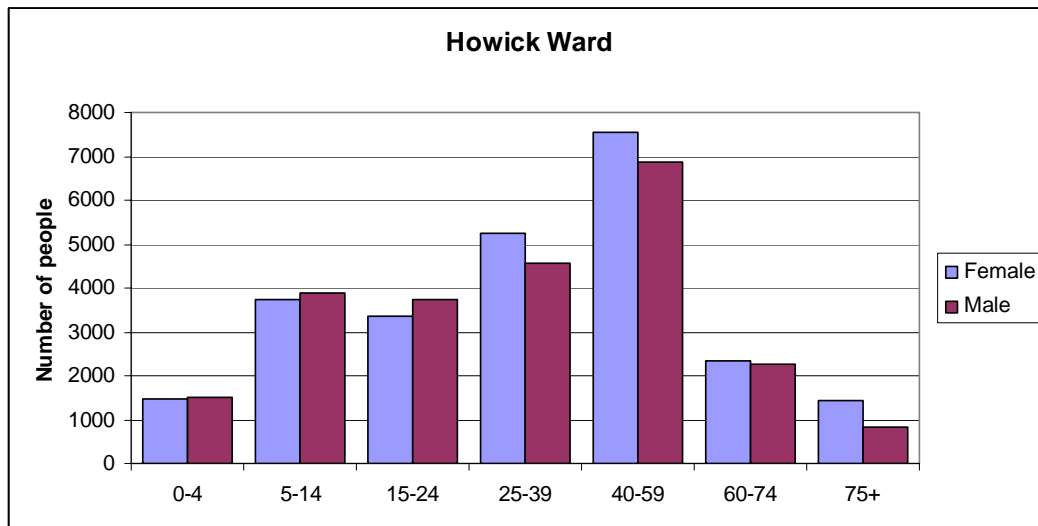
Table 18: Howick Ward - age composition

Age Composition	2001 Census (%)	1996 Census (%)	1991 Census (%)
0-4	6	6	7
5-14	16	15	15
15-24	15	16	16
25-39	20	21	22
40-59	30	28	27
60-74	9	10	9
75+	5	4	4

Table 19: Howick Ward- household and personal income

Income	2001 Census – number	2001 Census (%)
Households earning > \$30,000	9795	61
Personal incomes > \$30,000	13623	36
Average per capita personal income	\$29,245	

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



5.2 Injury statistics

5.2.1 NZHIS injury mortality 1993-1999

Between 1993 and 1999, 63 residents of the Howick Ward died as the result of receiving an injury. This is equivalent to a crude injury rate of 23 injury deaths per 100,000 person years. Males accounted for 57% of the fatalities.

As can be seen in figure 40, suicide was the leading cause of injury death (46%). The other leading causes of injury death were falls (27%); motor vehicle crashes on a public road (17%); and drowning (5%).

Figure 40: Howick Ward- leading causes of injury mortality 1993-1999

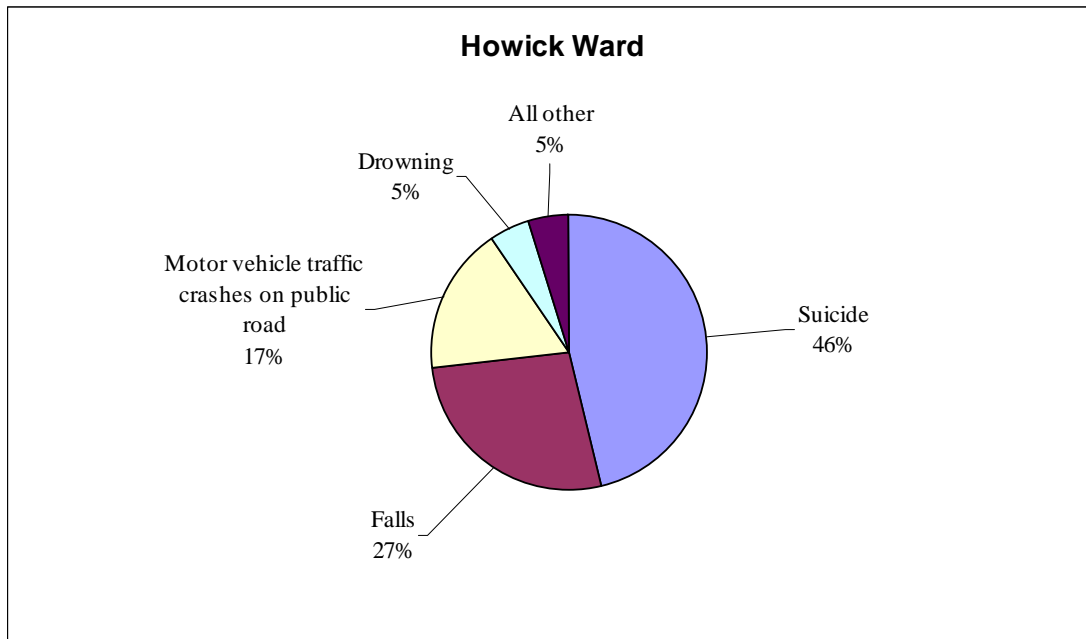
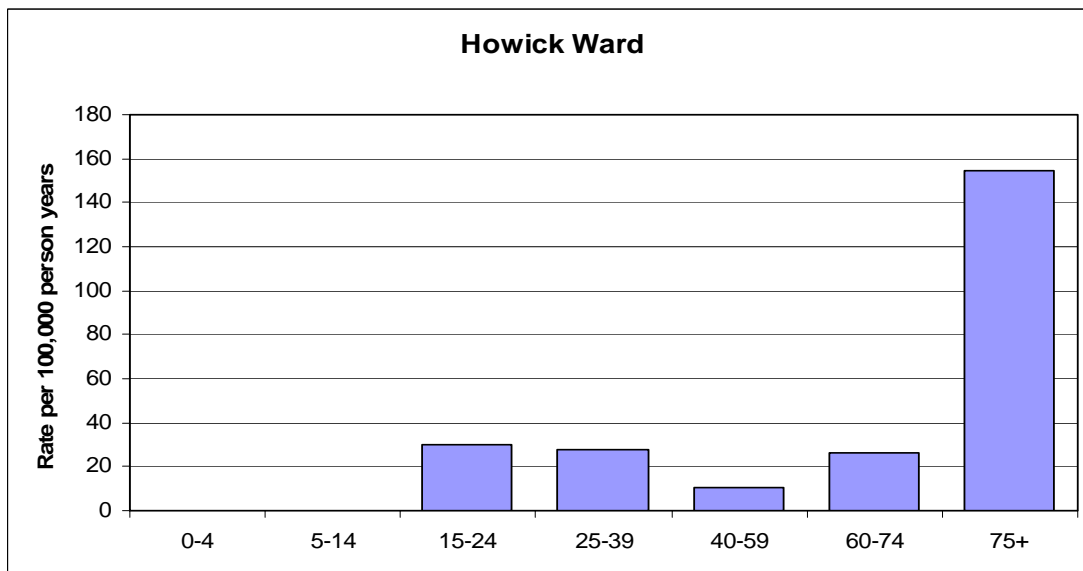


Figure 41 shows that the 75+ age group had the highest rate (154 deaths per 100,000 person years) of injury death, followed by young adults aged 15-24 years (30 deaths per 100,000 person years).

Figure 41: Rates of injury death by age group, 1993-1999



Of the 43 people who died from injury between 1996 and 1999, 39 (91%) were New Zealand European/Other, and 4 (9%) were Maori.

5.2.2 NZHIS injury morbidity 1993-2003

Between 1993 and 2003, 2,759 residents of the Howick ward were hospitalised after receiving an injury. The crude injury hospitalisation rate during this period was 582 injury hospitalisations per 100,000 person years. Males accounted for 56% of the hospitalisations.

Figure 42 shows that falls accounted for the greatest number of injury hospitalisations (48%). The other leading causes of injury were motor vehicle traffic crashes on a public road (9%); cutting and piercing (8%); striking an object or person (6%); attempted suicide/deliberate self-harm (6%); and overexertion or strenuous movements (3%).

Figure 42: Howick Ward- Leading causes of injury morbidity 1993-2003

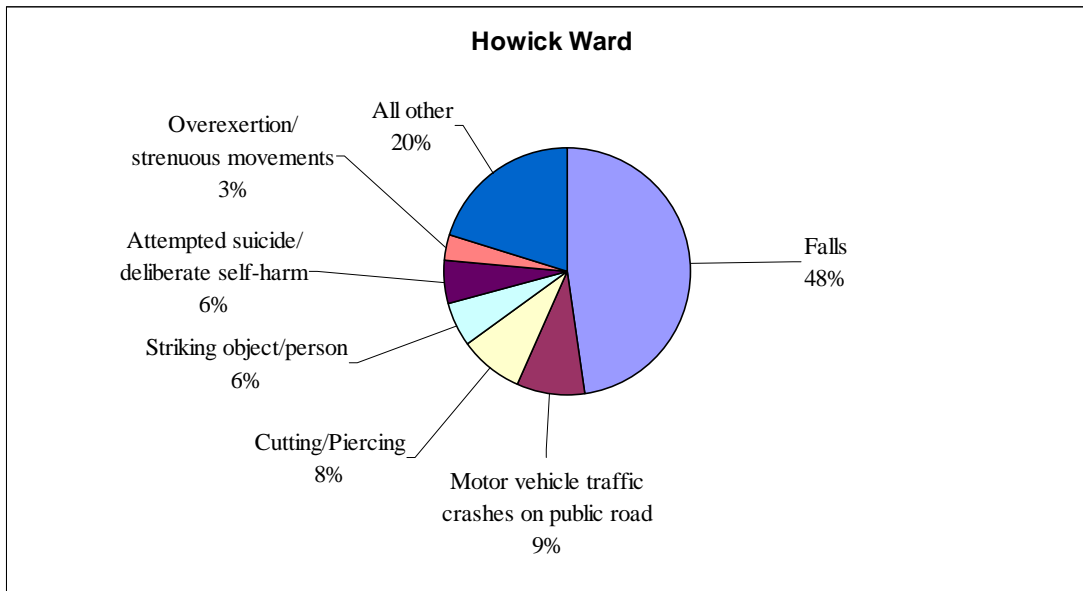


Figure 43 shows that for females, those aged 75+ had the highest rate (3,022 hospitalisations per 100,000 person years) of injury hospitalisation, followed by adults aged 60-74 years (779 hospitalisations per 100,000 person years). For males, the 75+ age group had the highest rate (1,641 hospitalisations per 100,000 person years) of injury hospitalisation, followed by children aged 5-14 years (938 hospitalisations per 100,000 person years). Males had higher rates of injury hospitalisation than females across all age groups under 60.

Figure 43: Rates of injury hospitalisation by age and gender, 1993-2003

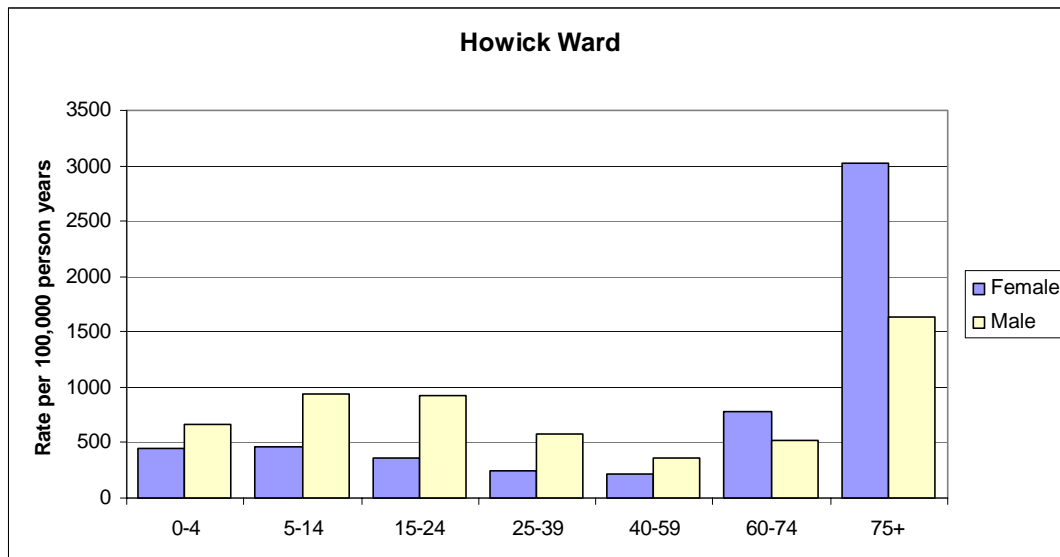


Figure 44 shows that for the period 2001-2003, New Zealand European/Other had the highest rate of hospitalised injury (518 injury hospitalisations per 100,000 person years), followed by Pacific (442 injury hospitalisations per 100,000 person years) and Maori (257 injury hospitalisations per 100,000 person years). New Zealand European/Other accounted for the majority (97%) of the injuries.

Figure 44: Injury hospitalisation rates by ethnicity for Howick Ward, 2001-2003

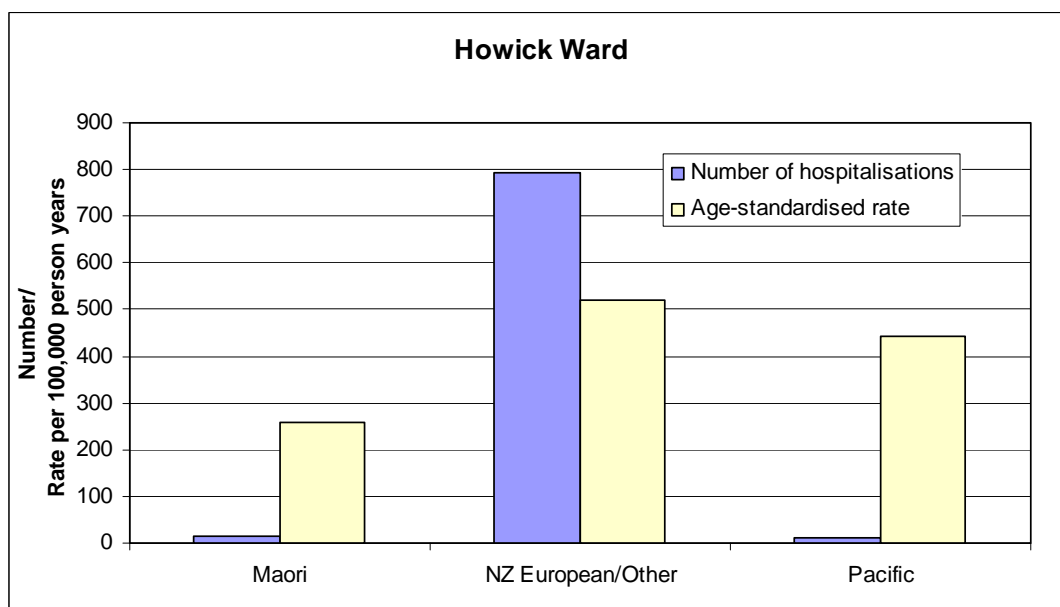


Table 20 shows that for the period of 2001-2003, a higher percentage of Maori were injured by motor vehicle crashes on a public road (20%) compared to the other ethnic groups, while New Zealand European/Other were more likely to be injured by falls

(48%). Ten percent of Pacific peoples were hospitalised for injuries caused by cutting and piercing.

Table 20: Ethnic comparison of leading causes of injury hospitalisation, 2001-2003

Maori (n=15)		NZ European/Other (n=792)		Pacific (n=11)	
Cause	%	Cause	%	Cause	%
Motor vehicle crashes on public road	20	Falls	48	Falls	27
Falls	13	Motor vehicle crashes on public road	8	Motor vehicle crashes on public road	11
Assault	13	Cutting/Piercing	7	Cutting/Piercing	10
Striking an object or person	13	Attempted suicide/ self-harm	5	Assault	9
Cutting/Piercing	7	Overexertion/ strenuous movements	5	Attempted suicide/ self-harm	6

6.0 Mangere Ward

6.1 Demographics

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

Table 21: Mangere Ward- usually resident population

Population*	2001 Census	%	1996 Census	%	1991 Census	%
Maori	8649	19	9606	22	9663	24
NZ European/Other	14556	31	16485	38	15711	38
Pacific	26013	56	21012	48	18153	44
Total Persons [≈]	46440	106	43923	108	40944	106

* 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.

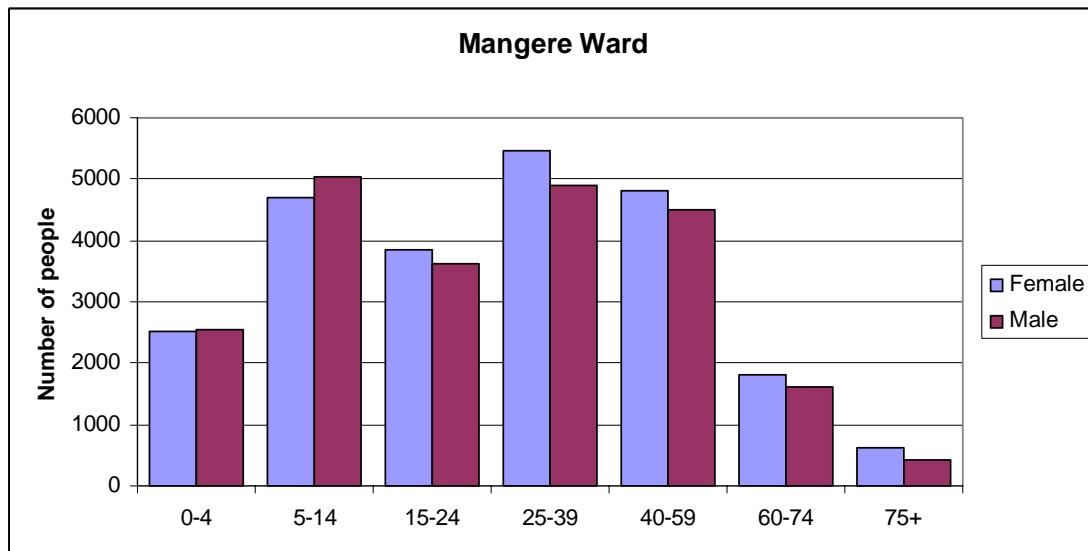
Table 22: Mangere Ward - age composition

Age Composition	2001 Census (%)	1996 Census (%)	1991 Census (%)
0-4	11	11	11
5-14	21	20	19
15-24	16	18	21
25-39	22	23	22
40-59	20	20	19
60-74	7	7	6
75+	2	2	2

Table 23: Mangere Ward- household and personal income

Income	2001 Census – number	2001 Census (%)
Households earning > \$30,000	4353	39
Personal incomes > \$30,000	5055	15
Average per capita personal income	\$18,715	

Figure 45: Mangere Ward- age distribution by gender in 2001 Census



6.2 Injury statistics

6.2.1 NZHIS injury mortality 1993-1999

Between 1993 and 1999, 123 residents of the Mangere Ward died as the result of receiving an injury. This is equivalent to a crude injury rate of 40 injury deaths per 100,000 person years. Males accounted for 77% of the fatalities.

As can be seen in figure 46, motor vehicle crashes on a public road were the leading cause of injury death (40%). The other leading causes of injury death were suicide (33%); drowning (7%); homicide (7%); falls (4%); and cycle crashes (2%).

Figure 46: Mangere Ward- leading causes of injury mortality 1993-1999

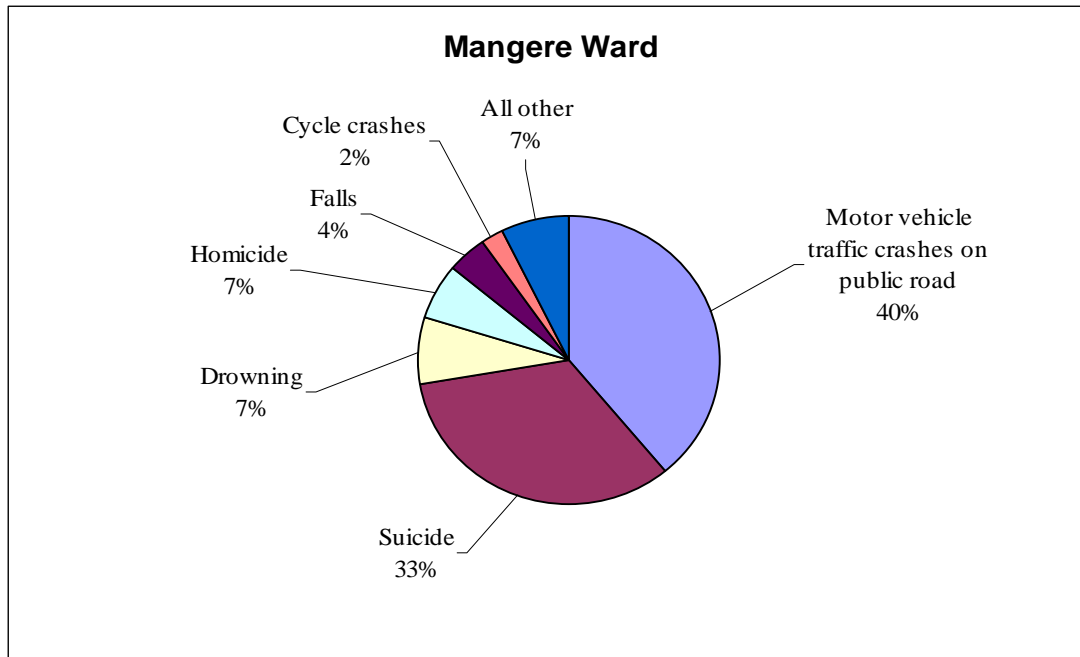
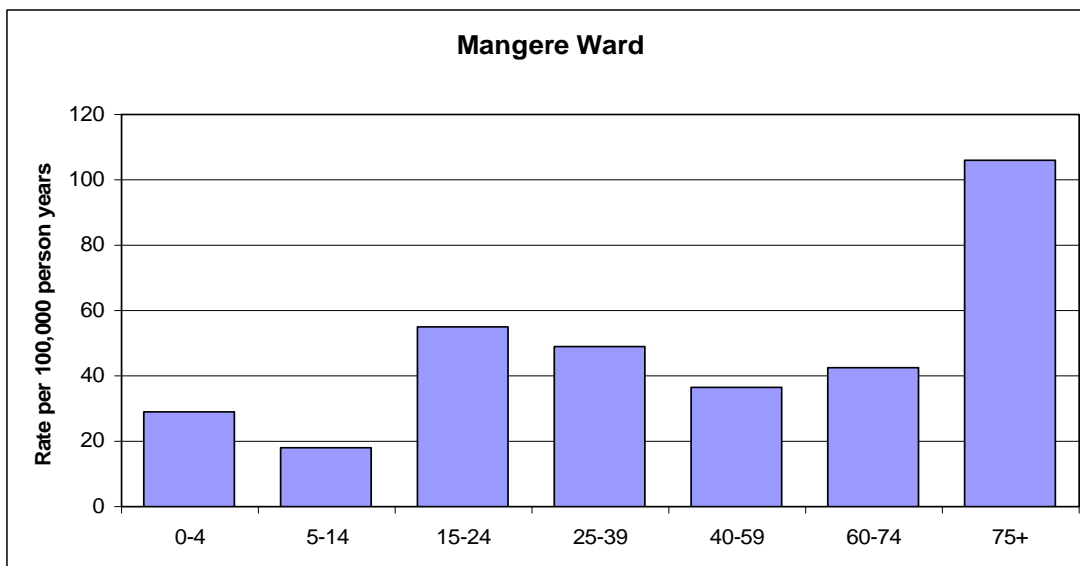


Figure 47 shows that the 75+ age group had the highest rate (106 deaths per 100,000 person years) of injury death, followed by young adults aged 15-24 years (55 deaths per 100,000 person years).

Figure 47: Rates of injury death by age group, 1993-1999



Of the 71 people who died from injury between 1996 and 1999, 31 (44%) were of New Zealand European/Other ethnicity, 20 (28%) were Maori, and 20 (28%) were Pacific.

6.2.2 NZHIS injury morbidity 1993-2003

Between 1993 and 2003, 6,336 residents of the Mangere Ward were hospitalised after receiving an injury. The crude injury hospitalisation rate during this period was 1,280 injury hospitalisations per 100,000 person years. Males accounted for 64% of the hospitalisations.

Figure 48 shows that falls accounted for the greatest number of injury hospitalisations (30%). The other leading causes of injury were cutting and piercing (13%); motor vehicle traffic crashes on a public road (11%); assault (8%); striking an object or person (6%); attempted suicide/deliberate self-harm (5%); and caught between objects (4%).

Figure 48: Mangere Ward - leading causes of injury morbidity 1993-2003

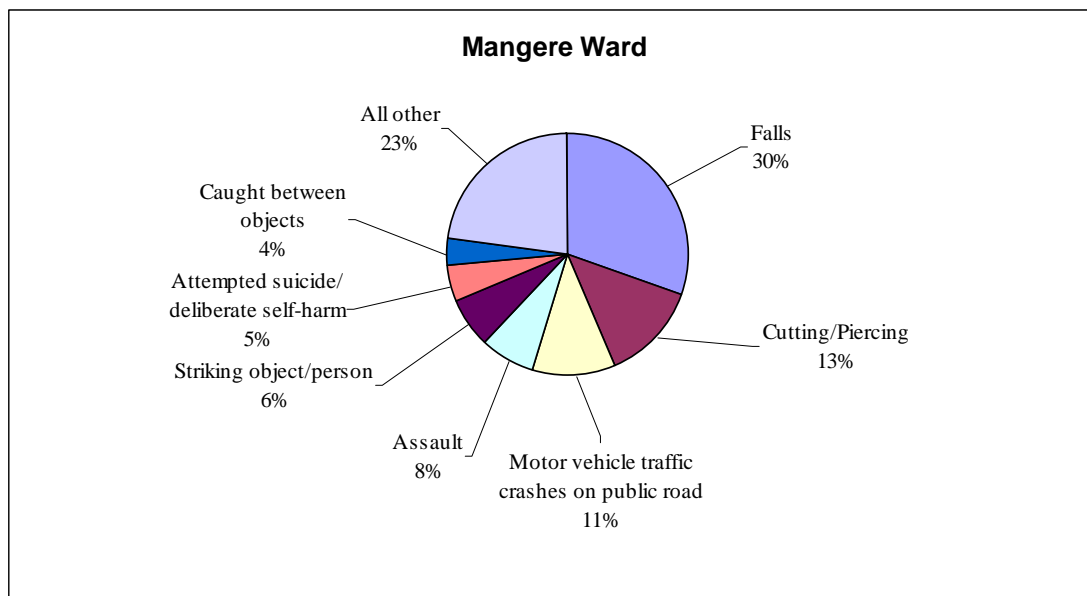


Figure 49 shows that for females, those aged 75+ had the highest rate (3,004 hospitalisations per 100,000 person years) of injury hospitalisation, followed by young children aged 0-4 years (1,399 hospitalisations per 100,000 person years). For males, the age group of 15-24 years had the highest rate of injury hospitalisation (2,502 hospitalisations per 100,000 person years), followed by adults aged 75+ years (2,091 hospitalisations per 100,000 person years). Males had higher rates of injury hospitalisation than females across all age groups under 75.

Figure 49: Rates of injury hospitalisation by age and gender, 1993-2001

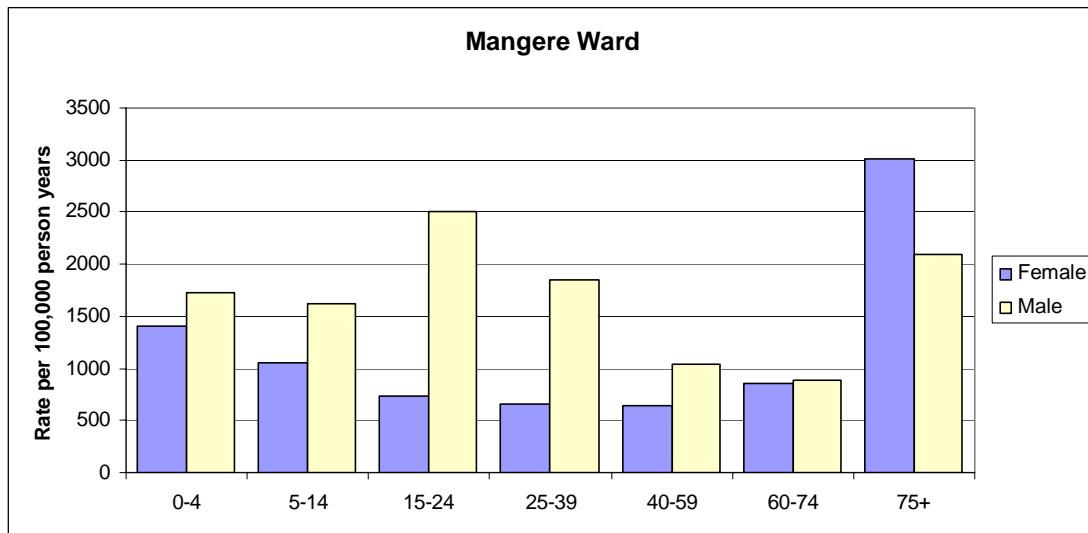


Figure 50 shows that for the period 2001-2003, Maori had the highest rate of hospitalised injury (1,540 injury hospitalisations per 100,000 person years), followed by Pacific (1,061 injury hospitalisations per 100,000 person years) and New Zealand European/Other (915 injury hospitalisations per 100,000 person years). Pacific peoples accounted for half (51%) of the injuries.

Figure 50: Injury hospitalisation rates by ethnicity for Mangere Ward, 2001-2003

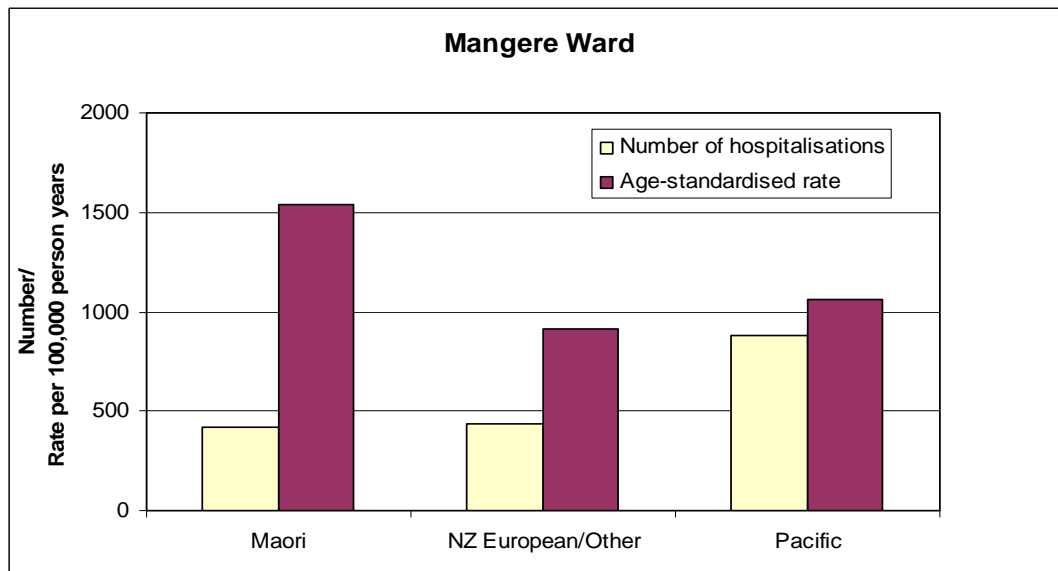


Table 24 shows that falls were the leading cause of injury hospitalisation for all ethnic groups during the period 2001-2003. Maori had a higher percentage of motor vehicle crashes on a public road (11%) compared to other ethnic groups, whereas a higher percentage of New Zealand European/Other were hospitalised due to an attempted

suicide/self-harm. More Pacific peoples were hospitalised for injuries caused by cutting and piercing (14%).

Table 24: Ethnic comparison of leading causes of injury hospitalisation, 2001-2003

Maori (n=422)		NZ European/Other (n=436)		Pacific (n=877)	
Cause	%	Cause	%	Cause	%
Falls	30	Falls	34	Falls	26
Motor vehicle crashes on public road	11	Attempted suicide/self-harm	11	Cutting/Piercing	14
Cutting/Piercing	10	Cutting/Piercing	9	Motor vehicle crashes on public road	9
Assault	9	Motor vehicle crashes on public road	9	Assault	9
Attempted suicide/self-harm	6	Assault	7	Striking an object or person	7

7.0 Manurewa Ward

7.1 Demographics

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

Table 25: Manurewa Ward- usually resident population

Population*	2001 Census	%	1996 Census	%	1991 Census	%
Maori	17523	27	15189	26	12174	24
NZ European/Other	39666	60	38508	67	35196	69
Pacific	14604	22	10446	18	7851	15
Total Persons [~]	65664	109	57318	111	50850	108

* 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.

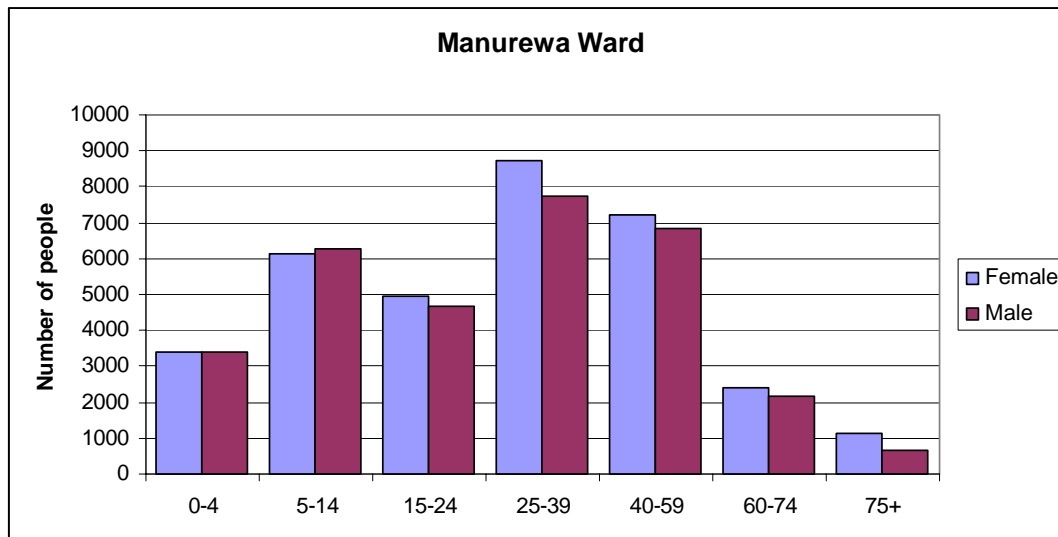
Table 26: Manurewa Ward - age composition

Age Composition	2001 Census (%)	1996 Census (%)	1991 Census (%)
0-4	10	11	12
5-14	19	18	17
15-24	15	16	18
25-39	25	26	26
40-59	21	19	17
60-74	7	7	6
75+	3	3	3

Table 27: Manurewa Ward- household and personal income

Income	2001 Census – number	2001 Census (%)
Households earning > \$30,000	9354	50
Personal incomes > \$30,000	11829	26
Average per capita personal income	\$23,483	

Figure 51: Manurewa Ward- age distribution by gender in 2001 Census



7.2 Injury statistics

7.2.1 NZHIS injury mortality 1993-1999

Between 1993 and 1999, 156 residents of the Manurewa Ward died as the result of receiving an injury. This is equivalent to a crude injury rate of 39 injury deaths per 100,000 person years. Males accounted for 78% of the fatalities.

As can be seen in figure 52, the leading cause of injury death was motor vehicle crashes on a public road (34%). Nearly one-third (31%) of the injury deaths were the result of suicide; nine percent were caused by drowning; seven percent were caused by falls; six percent were the result of homicide; and three percent were the result of suffocation.

Figure 52: Manurewa Ward- leading causes of injury mortality 1993-1999

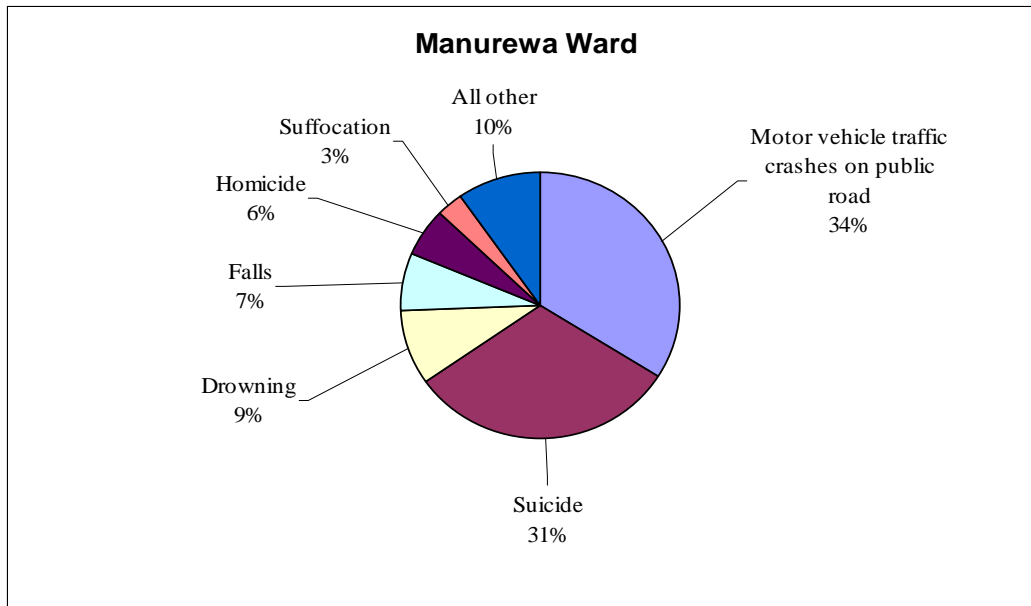
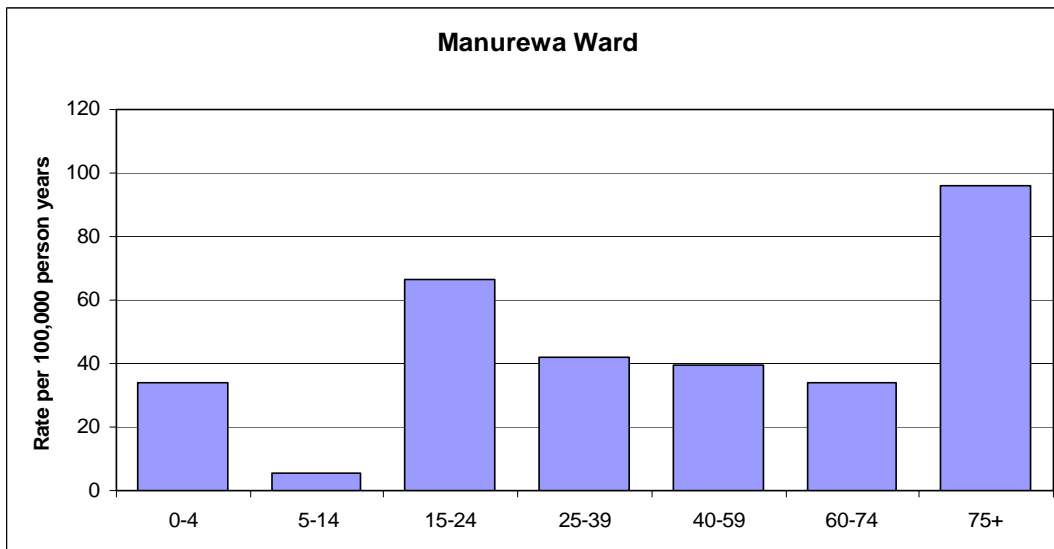


Figure 53 shows that the 75+ age group had the highest rate (96 deaths per 100,000 person years) of injury death, followed by young adults aged 15-24 years (67 deaths per 100,000 person years).

Figure 53: Rates of injury death by age group, 1993-1999



Of the 90 people who died from injury between 1996 and 1999, 42 (47%) were of New Zealand European/Other ethnicity, 35 (39%) were Maori, and 13 (14%) were Pacific.

7.2.2 NZHIS injury morbidity 1993-2003

Between 1993 and 2003, 8,026 residents of the Manurewa Ward were hospitalised after receiving an injury. The crude injury hospitalisation rate during this period was 1,201 injury hospitalisations per 100,000 person years. Males accounted for 62% of the hospitalisations.

Figure 54 shows that falls accounted for the greatest number of injury hospitalisations (34%). The other leading causes of injury were cutting and piercing (11%); motor vehicle traffic crashes on a public road (11%); assault (7%); attempted suicide/deliberate self-harm (6%); and striking an object or person (6%).

Figure 54: Manurewa Ward- leading causes of injury morbidity 1993-2003

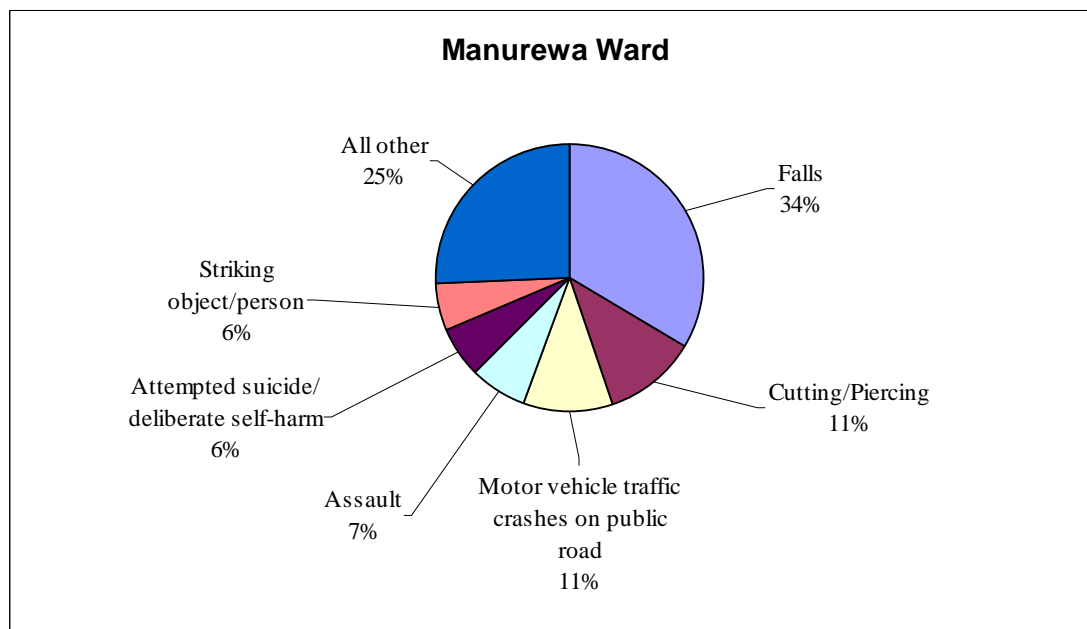


Figure 55 shows that for females, those aged 75+ had the highest rate (3,312 hospitalisations per 100,000 person years) of injury hospitalisation, followed by young children aged 0-4 years (1,126 hospitalisations per 100,000 person years). For males, the age group of 15-24 years had the highest rate (2,323 hospitalisations per 100,000 person years) of injury hospitalisation, followed by adults aged 75+ years (1,984 hospitalisations per 100,000 person years). Males had higher rates of injury hospitalisation than females across all age groups under 75.

Figure 55: Rates of injury hospitalisation by age and gender, 1993-2003

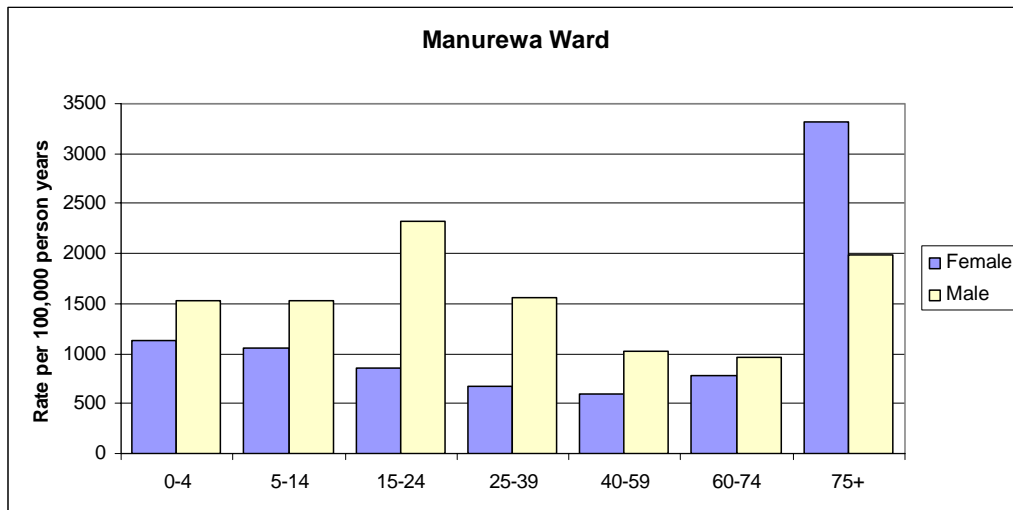


Figure 56 shows that for the period 2001-2003, Maori had the highest rate of hospitalised injury (1,512 injury hospitalisations per 100,000 person years), followed by Pacific (1,104 injury hospitalisations per 100,000 person years) and New Zealand European/Other (886 injury hospitalisations per 100,000 person years). New Zealand European/Other accounted for the majority (45%) of the injuries.

Figure 56: Injury hospitalisation rates by ethnicity for Manurewa Ward, 2001-2003

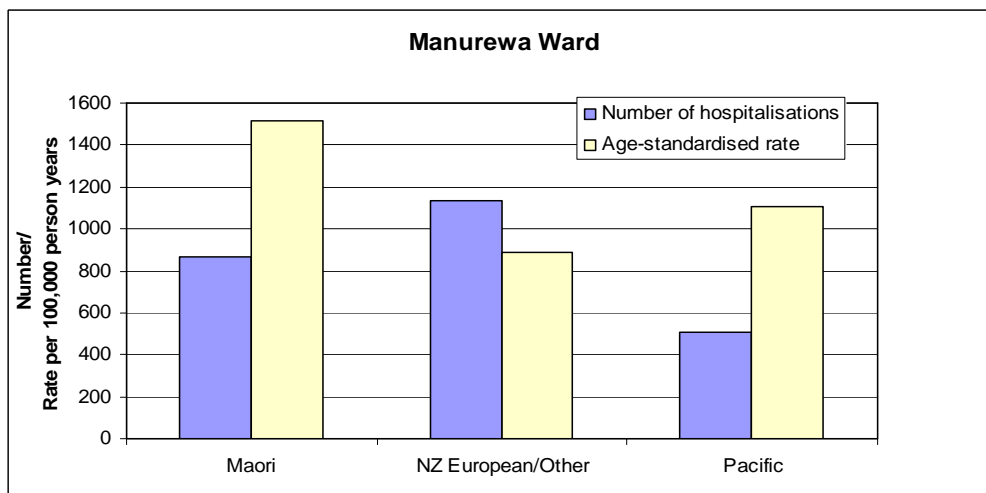


Table 28 shows that for the period of 2001-2003, the leading causes of hospitalised injury were similar across ethnic groups. A higher percentage of New Zealand European/Other were injured by falls (39%) compared to the other ethnic groups. Thirteen percent of Maori were hospitalised as a result of assault; and thirteen percent of Pacific peoples were hospitalised due to cutting and piercing.

Table 28: Ethnic comparison of leading causes of injury hospitalisation, 2001-2003

Maori (n=864)		NZ European/Other (n=1132)		Pacific (n=507)	
Cause	%	Cause	%	Cause	%
Falls	28	Falls	39	Falls	29
Assault	13	Motor vehicle crashes on public road	9	Cutting/Piercing	13
Cutting/Piercing	12	Cutting/Piercing	9	Assault	11
Motor vehicle crashes on public road	9	Attempted suicide/ self-harm	9	Motor vehicle crashes on public road	9
Striking an object or person	6	Assault	4	Striking an object or person	5

8.0 Otara Ward

8.1 Demographics

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

Table 29: Otara Ward- usually resident population

Population*	2001 Census	%	1996 Census	%	1991 Census	%
Maori	6792	19	7947	25	8118	28
NZ European/Other	9621	27	7968	25	6369	22
Pacific	20592	59	18684	60	16509	56
Total Persons [~]	35049	105	31392	110	29223	106

* 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.

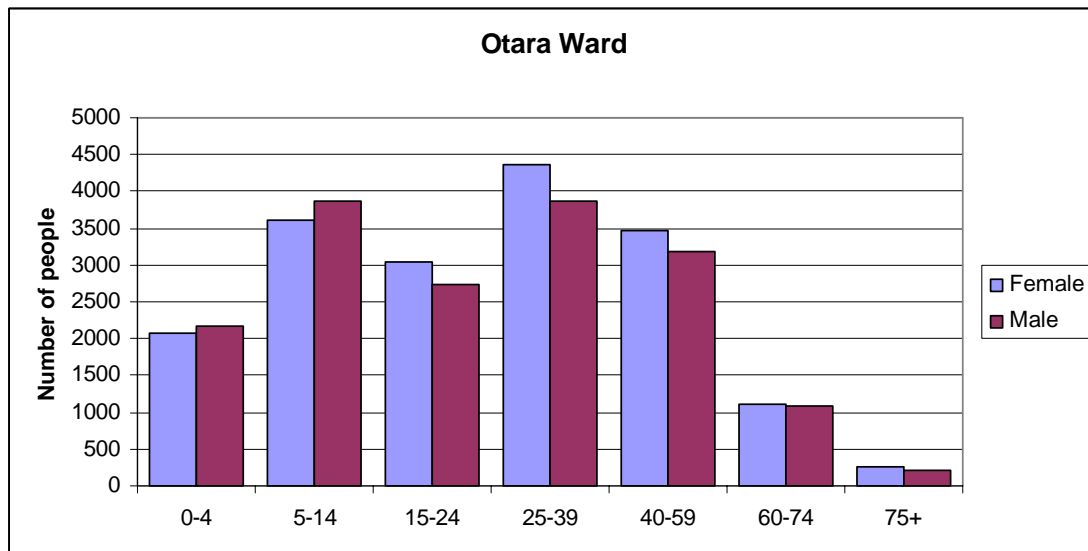
Table 30: Otara Ward - age composition

Age Composition	2001 Census (%)	1996 Census (%)	1991 Census (%)
0-4	12	13	13
5-14	21	22	22
15-24	16	18	20
25-39	24	23	23
40-59	19	18	16
60-74	6	5	4
75+	1	1	1

Table 31: Otara Ward- household and personal income

Income	2001 Census – number	2001 Census (%)
Households earning > \$30,000	3333	40
Personal incomes > \$30,000	4026	17
Average per capita personal income	\$23,325	

Figure 57: Otara Ward- age distribution by gender in 2001 Census



8.2 Injury statistics

8.2.1 NZHIS injury mortality 1993-1999

Between 1993 and 1999, 104 residents of the Otara Ward died as the result of receiving an injury. This is equivalent to a crude injury rate of 47 injury deaths per 100,000 person years. Males accounted for three-quarters (75%) of the fatalities.

As can be seen in figure 58, the leading causes of injury deaths were motor vehicle crashes on a public road (42%); suicide (22%); homicide (13%); and falls (6%).

Figure 58: Otara Ward- leading causes of injury mortality 1993-1999

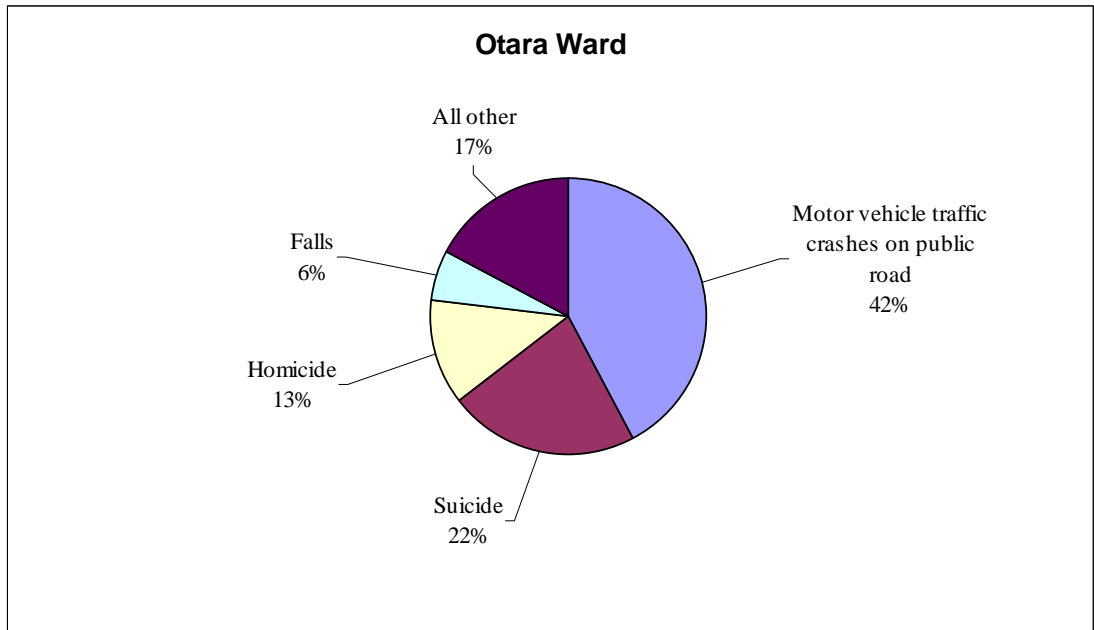
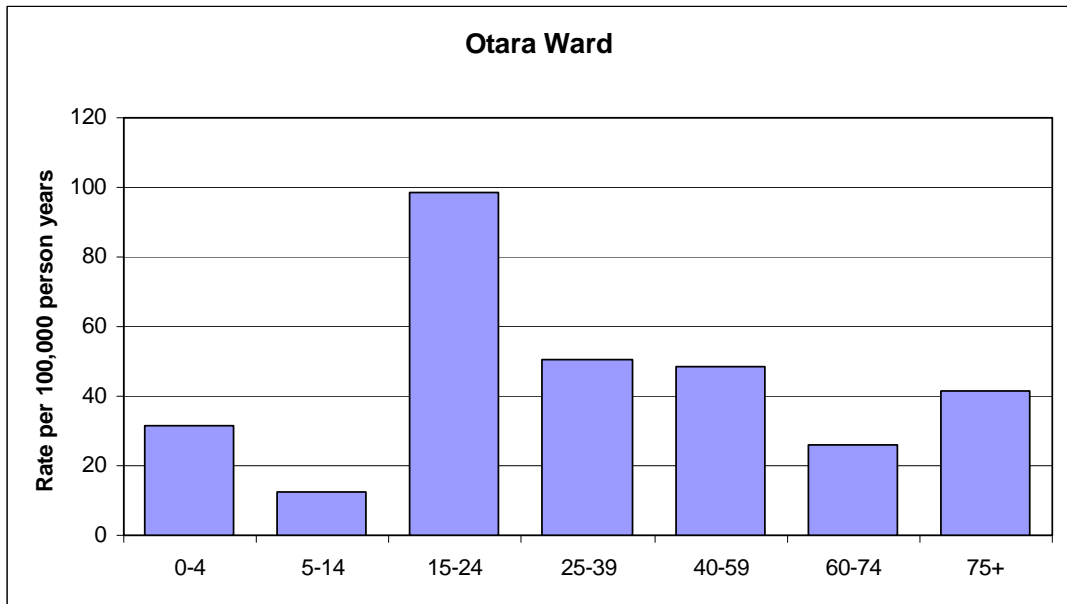


Figure 59 shows that the 15-24 age group had the highest rate (98 deaths per 100,000 person years) of injury death, followed by adults aged 25-39 years (51 deaths per 100,000 person years).

Figure 59: Rates of injury death by age group, 1993-1999



Of the 60 people who died from injury between 1996 and 1999, 24 (40%) were Pacific, 21 (35%) were Maori, and 15 (25%) were New Zealand European/Other.

8.2.2 NZHIS injury morbidity 1993-2003

Between 1993 and 2003, 5,171 residents of the Otara Ward were hospitalised after receiving an injury. The crude injury hospitalisation rate during this period was 1,423 injury hospitalisations per 100,000 person years. Males accounted for 67% of the hospitalisations.

Figure 60 shows that falls accounted for the greatest number of injury hospitalisations (28%). The other leading causes of injury were cutting and piercing (14%); motor vehicle traffic crashes on a public road (11%); assault (9%); striking an object or person (7%); attempted suicide/deliberate self-harm (4%); and caught between objects (4%).

Figure 60: Otara Ward - leading causes of injury morbidity 1993-2003

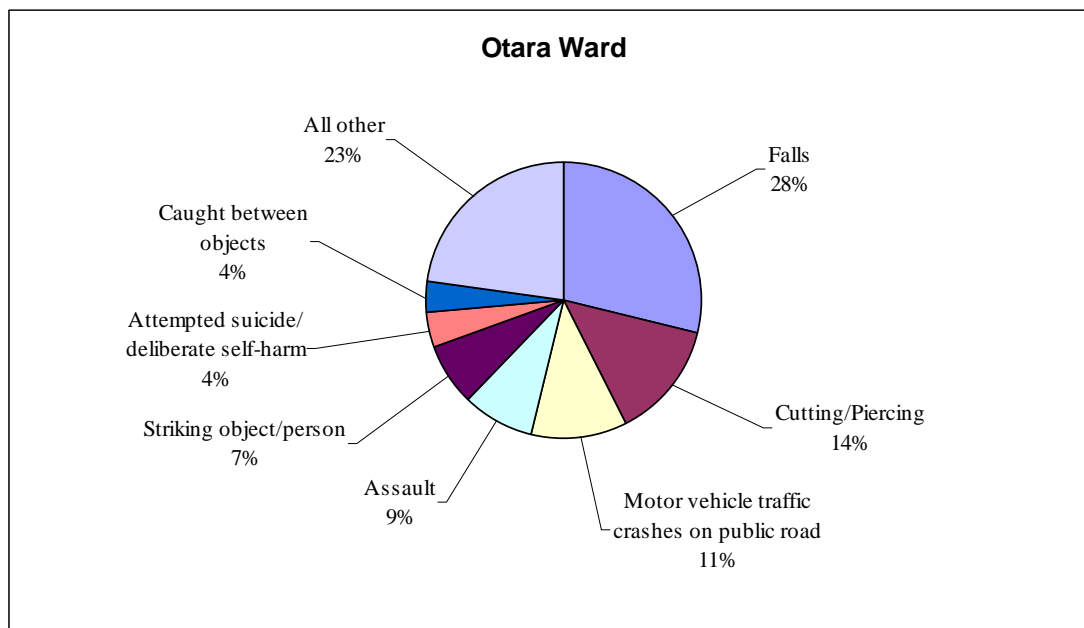


Figure 61 shows that for females, those aged 75+ had the highest rate (4,046 hospitalisations per 100,000 person years) of injury hospitalisation, followed by young children aged 0-4 years (1,205 hospitalisations per 100,000 person years). For males, the 15-24 age group had the highest rate (2,839 hospitalisations per 100,000 person years) of injury hospitalisation, followed by adults aged 25-39 years (2,165 hospitalisations per 100,000 person years). Males had higher rates of injury hospitalisation than females across all age groups under 60.

Figure 61: Rates of injury hospitalisation by age and gender, 1993-2003

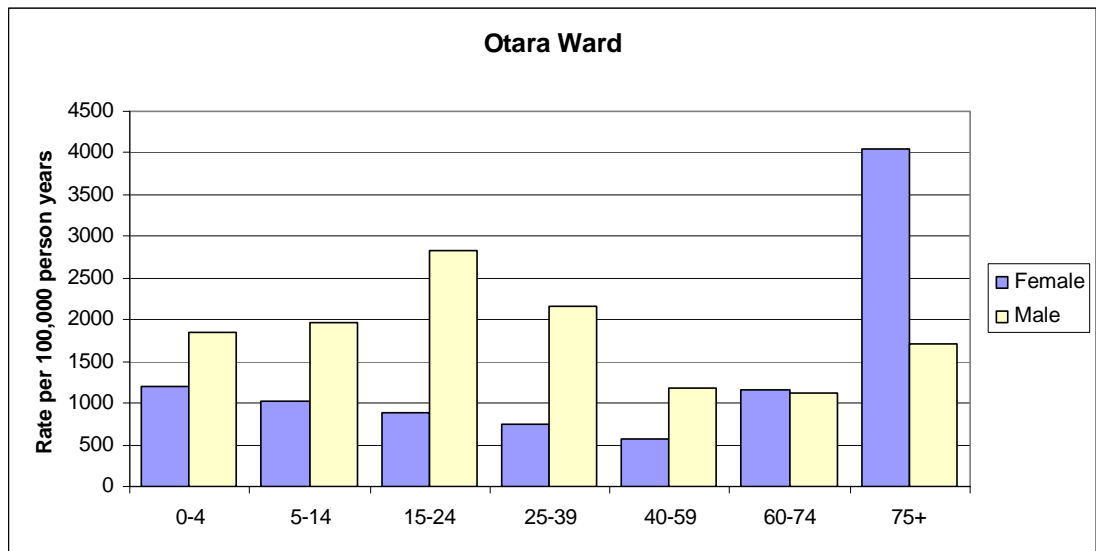


Figure 62 shows that for the period 2001-2003, Maori had the highest rate of hospitalised injury (1,675 injury hospitalisations per 100,000 person years), followed by New Zealand European/Other (1,559 injury hospitalisations per 100,000 person years) and Pacific (1,078 injury hospitalisations per 100,000 person years). Pacific peoples accounted for the majority (46%) of the injuries.

Figure 62: Injury hospitalisation rates by ethnicity for Otara Ward, 2001-2003

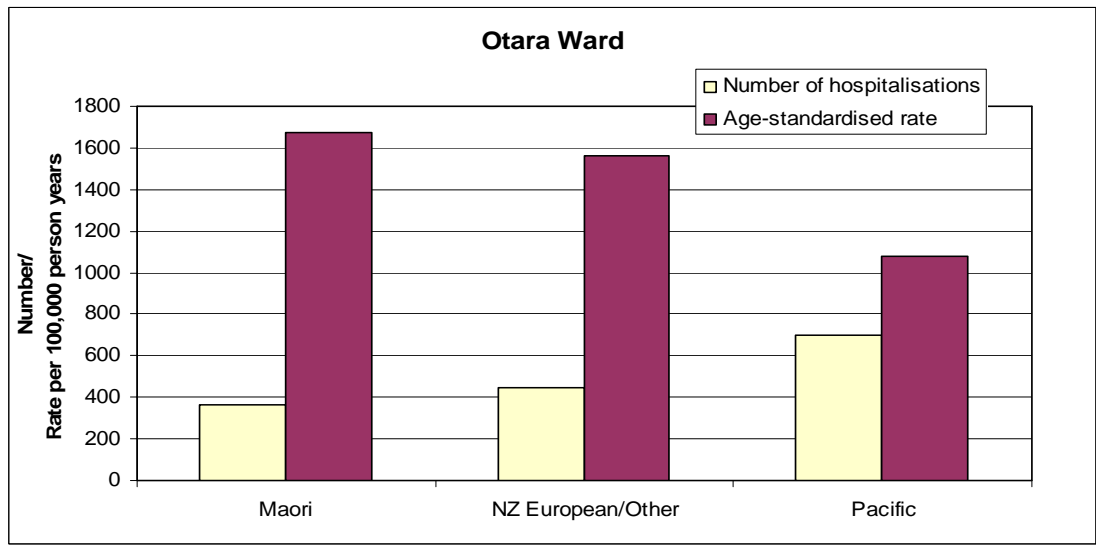


Table 32 shows that for the period of 2001-2003, although the causes of injury hospitalisation were similar for each of the ethnic groups, New Zealand European/Other had a much higher proportion of injuries caused by falls (37%). Pacific peoples had a higher proportion of injuries caused by cutting and piercing (17%), and Maori had a higher proportion of injuries caused by assault (12%).

Table 32: Ethnic comparison of leading causes of injury hospitalisation, 2001-2003

Maori (n=363)		NZ European/Other (n=446)		Pacific (n=700)	
Cause	%	Cause	%	Cause	%
Falls	27	Falls	37	Falls	27
Assault	12	Motor vehicle crashes on public road	12	Cutting/Piercing	17
Cutting/Piercing	11	Attempted suicide/self-harm	7	Assault	10
Motor vehicle crashes on public road	11	Cutting/Piercing	7	Motor vehicle crashes on public road	7
Striking an object or person	7	Assault	5	Striking an object or person	7

9.0 Pakuranga Ward

9.1 Demographics

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

Table 33: Pakuranga Ward- usually resident population

Population*	2001 Census	%	1996 Census	%	1991 Census	%
Maori	2112	6	2007	6	1368	4
NZ European/Other	35130	94	34191	95	31854	96
Pacific	1257	4	948	3	648	2
Total Persons [≈]	37470	104	35931	104	33135	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.

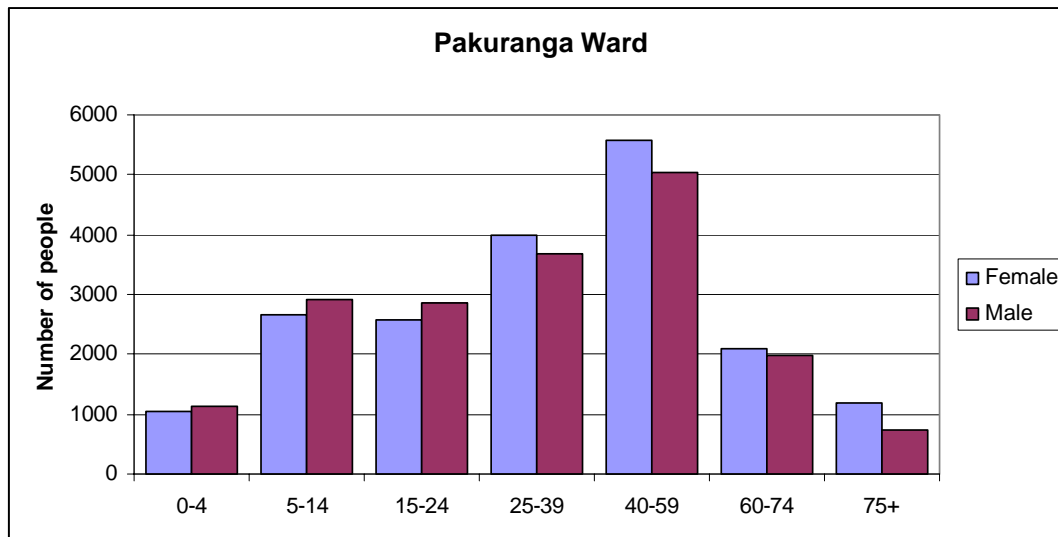
Table 34: Pakuranga Ward - age composition

Age Composition	2001 Census (%)	1996 Census (%)	1991 Census (%)
0-4	6	6	5
5-14	15	14	15
15-24	15	16	18
25-39	20	21	20
40-59	28	29	28
60-74	11	10	10
75+	5	5	4

Table 35: Pakuranga Ward- household and personal income

Income	2001 Census – number	2001 Census (%)
Households earning > \$30,000	7452	59
Personal incomes > \$30,000	10050	34
Average per capita personal income	\$27,873	

Figure 63: Pakuranga Ward- age distribution by gender in 2001 Census



9.2 Injury statistics

9.2.1 NZHIS injury mortality 1993-1999

Between 1993 and 1999, 75 residents of the Pakuranga Ward died as the result of receiving an injury. This is equivalent to a crude injury rate of 30 injury deaths per 100,000 person years. Males accounted for 73% of the fatalities.

As can be seen in figure 64, suicide was the leading cause of injury death (35%). The other leading causes of injury death were motor vehicle crashes on a public road (29%); falls (16%); and drowning (5%).

Figure 64: Pakuranga Ward- leading causes of injury mortality 1993-1999

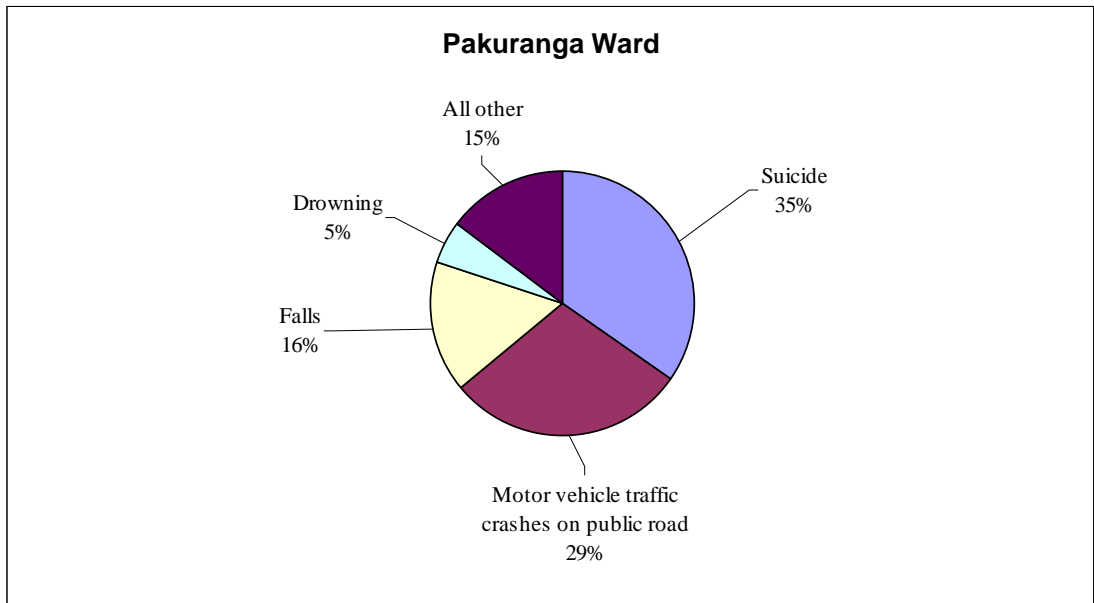
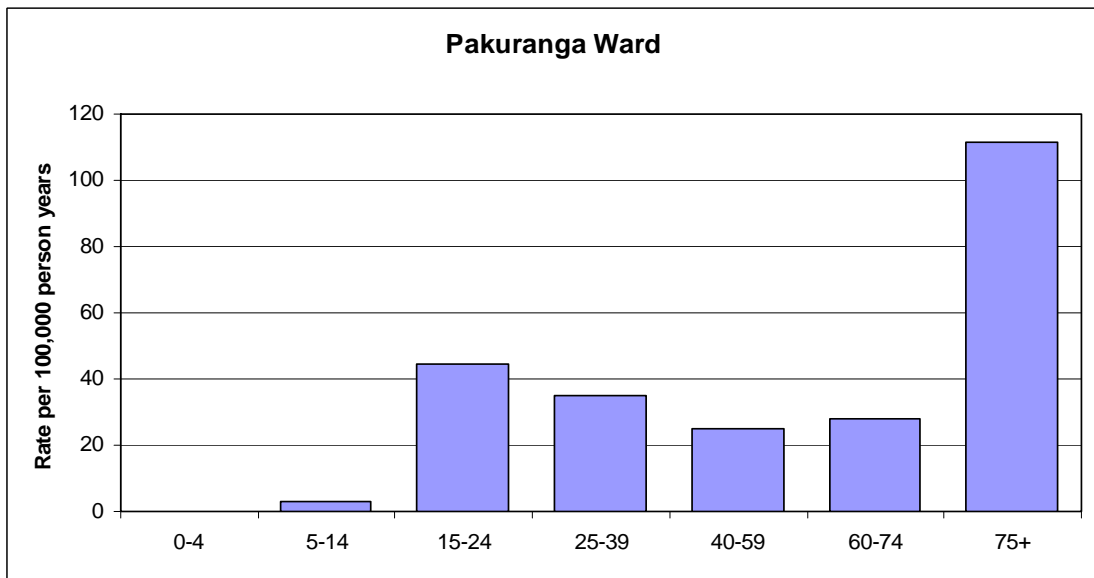


Figure 65 shows that the 75+ age group had the highest rate (111 deaths per 100,000 person years) of injury death, followed by young adults aged 15-24 years (44 deaths per 100,000 person years).

Figure 65: Rates of injury death by age group, 1993-1999



Of the 32 people who died from injury between 1996 and 1999, 28 (88%) were New Zealand European/Other, three (9%) were Maori, and one (3%) was Pacific.

9.2.2 NZHIS injury morbidity 1993-2003

Between 1993 and 2003, 3,772 residents of the Pakuranga ward were hospitalised after receiving an injury. The crude injury hospitalisation rate during this period was 942 injury hospitalisations per 100,000 person years. Males accounted for 57% of the hospitalisations.

Figure 66 shows that falls accounted for the greatest number of injury hospitalisations (43%). The other leading causes of injury were motor vehicle traffic crashes on a public road (11%); cutting and piercing (9%); attempted suicide/deliberate self-harm (6%); striking an object or person (5%); and overexertion or strenuous movements (3%).

Figure 66: Pakuranga Ward- leading causes of injury morbidity 1993-2003

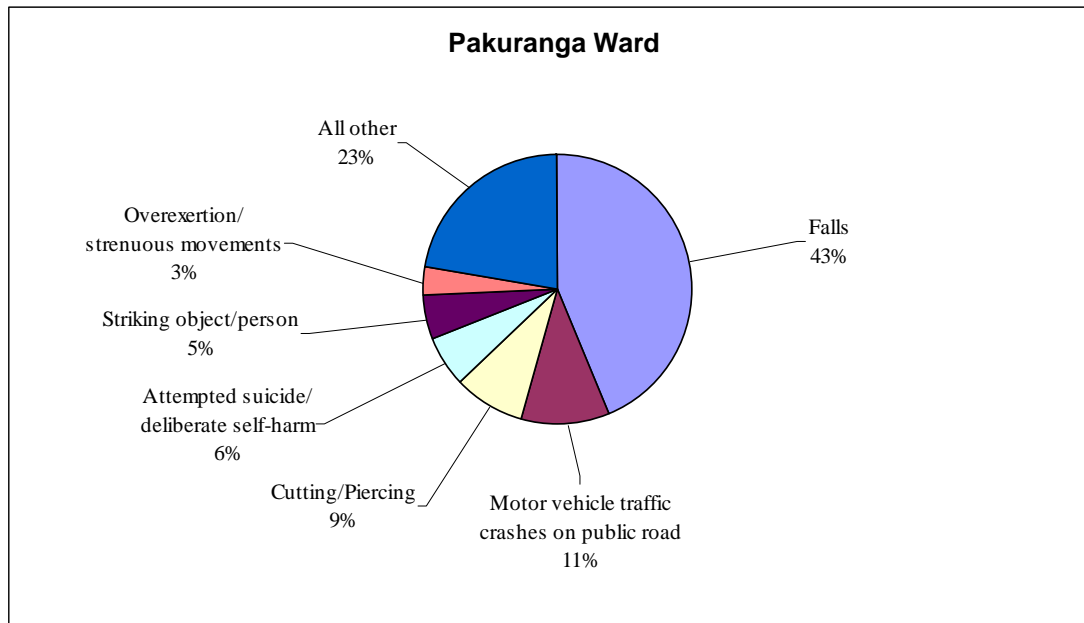


Figure 67 shows that for females, those aged 75+ had the highest rate (4,017 hospitalisations per 100,000 person years) of injury hospitalisation, followed by adults aged 60-74 years (972 hospitalisations per 100,000 person years). For males, the 75+ age group had the highest rate (2,276 hospitalisations per 100,000 person years) of injury hospitalisation, followed by young adults aged 15-24 years (1,475 hospitalisations per 100,000 person years). Males had higher rates of injury hospitalisation than females across all age groups under 60.

Figure 67: Rates of injury hospitalisation by age and gender, 1993-2003

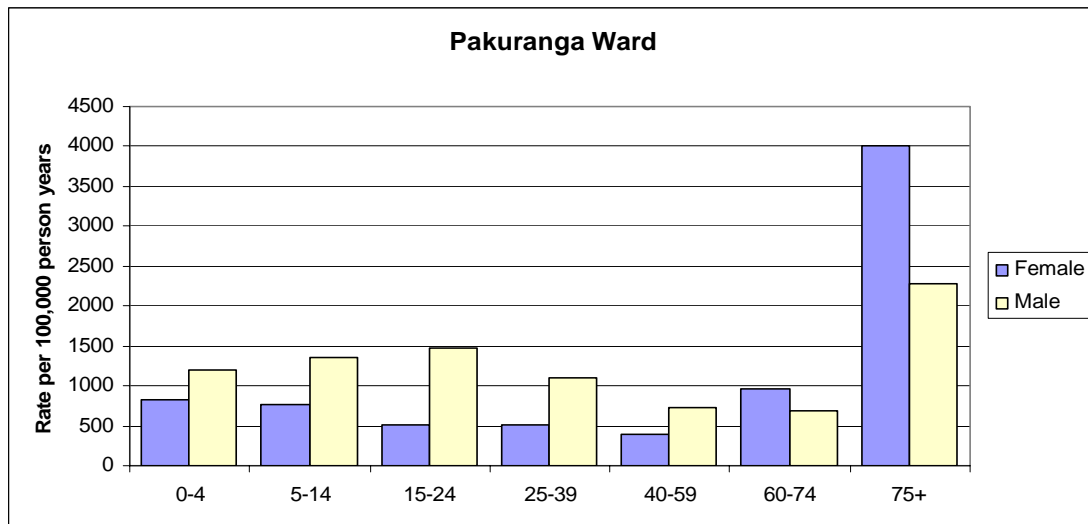


Figure 68 shows that for the period 2001-2003, Maori had the highest rate of hospitalised injury (884 injury hospitalisations per 100,000 person years), followed by New Zealand European/Other (848 injury hospitalisations per 100,000 person years) and Pacific (731 injury hospitalisations per 100,000 person years). New Zealand European/Other accounted for the majority (92%) of the injuries.

Figure 68: Injury hospitalisation rates by ethnicity for Pakuranga Ward, 2001-2003

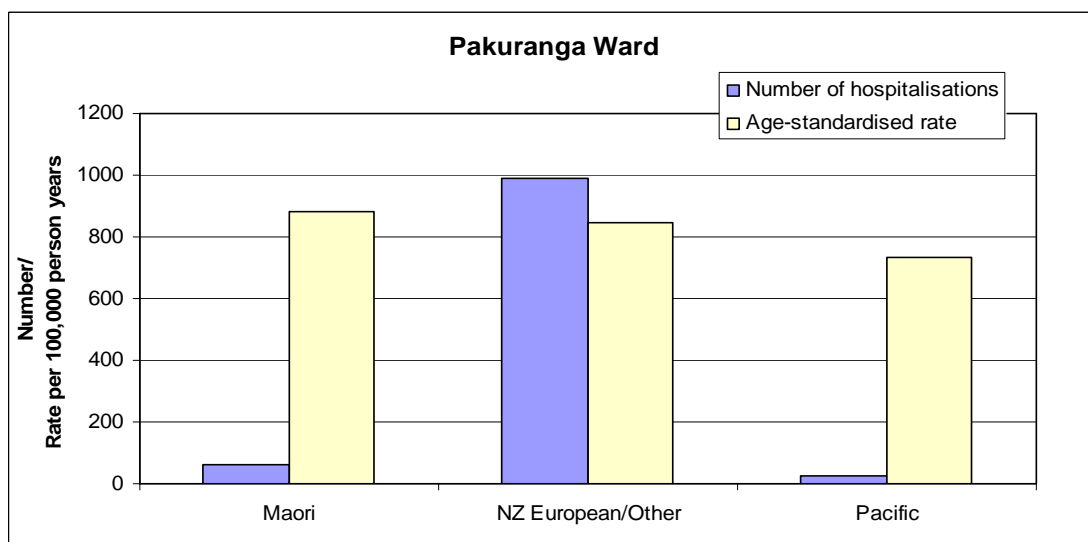


Table 36 shows that for the period of 2001-2003, falls accounted for nearly half (46%) of the injury hospitalisations for New Zealand European/Other. Pacific peoples were more likely to be injured by 'striking an object or person' than Maori. Fourteen percent of Maori were injured by cutting and piercing.

Table 36: Ethnic comparison of leading causes of injury hospitalisation, 2001-2003

Maori (n=59)		NZ European/Other (n=990)		Pacific (n=27)	
Cause	%	Cause	%	Cause	%
Falls	29	Falls	46	Falls	30
Cutting/Piercing	14	Motor vehicle crashes on public road	10	Striking an object or person	19
Striking an object or person	10	Cutting/Piercing	8	Assault	11
Motor vehicle crashes on public road	8	Attempted suicide/ self-harm	9	Caught between objects	10

10.0 Papatoetoe Ward

10.1 Demographics

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

Table 37: Papatoetoe Ward- usually resident population

Population*	2001 Census	%	1996 Census	%	1991 Census	%
Maori	6744	17	5940	16	4680	14
NZ European/Other	26502	69	27234	75	25662	77
Pacific	8988	23	6111	17	4584	14
Total Persons [≈]	38634	109	36114	108	33129	105

* 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.

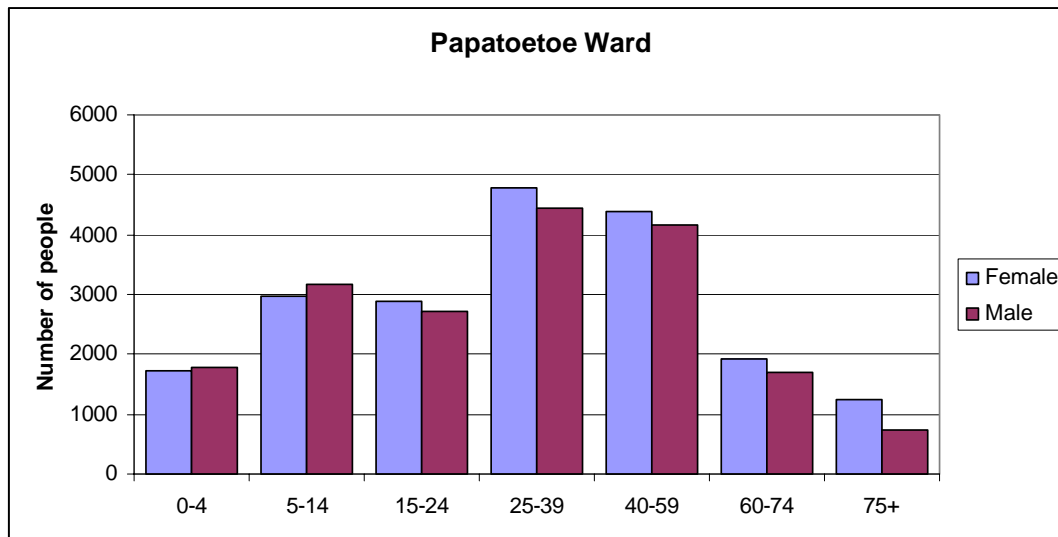
Table 38: Papatoetoe Ward - age composition

Age Composition	2001 Census (%)	1996 Census (%)	1991 Census (%)
0-4	9	9	9
5-14	16	14	13
15-24	14	15	17
25-39	24	25	24
40-59	22	21	20
60-74	9	10	11
75+	5	5	5

Table 39: Papatoetoe Ward- household and personal income

Income	2001 Census – number	2001 Census (%)
Households earning > \$30,000	5466	45
Personal incomes > \$30,000	6561	23
Average per capita personal income	\$21,317	

Figure 69: Papatoetoe Ward- age distribution by gender in 2001 Census



10.2 Injury statistics

10.2.1 NZHIS injury mortality 1993-1999

Between 1993 and 1999, 100 residents of the Papatoetoe Ward died as the result of receiving an injury. This is equivalent to a crude injury rate of 40 injury deaths per 100,000 person years. Males accounted for 68% of the fatalities.

As can be seen in figure 70, suicide was the leading cause of injury death (42%). The other leading causes of injury death were motor vehicle crashes on a public road (27%); falls (8%); drowning (7%); and homicide (6%).

Figure 70: Papatoetoe Ward- leading causes of injury mortality 1993-1999

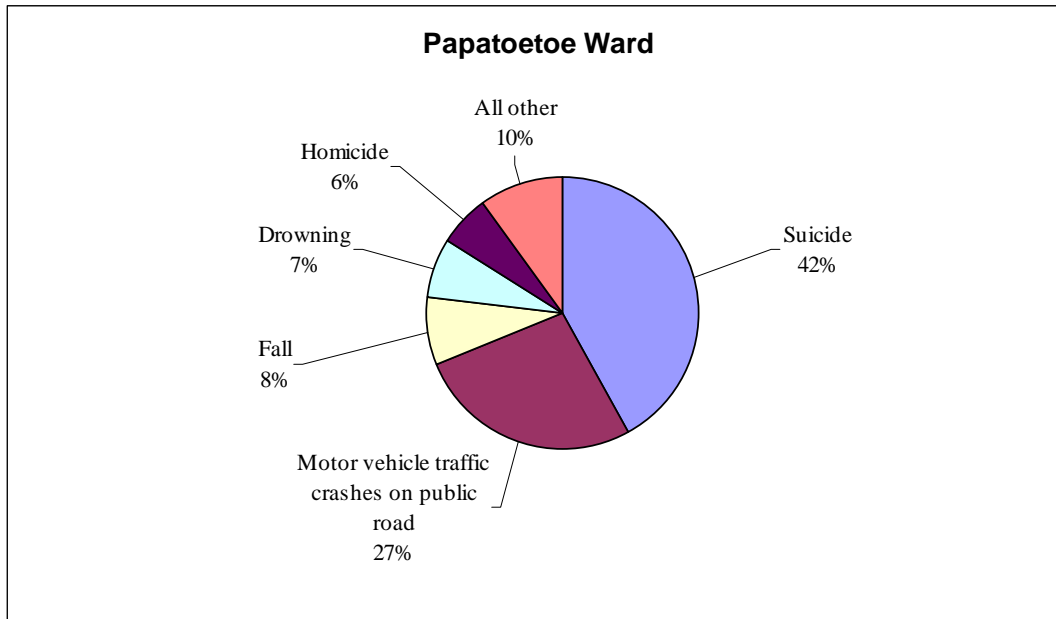
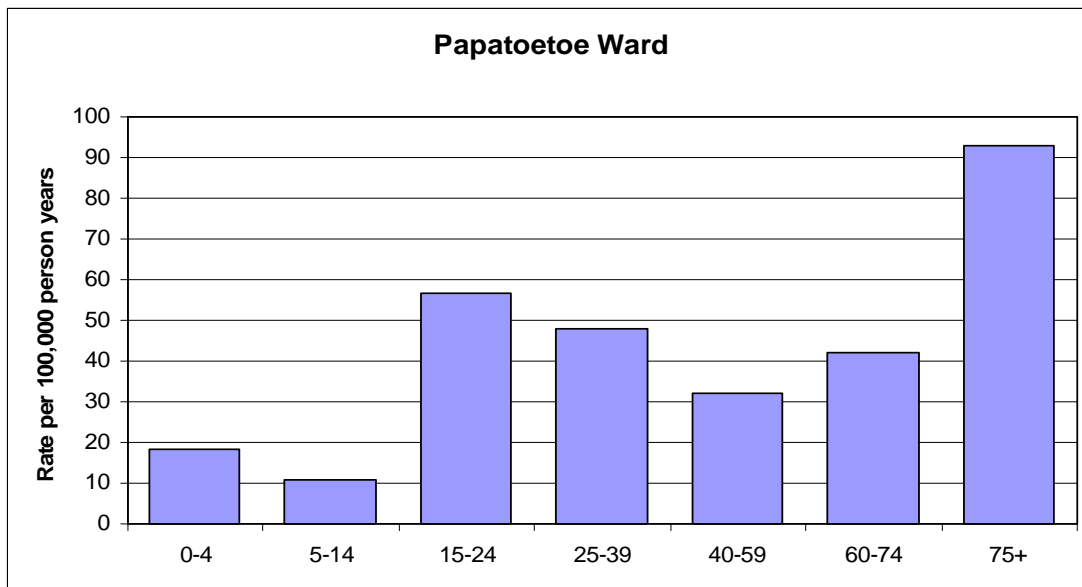


Figure 71 shows that the 75+ age group had the highest rate (93 deaths per 100,000 person years) of injury death, followed by young adults aged 15-24 years (57 deaths per 100,000 person years).

Figure 71: Rates of injury death by age group, 1993-1999



Of the 63 people who died from injury between 1996 and 1999, 46 (73%) were New Zealand European/Other; nine (14%) were of Maori ethnicity; and eight (13%) were Pacific.

10.2.2 NZHIS injury morbidity 1993-2003

Between 1993 and 2003, 5,695 residents of the Papatoetoe Ward were hospitalised after receiving an injury. The crude injury hospitalisation rate during this period was 1,395 injury hospitalisations per 100,000 person years. Males accounted for 59% of the hospitalisations.

Figure 72 shows that falls accounted for the greatest number of injury hospitalisations (36%). The other leading causes of injury were motor vehicle traffic crashes on a public road (11%); cutting and piercing (11%); assault (6%); attempted suicide/deliberate self-harm (6%); and striking an object or person (5%).

Figure 72: Papatoetoe Ward - leading causes of injury morbidity 1993-2003

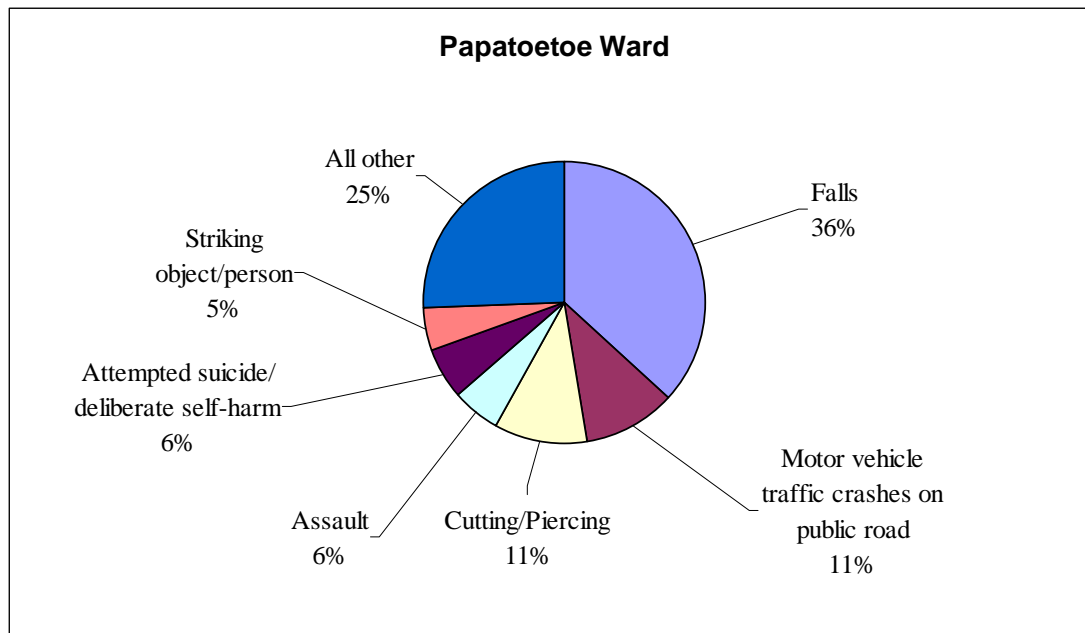


Figure 73 shows that for females, those aged 75+ had the highest rate (4,040 hospitalisations per 100,000 person years) of injury hospitalisation, followed by young children aged 0-4 years (1,488 hospitalisations per 100,000 person years). For males, the 15-24 age group had the highest rate (2,354 hospitalisations per 100,000 person years) of injury hospitalisation, followed by adults aged 75+ years (2,319 hospitalisations per 100,000 person years). Males had higher rates of injury hospitalisation than females across all age groups under 60.

Figure 73: Rates of injury hospitalisation by age and gender, 1993-2003

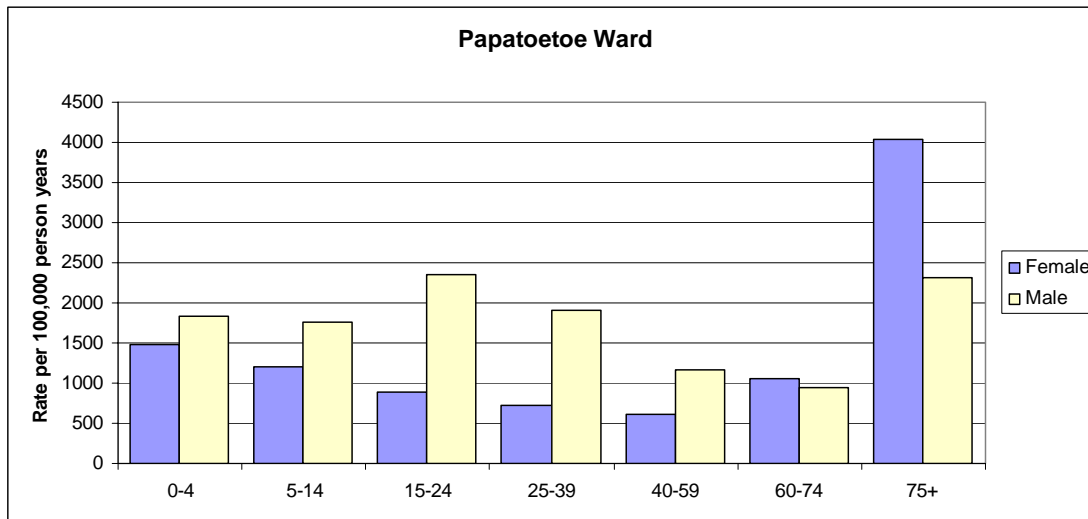


Figure 74 shows that for the period 2001-2003, Maori had the highest rate of hospitalised injury (1,986 injury hospitalisations per 100,000 person years), followed by Pacific (1,657 injury hospitalisations per 100,000 person years) and New Zealand European/Other (1,003 injury hospitalisations per 100,000 person years). New Zealand European/Other accounted for over half (53%) of the injuries.

Figure 74: Injury hospitalisation rates by ethnicity for Papatoetoe Ward, 2001-2003

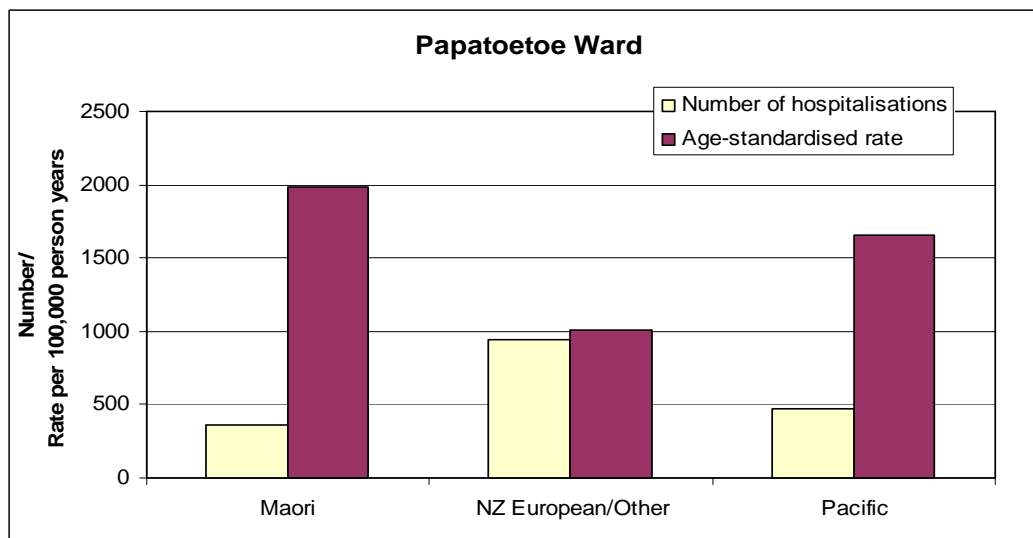


Table 40 shows that for the period of 2001-2003, New Zealand European/Other had a higher proportion of injury hospitalisation caused by falls (43%) compared to other ethnic groups. Pacific peoples were more likely to be injured by cutting and piercing than New Zealand European/Other. Eight percent of Maori were hospitalised due to assault.

Table 40: Ethnic comparison of leading causes of injury hospitalisation, 2001-2003

Maori (n=365)		NZ European/Other (n=940)		Pacific (n=470)	
Cause	%	Cause	%	Cause	%
Falls	28	Falls	43	Falls	26
Cutting/Piercing	11	Motor vehicle crashes on public road	11	Cutting/Piercing	15
Motor vehicle crashes on public road	10	Attempted suicide/self-harm	7	Assault	11
Assault	8	Cutting/Piercing	6	Motor vehicle crashes on public road	8
Attempted suicide/self-harm	6	Assault	4	Caught between objects	7

11.0 Key Findings

The data detailed in this report thus far indicates that injury is a significant cause of death and hospitalisation for people in Manukau City. The injury data discussed in sections four to 10 clearly indicates that falls; cutting and piercing injuries; motor vehicle crashes on a public road; assaults; striking an object or person; and suicidal behaviours are leading injury concerns for Manukau City. Suicide or deliberate self-harm and motor vehicle traffic crashes were the leading causes of injury deaths for Manukau City. Analysis of injury data by ward reflected some variation, with Otara Ward having the highest injury death rate and fourth highest injury hospitalisation rate. Papatoetoe ward had the highest injury hospitalisation rate. Howick Ward had consistently 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). Maori and Pacific peoples aged between 0 and 59 years were more likely to be hospitalised following an injury than New Zealand European/Other. However, New Zealand European/Other aged 60 years and above were more likely to be hospitalised as a result of injury than their Maori or Pacific counterparts. Maori were more likely to have injury hospitalisations compared to Pacific peoples for all age groups. Overall, New Zealand European/Other accounted for more than half (52%) of injury hospitalisations; Pacific accounted for 27%; and Maori accounted for 22%.

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, Maori were more likely to have higher injury death rates compared to Pacific for all age groups. New Zealand European/Other aged between 0 and 59 years had the lowest injury death rate compared to Maori and Pacific peoples. However, New Zealand European/Other were more likely to have higher injury death rates than Maori or Pacific peoples in the age groups 60 years and above. Overall, New Zealand European/Other accounted for the majority of injury deaths (57%), Maori accounted for one-quarter (25%), and Pacific accounted for 18%.

12.0 References

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