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Injury & Poisoning: Mortality Among Residents of the Illawarra Health Area

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Injury & Poisoning: Mortality Among Residents of the Illawarra Health Area

Abstract

Causes of death due to injury and poisonings in 1994-1998 among people resident in the Illawarra Health Area, and each of its Local Government Areas (LGAs), as recorded by the Australian Bureau of Statistics' Death Registrations, are reported in this issue of 'The Illawarra Population Health Profiler.

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INJURY & POISONING

Mortality Among Residents of the Illawarra Health Area

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Causes of death due to injury and poisonings in 1994-1998 among people resident in the Illawarra Health Area, and each of its Local Government Areas (LGAs), as recorded by the Australian Bureau of Statistics' *Death Registrations*, are reported in this issue of *The Illawarra Population Health Profiler*.

Purpose and Context

To obtain a more complete picture about injury occurrence in the Area, it is recommended that this *Profiler* issue be read in conjunction with *Issue 3: Injury and Poisoning – Morbidity among Residents of the Illawarra Health Area*.

It is hoped that these Issues of the *Profiler* – which together provide a fairly comprehensive review of available injury surveillance information – be used by people working within the Illawarra Area Health Service (IAHS), as well as those outside the public health system with an interest in injury prevention. This may include others working within the health system (such as general practitioners and Aboriginal Community-Controlled Health Organisations), in Local Government, other State Government Departments and Authorities (such as the Departments of Sport and Recreation and Education, Roads and Traffic Authority), and/ or individuals and groups within the broader community.

Importantly, it is hoped that this information is used to help assess injury prevention needs and priorities, motivate local intersectoral action, and, as far as possible given the limitations of the data, monitor progress being made. For example, injury surveillance profiles could help inform the Kiama Safe Communities Pilot Program, local suicide prevention initiatives, the development of a regional Injury Prevention Strategic Plan through the IAHS's Injury Advisory Group, planning and evaluation within Community Health Services, Local Government, Healthy Cities Illawarra etc.

Methods

Data for this profile were obtained from the Australian Bureau of Statistics' *Death Registrations* (collected by the Registry of Births, Deaths and Marriages) and *Estimated Resident Populations*. These data were accessed and analysed through NSW Health's *Health Outcomes and Information Statistical Toolkit* (HOIST), using the Statistical Analysis System (SAS, Version 6.12).

For the purposes of this report, injury and poisonings coded as medical misadventures, adverse effects of medications, have been excluded. Definitions of injury causes based on the International Classification of Diseases (Version 9) are shown in the Appendix.

Standardised Mortality Ratios (SMR) and 'Excess Deaths' for the five-year period 1994-1998 have been used to compare the study population (e.g. residents of the whole Illawarra Health Area or Wollongong Local Government Area (LGA) or sub-areas within the Wollongong LGA), with the total NSW population. A SMR of 1.0 indicates that the mortality rate for the study population equals the NSW rate, after taking into account differences in age structures of the populations (by indirect age-standardisation).

A SMR of 2.0 indicates a mortality rate for the study population double (or 100% higher than), and a SMR of 0.5 indicates a rate half (or 50% lower than), that of the NSW population.

Arrows in the tables indicate whether any differences between the study and NSW populations are statistically significant at the 5% level. 'Excess deaths' represent the number of deaths which occurred above (+) (or below (-)) the numbers expected based on the NSW average.

For major causes, age-specific rates for both males and females are shown to demonstrate which age/ sex groups are at highest risk. The top five ranking injury causes by age group among residents of the Illawarra Health Area – and males and females separately - are also presented.

In addition, for major causes, directly age-standardised rates by sex and LGA are reported.

These direct standardisations used the 1991 Australian population as the standard. In contrast to the (indirectly age-standardised) SMRs, directly age-standardised rates can be directly compared between each other, e.g. males with females, Kiama with Wollongong Local Government Area.

Directly age-standardised rates also allow a comparison over time, so trends over the last decade (1989-1998) are also shown for the major causes. Where comparable trend data have been published for NSW residents, these are also shown¹.

Some Data Limitations

It should, however, be noted that injury-related deaths (and even hospitalisations) represent only the tip of the injury iceberg, by being limited to injuries at the most severe end of the spectrum. A more comprehensive picture of the injury problem locally, for example, could be obtained by also looking at Emergency Department (ED) presentation data; however, unfortunately, the ED data collected in this Area do not currently include information about injury causes.

In addition, because the numbers of injury deaths are quite small, particularly for particular causes and/ or geographic areas within the Area, the ability to make statistical inferences from these data is limited.

For example, while it may appear that rates are higher in a particular area, and/ or are increasing/ decreasing over time, the power to detect statistically significant differences or trends is limited. That is, it is often not possible to say with confidence that the underlying risk for people from a particular area is higher than or the same as another area, and/ or that the risk is increasing/ decreasing or remaining stable (i.e. showing no clear trend).

Overview

- In 1994-1998, 597 deaths from injury and poisonings were recorded among Illawarra residents, accounting for 4.9% of all deaths. Injury and poisoning was the fourth commonest cause of death among both

Illawarra males and females, following circulatory disorders, neoplasms and respiratory disorders.

- Males accounted for 70% of injury deaths, and were at 2.7 times higher risk than females. The highest risk age group was 75 years and over for both males and females, with a secondary peak in the 25-44 years age group for males.

Major Causes

- In 1994-1998 the most common causes of injury death among Illawarra residents (and specifically males) were (in order): suicide, road injury, falls, unintentional poisoning by drugs etc, drowning, and interpersonal violence.
- For females the pattern was slightly different, the most common causes being (in order): suicide, falls, road injury, interpersonal violence, and drowning. That is, falls and interpersonal violence ranked higher for females than males, and in fact were the only specific major causes for which risk was greater (slightly) than for males.
- The main causes among children aged less than 5 years were (in order): drowning, road injury, and interpersonal violence. The most common causes among 5-14 year olds were: road injury, followed by interpersonal violence, and fire/ burns/ scalds.
- **Suicide** was the commonest cause of injury death in all age groups between 25 and 74 years, and second commonest cause in the age groups 15-24 and 75 years and over. The suicide mortality rate was 3-4 times higher among males than females, and peaked in the 25-44 years age group.

Over the last decade suicide mortality rates (all ages, 15-24 years) have showed no clear trend among Illawarra males and females.

- **Road injury** was the commonest cause of injury death in the 5-14 and 15-24 years age groups, and second commonest cause in all other age groups up to 75 years. Risk was 2-3 times higher among males than females, and peaked in the 15-24 years age group (and 75 years and over for males).

Over the last decade road injury mortality rates (all ages, 15-24 years) have declined among both Illawarra males and females.

Comparisons Between NSW, Illawarra and Local Government Areas

- In 1994-1998 the **total injury** mortality rates were slightly, but **not significantly, lower** than the NSW average among both Illawarra males (8% lower) and females (4% lower).
- Similarly, total injury death rates among males and females in each Local Government Area (LGA) were all about, or below (but not statistically lower than) the NSW averages.
- **Cause-specific injury** mortality rates among Illawarra males and females were not significantly higher than the NSW averages for any specific cause.
- However, rates among **Illawarra males** were significantly **lower** than the NSW averages for **suicide (15-24 years, based on 20 deaths)** (Table 1), and **fire-arms** injury (all ages, based on 1 death).
- Falls mortality rates among **Shellharbour LGA males** (based on 0 deaths) and **fire-arms** injury among **Wollongong LGA males** (based on 0 deaths) were significantly **lower** than the NSW averages. With these exceptions, none of the LGAs had cause-specific rates significantly different from NSW (or the other LGAs).
- The **suicide** mortality rate among Wollongong LGA males (all ages, based on 80 deaths) was 19% lower than the NSW average, which nearly reached statistical significance. In the other LGAs the male suicide death rates were similar to the NSW average.
- The **road injury** mortality rate among Wollongong LGA females (based on 18 deaths) was 32% lower than the NSW average, which nearly reached statistical significance. Road injury death rates among males and females in the other LGAs were all about or just below the NSW averages.

Total Injury and Poisonings

- In 1994-1998, 597 deaths from injury and poisonings were recorded among residents of the Illawarra Health Area, accounting for 4.9% of all 12,287 deaths during this period (Table 2)

Injury and poisoning was the **fourth commonest cause of death** among both Illawarra males and females, following circulatory disorders, neoplasms and respiratory disorders.

- Of the 597 injury deaths, 70% (420) were among males, and 38% (226) among people aged 25-44 years (Tables 2 and 3).
- The mortality rate (directly age-standardised) for injury and poisoning among Illawarra **males** was **2.67 times** (i.e. 167% higher than) the rate for Illawarra females (52.1 versus 19.5 per 100,000) (Figure 1).
- Total injury mortality rates **peaked** in the age group **75 years and over** for both males (104.0 per 100,000) and females (87.1 per 100,000). For males (only) a secondary peak occurred in the **25-44 years** age group (75.2 per 100,000).

Total injury mortality rates among males were higher than for females in all age groups (particularly among 25-44 year olds). The only exception was the 5-14 years age group, which had the lowest injury mortality rate for both males (4.0 per 100,000) and females (4.9 per 100,000) (Figure 2).

Major Causes by Sex

- The most common causes of injury death among Illawarra residents were (in order):
 - **suicide** (204, 34%),
 - **road injury** (136, 23%),
 - **falls** (80, 13%),
 - **unintentional poisoning by drugs etc** (37, 6%), and
 - **drowning** (32, 5%) (Tables 2, 3).

- The most common causes of injury deaths among Illawarra **males** were (in order):
 - suicide (159, 38%),
 - road injury (98, 23%),
 - falls (36, 9%), and
 - unintentional poisoning by drugs etc (30, 7%)
 - drowning (22, 8%) (Tables 2, 4).
- The most common causes of injury deaths among Illawarra **females** were (in order):
 - suicide (45, 25%),
 - falls (44, 25%),
 - road injury (38, 21%),
 - **interpersonal violence** (14, 8%), and
 - drowning (10, 6%) (Tables 2, 5).
- Directly age-standardised mortality rates (per 100,000) were higher among Illawarra males than females for most causes, including:
 - suicide: - males: 19.3, females: 5.3
 - road injury:- males: 12.2, females: 4.6
 - unintentional poisoning by drugs etc:- males: 4.0, females: 0.90
 - drowning:- males 2.6, females 1.2 but excluding:
 - falls: - males: 3.0, females: 3.2
 - interpersonal violence:- males: 1.7, females: 1.8 (Figures 3-6).

Comparisons with NSW

- In 1994-1998 the total injury mortality rate among Illawarra **males** was **8% lower** than the NSW average, a **non-significant** difference. Similarly for Illawarra **females**, the rate was slightly, **4%, lower** than the NSW average, a **non-significant** difference (Table 2).

Males

- Cause-specific mortality rates among Illawarra **males** (all ages) were not significantly higher than the NSW average for any specific major cause (Table 2).

In fact, rates for Illawarra males were about the same as or lower than the NSW average

for each of the specific causes, with the exception of unintentional poisoning by drugs etc (based on 30 deaths) and machinery-in-operation (based on 6 deaths) (Table 2).

Mortality rates among **Illawarra males** (all ages) were significantly **lower** than the NSW average for **fire-arms injury** (based on 1 death), but not any other specific cause (Table 2).

- The **suicide** death rate was 9% lower among Illawarra males (all ages, 159 deaths) than the NSW average, a non-significant difference. This equates to 16 fewer suicide deaths over five years than expected years (about 3 each year) (Table 2, Figure 9).

Notably, the suicide death rate among **15-24 year old** Illawarra males (20 deaths) was **35% lower** than the NSW average, a significant difference. This equates to 11 fewer suicide deaths over five years in this age group (about 2 each year) (Table 1, Figure 10).

- The **road injury** death rate was 9% lower among Illawarra males (all ages, based on 98 deaths) than the NSW average, a non-significant difference. This equates to 10 fewer road deaths over five years than expected (2 each year) (Table 1, Figure 11).

The road injury death rate among 15-24 year old Illawarra males (based on 24 deaths) was 25% lower than the NSW average, a non-significant difference. This equates to 8 fewer road deaths over five years in this age group (fewer than 2 each year) (Table 1, Figure 12).

Females

- Cause-specific mortality rates among Illawarra females (all ages) were not significantly higher or lower than the NSW averages for any specific major cause (Table 2).

Rates for females were about the same as or lower than the NSW average for each of the specific causes, with the exception of

drowning (based on 10 deaths) and interpersonal violence (based on 14 deaths) (Table 2).

- The **suicide** death rate among Illawarra females (all ages, based on 45 deaths) was average for NSW (Table 2, Figure 9).

The suicide death rate among **15-24 year old** Illawarra females (based on 4 deaths) was 30% lower than the NSW average, a non-significant difference (Table 1, Figure 10).

- The **road injury** death rate was 21% lower among Illawarra females (all ages, based on 38 deaths) than the NSW average, a non-significant difference. This equates to 12 fewer road deaths over five years than expected (more than 2 each year) (Table 2, Figure 11).

The road injury death rate among **15-24 year old** Illawarra females (10 deaths) was average for NSW (Table 1, Figure 12).

Major Causes by Age Group

- **Suicide** was the commonest cause of injury death among Illawarra residents in the 25-44, 45-64 and 65-74 years age groups. In these age groups suicide accounted for 41% (93), 43% (53), and 42% (22) of injury deaths, respectively. Suicide was also the second commonest cause of injury death in the 15-24, and 75 years and over, age groups (Table 3). A similar pattern was evident for both males and females (Tables 4-5).

Suicide rates peaked in the age group 25-44 years for both males (30.3 per 100,000) and females (7.8 per 100,000). Suicide rates were at least three times higher among males than females in all age groups (from 15-24 years) (Figure 7).

- **Road injury** was the commonest cause of injury death among Illawarra residents in the 5-14 and 15-24 years age groups, accounting for 36% (4) and 42% (34) of

injury deaths in these age groups, respectively. Road injury was the second commonest cause of death in all other age groups up to 75 years (Table 3). A similar pattern was evident for both males and females (Tables 4-5).

Road injury mortality rates peaked in the age group 15-24 years for males (19.9 per 100,000) and females (9.0 per 100,000). The highest risk for males, however, was in the 75 years and over age group (20.8 per 100,000) (Figure 8).

- **Falls** were the commonest cause of injury death among Illawarra residents aged 75 years and over, accounting for 64% (57) of injury deaths in this age group. Falls also ranked in the top five causes of injury death in the age groups 5-14, 25-44, 45-64, and 65-74 years (Table 3). This same pattern also describes the pattern of falls injury death among males (Table 4).

For females, falls, suicide and road injury ranked equally as the commonest cause of death in the 65-74 years age group. However, falls did not rank in the top five causes for females below 45 years (Table 5).

- **Drowning** was the commonest cause of death among 1-4 year old children, accounting for 50% (5) of injury deaths in this age group. Drowning also ranked in the top five causes of injury death in all other age groups, with the exception of 15-24 year olds (Tables 3-5).
- **Unintentional poisoning by drugs etc** ranked in the top five causes of injury death in the 15-24 and 25-44 years age groups (Tables 3).
- **Interpersonal violence** was the commonest cause of injury death among infants aged less than 1 year (2 deaths), and second commonest cause (with fire/ burns/ scalds) in the age group 5-14 years (2 deaths). Interpersonal violence also ranked in the top five causes of injury death in the 15-24, 25-44, 45-64, 65-74 years age groups (Table 3).

A slightly different pattern emerged for males and females. For females, interpersonal violence ranked in the top five causes of injury death for all age groups up to 65 years (Table 5). Whereas for males, interpersonal violence only ranked in the top five causes for 15-24, 25-44 and 65-74 year olds (Table 4).

Local Government Areas

- In 1994-1998 total injury mortality rates for both males and females in each of the Local Government Areas (LGAs) within the Illawarra Health Area were all about, or below, the NSW averages.

While none of the LGAs had rates significantly different from NSW or the other LGAs, the total injury mortality rate among Wollongong LGA males was 12% lower than the NSW average, which nearly reached statistical significance (Tables 6-9, Figure 1).

- In 1994-1998 cause-specific injury mortality rates in each of the LGAs were not significantly higher than the NSW averages for any of the specific major causes (Tables 6-9).

The small non-significant excess of deaths among Illawarra males due to unintentional poisoning by drugs etc, was accounted for by the small (non-significant) excesses among Wollongong and Shellharbour males (Tables 1, 6-9).

Similarly the small non-significant excess of deaths among Illawarra females due to interpersonal violence and, to a lesser extent drowning, are accounted for by small (non-significant) excesses among Wollongong and Shellharbour females (Tables 1, 6-9).

- Mortality rates for **falls** injury among **Shellharbour males** (based on 0 deaths) and **fire-arms** injury among **Wollongong males** (based on 0 deaths) were significantly **lower** than the NSW averages.

- With these exceptions, none of the LGAs had cause-specific rates significantly different from NSW (or the other LGAs) (Tables 6-9, Figures 5-6).
- While none of the LGAs had **suicide** death rates significantly different from NSW or the other LGAs, the suicide death rate among Wollongong LGA males (based on 80 deaths) was 19% lower than the NSW average, which nearly reached statistical significance. In the other LGAs male suicide death rates were similar to the NSW average (Tables 6-9, Figure 5).
- While none of the LGAs had **road injury** death rates significantly different from NSW or the other LGAs, the rate among Wollongong females (based on 18 deaths) was 32% lower than the NSW average, which nearly reached statistical significance. The road injury death rates among males and females in the other LGAs were all about or just below the NSW averages (Tables 6-9, Figure 6).

Sub-Areas Within Wollongong LGA

- In 1994-1998 total injury mortality rates for both males and females in each of the sub-areas within the Wollongong LGA were not significantly different to the NSW averages. In fact, rates in all sub-areas were all about, or below, the NSW averages. The highest (indirectly age-standardised) mortality ratios were in the Warrawong sub-area (postcodes 2502,2505,2506), where the total injury mortality rates were estimated to be 24% higher for males (based on 45 deaths), and 38% higher for females (based on 19 deaths), than the NSW averages (Table 10).

Trends

- Between 1989 and 1998 the (directly age-standardised) **suicide** mortality rates (all ages) among Illawarra males showed no

clear trend, fluctuating annually between 28.1 per 100,000 (based on 44 deaths in 1992) and 13.3 per 100,000 (based on 20 deaths in 1990). This was consistent with the stable rates observed among NSW males during this period¹ (Figure 9).

Similarly, between 1989 and 1998 the (directly age-standardised) suicide death rate among Illawarra females (all ages) remained fairly stable, between 3.1 per 100,000 (based on 5 deaths in 1994) and 7.4 per 100,000 (based on 13 deaths in 1997). This was also consistent with the stable rates observed among NSW females¹ (Figure 9).

For 15-24 year old males and females in the Illawarra, there were also no clear trends in suicide mortality rates (Figure 10). In NSW as a whole, suicide rates increased slightly among 15-24 year old males¹ (Figure 10).

- Between 1989 and 1998 the (directly age-standardised) **road injury** death rate (all ages) among Illawarra males declined steadily (albeit with annual fluctuations) from 21.1 per 100,000 (based on 32 deaths in 1989) to 14.8 per 100,000 (based on 24 deaths in 1998). The overall decline was similar to that observed among NSW males¹ (Figure 11).

For females there was also a gradual decline in road injury deaths (all ages), from 12.3 per 100,000 (based on 19 deaths in 1989) to 5.0 per 100,000 (based on 9 deaths in 1998). This decline was similar to that observed among NSW females¹ (Figure 11).

This decrease in road injury mortality rates among males and females of all ages, in the Illawarra and NSW as a whole, was also evident in the 15-24 years age group¹ (Figure 12).

TABLE 1:
Major External (Injury) Causes of Death among Residents of the Illawarra Health Area, Persons Aged 15-24 Years, by Sex, 1994 – 1998

Cause	MALES			FEMALES		
	Number	Standardised mortality ratio	Excess deaths	Number	Standardised mortality ratio	Excess deaths
Suicide	20	0.65 ↓	-11	4	0.70	-2
Road injury	24	0.75	-8	10	1.04	0

Source: Australian Bureau of Statistics' *Death Registrations* for 1994-1998 and *Estimated Resident Populations* for 30 June 1996, accessed from NSW Health's *Health Outcomes Information and Statistical Toolkit* (HOIST).

Notes:

1. All external cause deaths excluding deaths due to medical misadventures and adverse effects of drugs etc (i.e. including E800-869,E880-929,E950-999).
2. The SMR is the ratio of the actual (or 'observed') number of Illawarra Health Area resident deaths to the 'expected' number of Illawarra Health Area resident deaths. The 'expected' number of deaths is calculated by multiplying the age-specific mortality rates in the NSW population by the population numbers resident in the Illawarra Health Area.

TABLE 2:
External (Injury) Causes of Death among Residents of the Illawarra Health Area, 1994 – 1998

Cause	MALES			FEMALES		
	Number	Standardised mortality ratio	Excess deaths	Number	Standardised mortality ratio	Excess deaths
Suicide	159	0.91	-16	45	1.01	0
Road injury	98	0.91	-10	38	0.79	-12
Falls	36	0.75	-13	44	0.92	-4
Unintentional poisoning – drugs, medicines, biologicals	30	1.28	+7	7	0.75	-2
Drowning/ submersion	22	1.03	+1	10	1.73	+4
Interpersonal violence	14	0.86	-2	14	1.77	+6
Fire, burns, scalds	8	1.05	0	5	1.09	0
Machinery-in-operation	6	1.89	+3	0	0.00	0
Motor vehicle non-traffic accident	3	0.63	-2	1	0.83	0
Fire-arms	1	0.17 ↓	-5	1	0.62	-1
Unintentional poisoning – other	1	0.59	-1	0	0.00	0
Other	42	0.98	-1	12	0.92	-1
TOTAL	420	0.92	-37	177	0.96	-8

Source: Australian Bureau of Statistics' *Death Registrations* for 1994-1998 and *Estimated Resident Populations* for 30 June 1996, accessed from NSW Health's *Health Outcomes Information and Statistical Toolkit* (HOIST).

Notes:

1. All external cause deaths excluding deaths due to medical misadventures and adverse effects of drugs etc (i.e. including E800-869,E880-929,E950-999).
2. The SMR is the ratio of the actual (or 'observed') number of Illawarra Health Area resident deaths to the 'expected' number of Illawarra Health Area resident deaths. The 'expected' number of deaths is calculated by multiplying the age-specific mortality rates in the NSW population by the population numbers resident in the Illawarra Health Area.

**TABLE 3:
Major External (Injury) Causes of Death (Rank and Frequency) among
Residents of the Illawarra Health Area, by Age Group, 1994-1998**

Age group	#1	#2	#3	#4	#5	Total injury
Less than 1 year	Interpersonal violence (2)	Road injury (1 each)	Drowning			
1-4 years	Drowning (5)	Road injury (3)	-	-	-	10
5-14 years	Road injury (4)	Interpersonal violence Fire/burns/scalds (2 each)		Drowning (1 each)	Falls	11
15-24 years	Road injury (34)	Suicide (24)	Interpersonal violence (5)	Unintentional pois. – drugs etc Drowning (4 each)		81
25-44 years	Suicide (93)	Road injury (49)	Unintentional pois. – drugs (29)	Interpersonal violence (14)	Falls (8)	226
45-64 years	Suicide (53)	Road injury (24)	Falls (7)	Drowning violence (5 each)	Interpers.	122
65-74 years	Suicide (22)	Road injury (12)	Falls (7)	Drowning (6)	Interpers. violence (1)	53
75 years and older	Falls (57)	Suicide (12)	Road injury (9)	Fire/ burns/ scalds (3)	Drowning (2)	89
TOTAL	Suicide (204)	Road injury (136)	Falls (80)	Unintent poison – drugs etc (37)	Drowning (32)	597

Source: Australian Bureau of Statistics' *Death Registrations* for 1994-1998, accessed from NSW Health's *Health Outcomes Information and Statistical Toolkit* (HOIST).

Notes: 1. All external cause deaths excluding deaths due to medical misadventures and adverse effects of drugs etc (i.e. including E800-869, E880-929, E950-999).

**TABLE 4:
Major External (Injury) Causes of Death (Rank and Frequency) among
Male Residents of the Illawarra Health Area, by Age Group, 1994-1998**

Age group	#1	#2	#3	#4	#5	Total injury
Less than 5 years	Road injury (2 each)	Drowning	-	-	-	6
5-14 years	Road injury (2)	Fire/burns/scalds (1 each)	Falls	-	-	5
15-24 years	Road injury (24)	Suicide (20)	Drowning (4)	Unintent pois – drugs etc (3)	Interpersonal violence (2)	62
25-44 years	Suicide (74)	Road injury (40)	Unintentiona l pois. – drugs (25)	Interpersonal violence (8)	Falls (7)	184
45-64 years	Suicide (39)	Road injury (15)	Falls (6)	Drowning scalds (4 each)	Fire/ burns/ scalds (4 each)	87
65-74 years	Suicide (17)	Road injury (7)	Drowning (5)	Falls (2)	Interpers. Violence (1)	36
75 years and older	Falls (20)	Suicide (9)	Road injury (8)	Unintentional pois. – drugs etc Drowning (1 each)		40
TOTAL	Suicide (159)	Road injury (98)	Falls (36)	Unintent poison – drugs etc (30)	Drowning (22)	420

Source: Australian Bureau of Statistics' *Death Registrations* for 1994-1998, accessed from NSW Health's *Health Outcomes Information and Statistical Toolkit* (HOIST).

Notes: 1. All external cause deaths excluding deaths due to medical misadventures and adverse effects of drugs etc (i.e. including E800-869,E880-929,E950-999).

**TABLE 5:
Major External (Injury) Causes of Death (Rank and Frequency) among
Female Residents of the Illawarra Health Area, by Age Group,
1994-1998**

Age group	#1	#2	#3	#4	#5	Total injury
Less than 5 years	Drowning (5)	Interpersonal violence Road injury (2 each)		-	-	9
5-14 years	Road injury violence (2 each)	Interpersonal	Fire/ burns/ scalds Drowning (1 each)		-	6
15-24 years	Road injury (10)	Suicide (4)	Interpersonal violence (3)	Unintent poison – drugs etc (1)	-	19
25-44 years	Suicide (19)	Road injury (9)	Interpersonal violence (5)	Unintent poison – drugs etc (4)	Drowning (2)	42
45-64 years	Suicide (14)	Road injury (9)	Unintentional pois. – drugs Interpersonal violence (2 each)		Drowning Falls MV non- traffic injury (1 each)	35
65-74 years	Suicide (5 each)	Road injury	Falls		Drowning (1)	17
75 years and older	Falls (37)	Fire/ burns/ scalds (3 each)	Suicide	Road injury Fire-arms (1 each)	Drowning	49
TOTAL	Suicide (45)	Falls (44)	Road injury (38)	Interpersonal violence (14)	Drowning (10)	177

Source: Australian Bureau of Statistics' *Death Registrations* for 1994-1998, accessed from NSW Health's *Health Outcomes Information and Statistical Toolkit* (HOIST).

Notes: 1. All external cause deaths excluding deaths due to medical misadventures and adverse effects of drugs etc (i.e. including E800-869,E880-929,E950-999).

TABLE 6:
External (Injury) Causes of Death among Residents of the Wollongong Local Government Area, 1994 – 1998

Cause	MALES			FEMALES		
	Number	Standardise d mortality ratio	Excess deaths	Number	Standardise d mortality ratio	Excess deaths
Suicide	80	0.81	-19	26	1.05	+1
Road injury	53	0.87	-8	18	0.68	-9
Falls	19	0.75	-6	27	1.02	0
Unintentional poisoning – drugs, medicines, biologicals	19	1.42	+5	2	0.39	-3
Drowning/ submersion	13	1.10	+1	5	1.60	+2
Interpersonal violence	10	1.09	+1	9	2.06	+5
Fire, burns, scalds	7	1.69	+3	3	1.20	0
Machinery-in-operation	3	1.70	+1	0	0.00	0
Motor vehicle non-traffic accident	3	1.13	0	1	1.51	0
Fire-arms	0	0.00	↓ -3	0	0.00	-1
Unintentional poisoning – other	0	0.00	-1	0	0.00	0
Other	19	0.80	-5	6	0.85	-1
TOTAL	226	0.88	-30	97	0.95	-5

Source: Australian Bureau of Statistics' *Death Registrations* for 1994-1998 and *Estimated Resident Populations* for 30 June 1996, accessed from NSW Health's *Health Outcomes Information and Statistical Toolkit* (HOIST).

Notes:

1. All external cause deaths excluding deaths due to medical misadventures and adverse effects of drugs etc (i.e. including E800-869, E880-929, E950-999).
2. The SMR is the ratio of the actual (or 'observed') number of Illawarra Health Area resident deaths to the 'expected' number of Illawarra Health Area resident deaths. The 'expected' number of deaths is calculated by multiplying the age-specific mortality rates in the NSW population by the population numbers resident in the Illawarra Health Area.

TABLE 7:
External (Injury) Causes of Death among Residents of the Shellharbour Local Government Area, 1994 – 1998

Cause	MALES			FEMALES		
	Number	Standardise d mortality ratio	Excess deaths	Number	Standardise d mortality ratio	Excess deaths
Suicide	26	0.95	-1	8	1.16	+2
Road injury	16	0.95	-1	6	0.84	-1
Falls	0	0.00	↓ -5	3	0.65	-2
Unintentional poisoning – drugs, medicines, biologicals	7	1.79	+3	2	1.37	+1
Drowning/ submersion	3	0.89	0	3	3.37	+2
Interpersonal violence	2	0.75	-1	3	2.33	+2
Fire, burns, scalds	1	0.90	0	1	1.58	0
Machinery-in-operation	0	0.00	-1	0	0.00	0
Motor vehicle non-traffic accident	0	0.00	-1	0	0.00	0
Fire-arms	1	1.04	0	0	0.00	0
Unintentional poisoning – other	0	0.00	0	0	0.00	0
Other	10	1.53	+3	0	0.00	-2
TOTAL	66	0.95	-4	26	1.03	+1

Source: Australian Bureau of Statistics' *Death Registrations* for 1994-1998 and *Estimated Resident Populations* for 30 June 1996, accessed from NSW Health's *Health Outcomes Information and Statistical Toolkit* (HOIST).

Notes:

1. All external cause deaths excluding deaths due to medical misadventures and adverse effects of drugs etc (i.e. including E800-869,E880-929,E950-999).
2. The SMR is the ratio of the actual (or 'observed') number of Shellharbour LGA resident deaths to the 'expected' number of Shellharbour LGA resident deaths. The 'expected' number of deaths is calculated by multiplying the age-specific mortality rates in the NSW population by the population numbers resident in the Shellharbour LGA.

**TABLE 8:
External (Injury) Causes of Death among Residents of the Kiama Local
Government Area, 1994 – 1998**

Cause	MALES			FEMALES		
	Number	Standardise d mortality ratio	Excess deaths	Number	Standardise d mortality ratio	Excess deaths
Suicide	9	0.99	0	3	1.22	+1
Road injury	5	0.88	-1	3	1.10	0
Falls	5	1.56	+2	3	0.75	-1
Unintentional poisoning – drugs, medicines, biologicals	1	0.84	0	0	0.00	-1
Drowning/ submersion	3	2.64	+2	0	0.00	0
Interpersonal violence	0	0.00	-1	0	0.00	0
Fire, burns, scalds	0	0.00	0	0	0.00	0
Machinery-in-operation	1	5.86	+1	0	0.00	0
Motor vehicle non-traffic accident	0	0.00	0	0	0.00	0
Fire-arms	0	0.00	0	0	0.00	0
Unintentional poisoning – other	0	0.00	0	0	0.00	0
Other	2	0.86	0	1	1.19	0
TOTAL	26	1.05	+1	10	0.85	-2

Source: Australian Bureau of Statistics' *Death Registrations* for 1994-1998 and *Estimated Resident Populations* for 30 June 1996, accessed from NSW Health's *Health Outcomes Information and Statistical Toolkit* (HOIST).

Notes:

1. All external cause deaths excluding deaths due to medical misadventures and adverse effects of drugs etc (i.e. including E800-869,E880-929,E950-999).
2. The SMR is the ratio of the actual (or 'observed') number of Kiama LGA resident deaths to the 'expected' number of Kiama LGA resident deaths. The 'expected' number of deaths is calculated by multiplying the age-specific mortality rates in the NSW population by the population numbers resident in the Kiama LGA.

**TABLE 9:
External (Injury) Causes of Death among Residents of the Shoalhaven
Local Government Area, 1994 – 1998**

Cause	MALES			FEMALES		
	Number	Standardise d mortality ratio	Excess deaths	Number	Standardise d mortality ratio	Excess deaths
Suicide	44	1.11	+4	8	0.76	-3
Road injury	24	0.99	0	11	0.96	-1
Falls	12	0.87	-2	11	0.86	-2
Unintentional poisoning – drugs, medicines, biologicals	3	0.61	-2	3	1.40	-1
Drowning/ submersion	3	0.60	-2	2	1.39	+1
Interpersonal violence	2	0.56	-2	2	1.09	0
Fire, burns, scalds	0	0.00	-2	1	0.87	0
Machinery-in-operation	2	2.76	-1	0	0.00	0
Motor vehicle non-traffic accident	0	0.00	-1	0	0.00	0
Fire-arms	0	0.00	-1	1	2.72	+1
Unintentional poisoning – other	1	2.60	+1	0	0.00	0
Other	11	1.07	+1	5	1.50	+2
TOTAL	102	0.95	-5	44	0.97	-2

Source: Australian Bureau of Statistics' *Death Registrations* for 1994-1998 and *Estimated Resident Populations* for 30 June 1996, accessed from NSW Health's *Health Outcomes Information and Statistical Toolkit* (HOIST).

Notes: 1. All external cause deaths excluding deaths due to medical misadventures and adverse effects of drugs etc (i.e. including E800-869,E880-929,E950-999).

2. The SMR is the ratio of the actual (or 'observed') number of Shoalhaven LGA resident deaths to the 'expected' number of Shoalhaven LGA resident deaths. The 'expected' number of deaths is calculated by multiplying the age-specific mortality rates in the NSW population by the population numbers resident in the Shoalhaven LGA.

**TABLE 10:
Total External (Injury) Causes of Death among Residents of Sub-Areas
within the Wollongong Local Government Area, 1994 – 1998**

Sub-area (postcodes)	MALES			FEMALES		
	Number	Standardise d mortality ratio	Excess deaths	Number	Standardise d mortality ratio	Excess deaths
Thirroul (2508,2515,2516,2517)	32	0.74	-11	11	0.58	-8
Corrimal (2518,2519)	50	1.04	+2	21	1.07	+1
Wollongong (2500)	37	0.74	-13	20	0.96	-1
Warrawong (2502,2505,2506)	45	1.24	+9	19	1.38	+5
Unanderra (2525,2526)	27	0.82	-6	14	1.09	+1
Dapto (2530)	21	0.68	-10	9	0.78	-3

Source: Australian Bureau of Statistics' *Death Registrations* for 1994-1998 and *Estimated Resident Populations* for 30 June 1996, accessed from NSW Health's *Health Outcomes Information and Statistical Toolkit* (HOIST). 30 June 1996 populations for sub-areas were compiled by postcode populations provided by the Australian Bureau of Statistics.

Notes: 1. All external cause deaths excluding deaths due to medical misadventures and adverse effects of drugs etc (i.e. including E800-869,E880-929,E950-999). 2. The SMR is the ratio of the actual (or 'observed') number of Shoalhaven LGA resident deaths to the 'expected' number of Shoalhaven LGA resident deaths. The 'expected' number of deaths is calculated by multiplying the age-specific mortality rates in the NSW population by the population numbers resident in the Shoalhaven LGA. 3. Numbers in this table are slightly less than in Table 6 for Wollongong LGA residents, as records where postcodes were incompatible with the Wollongong LGA coding have been excluded.

FIGURE 1:
Directly Age-Standardised Total Injury Mortality Rates among Residents of the Illawarra Health Area and each of its Local Government Areas, by Sex, 1994-1998

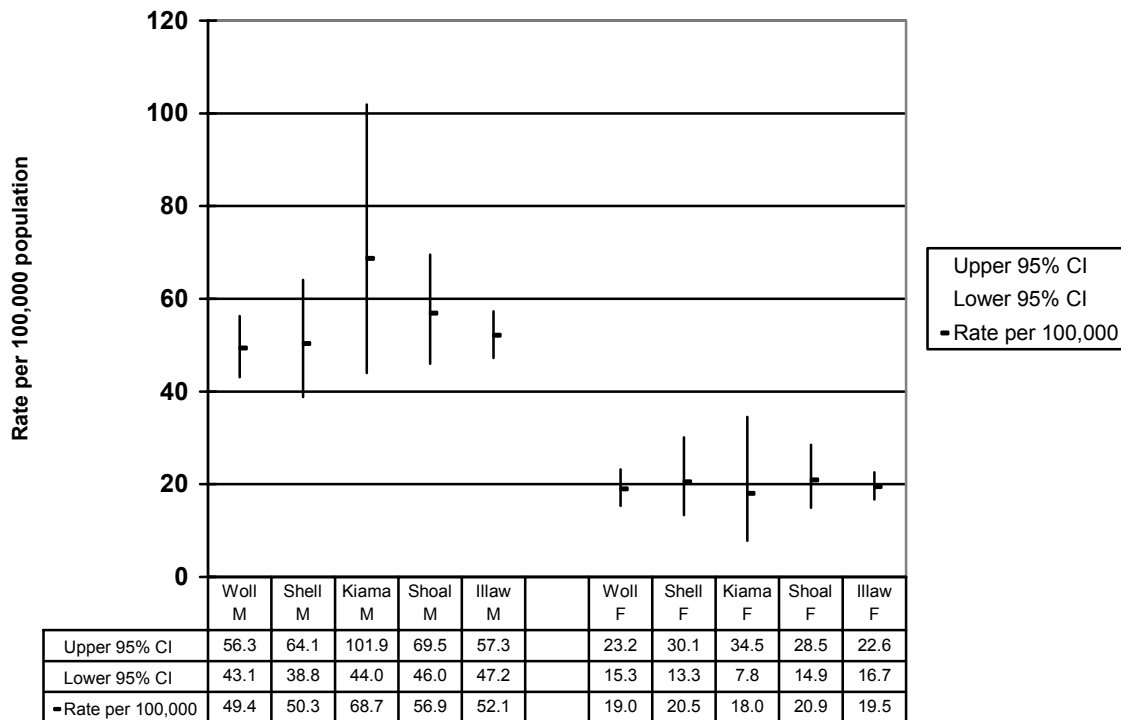


FIGURE 2:
Age-Specific Mortality Rates for Total Injury and Poisonings among Residents of the Illawarra Health Area, by Sex, 1994-1998

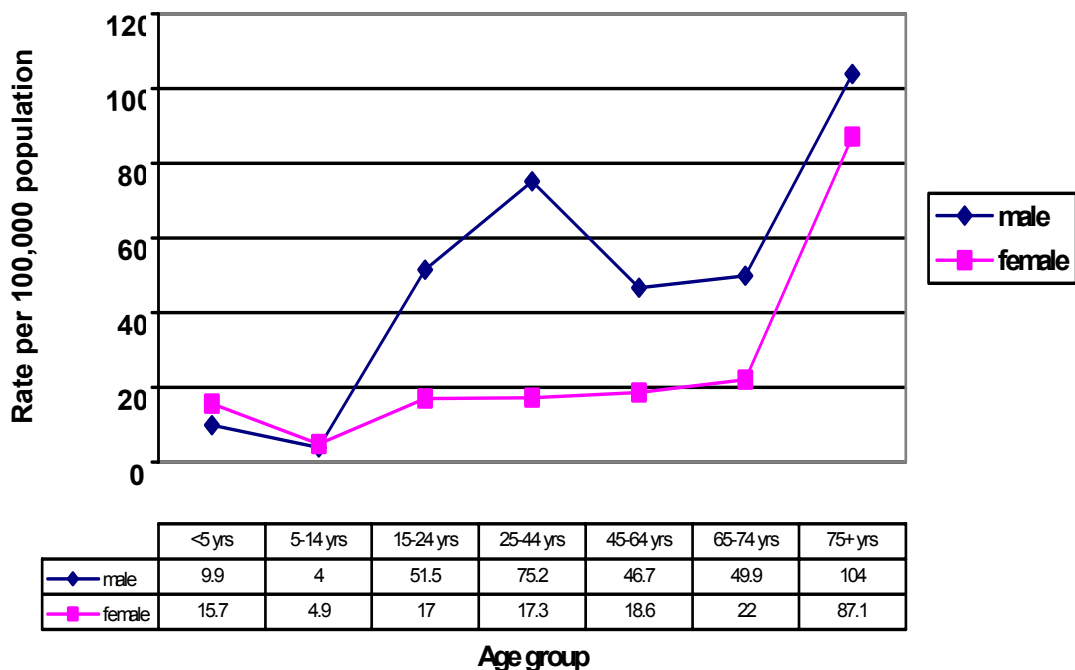


FIGURE 3: Directly Age-Standardised Cause-Specific Injury Mortality Rates among Male Residents of the Illawarra Health Area, by Cause, 1994-1998

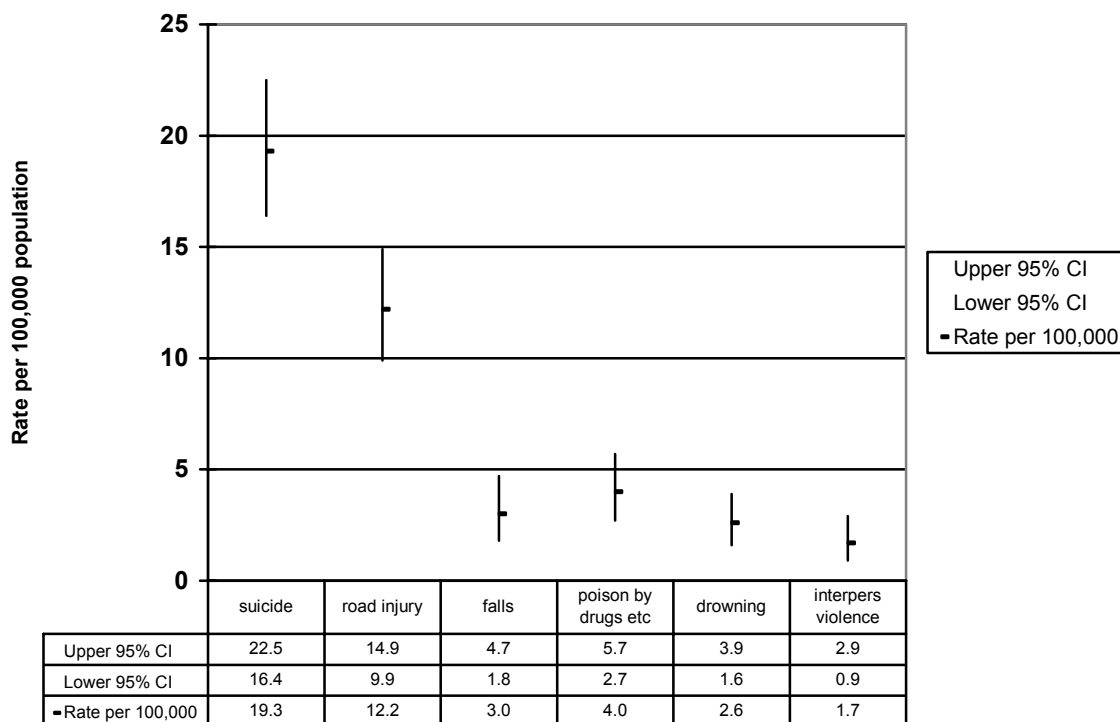


FIGURE 4: Directly Age-Standardised Cause-Specific Injury Mortality Rates among Female Residents of the Illawarra Health Area, by Cause, 1994-1998

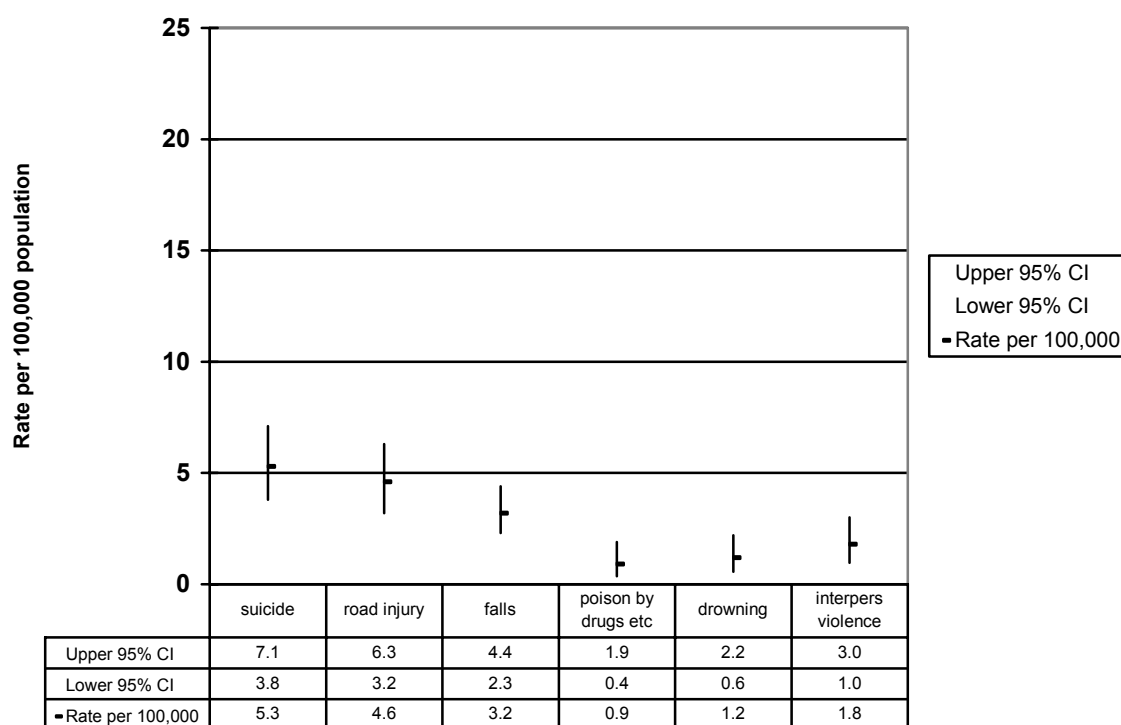


FIGURE 5: Directly Age-Standardised Suicide Death Rates among Residents of Illawarra Health Area and each of its Local Government Areas, by Sex, 1994-1998

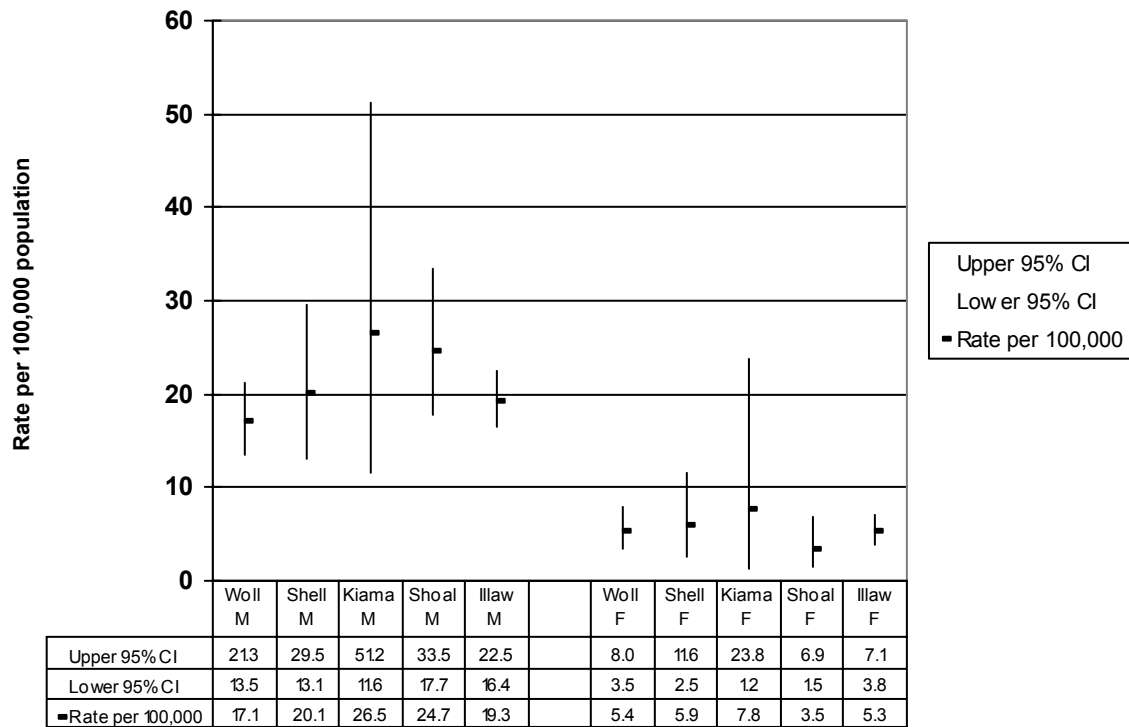


FIGURE 6: Directly Age-Standardised Road Injury Death Rates among Residents of Illawarra Health Area and each of its Local Government Areas, by Sex, 1994-1998

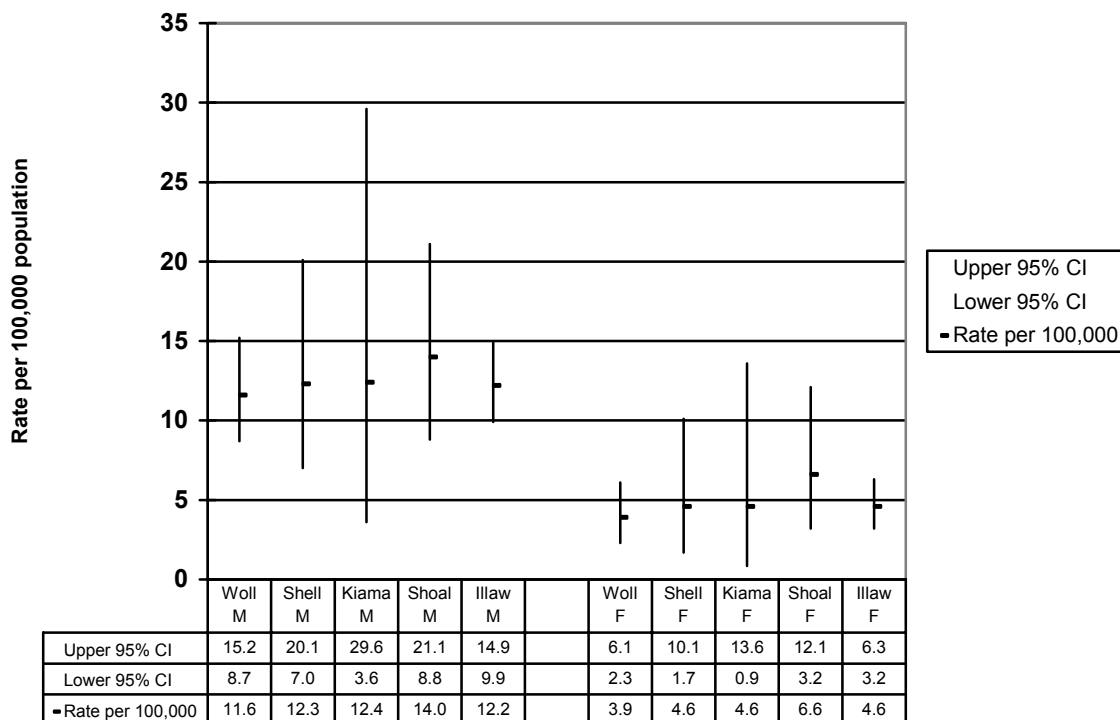


FIGURE 7:
Age-Specific Mortality Rates for Suicide among Residents of the Illawarra Health Area, by Sex, 1994-1998

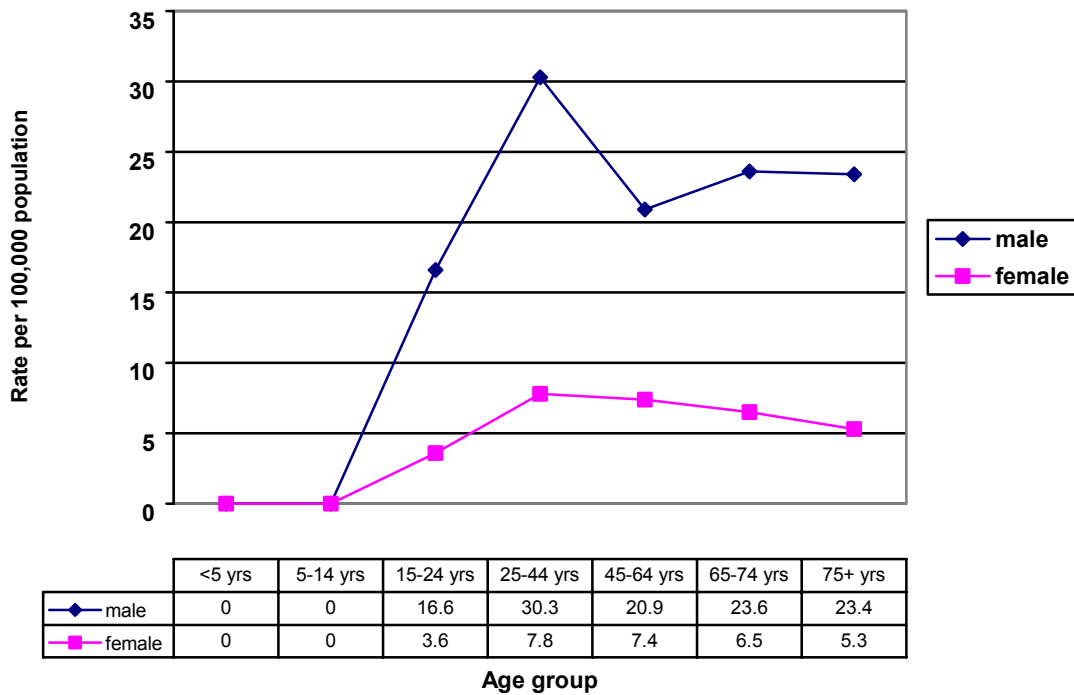


FIGURE 8:
Age-Specific Mortality Rates for Road Injury among Residents of the Illawarra Health Area, by Sex, 1994-1998

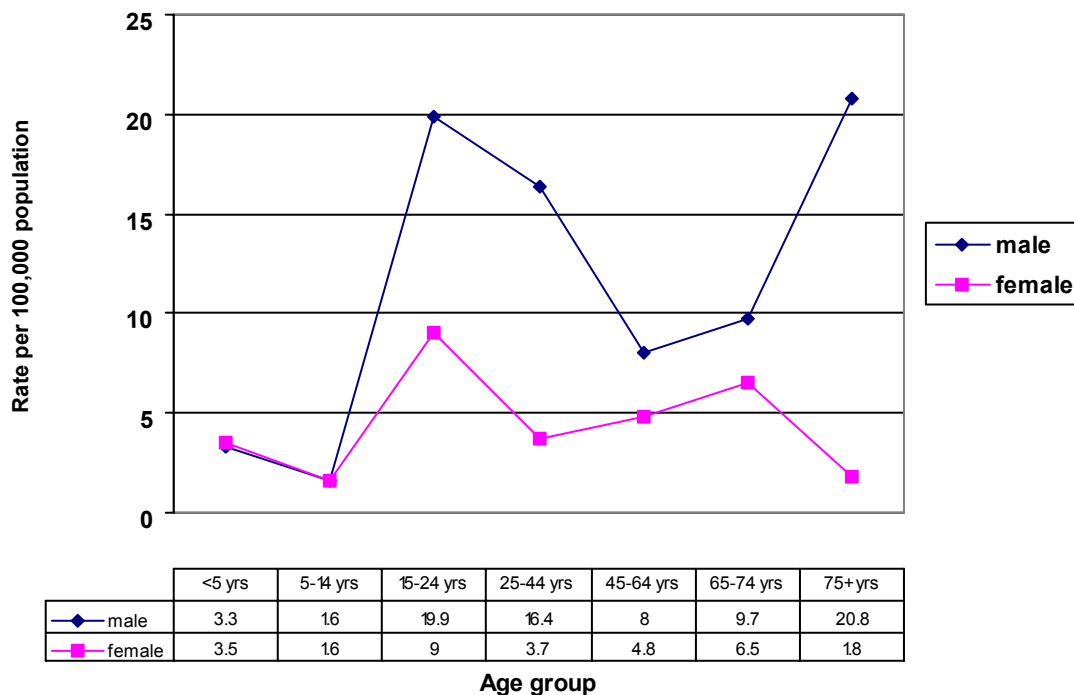


FIGURE 9:
Trends in Directly Age-Standardised Suicide Death Rates among Residents of the Illawarra Health Area and NSW¹, all Ages, by Sex, 1989-1998

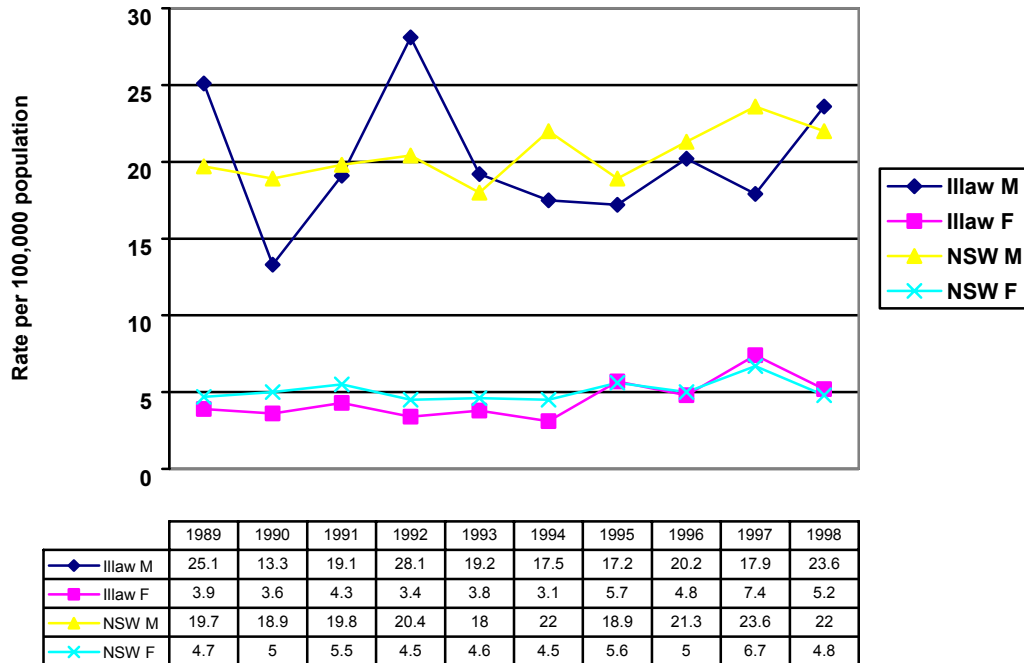


FIGURE 10:
Trends in Directly Age-Standardised Suicide Death Rates among Residents of the Illawarra Health Area and NSW¹, 15-24 Years, by Sex, 1989 – 1998

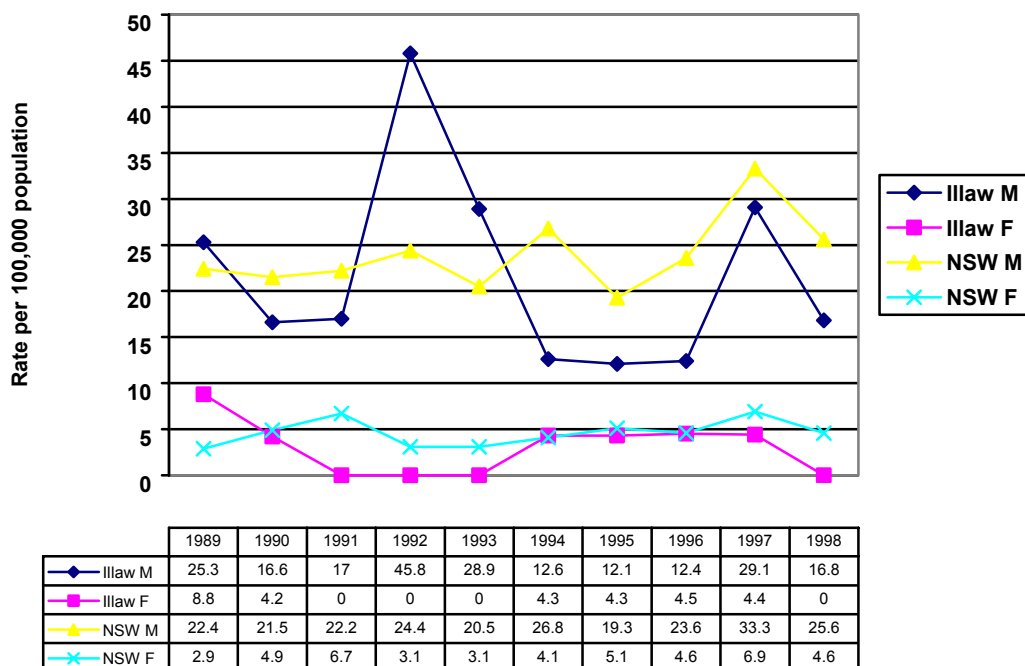


FIGURE 11:
Trends in Directly Age-Standardised Road Injury Death Rates among Residents of the Illawarra Health Area and NSW¹, All Ages, by Sex, 1989 – 1998

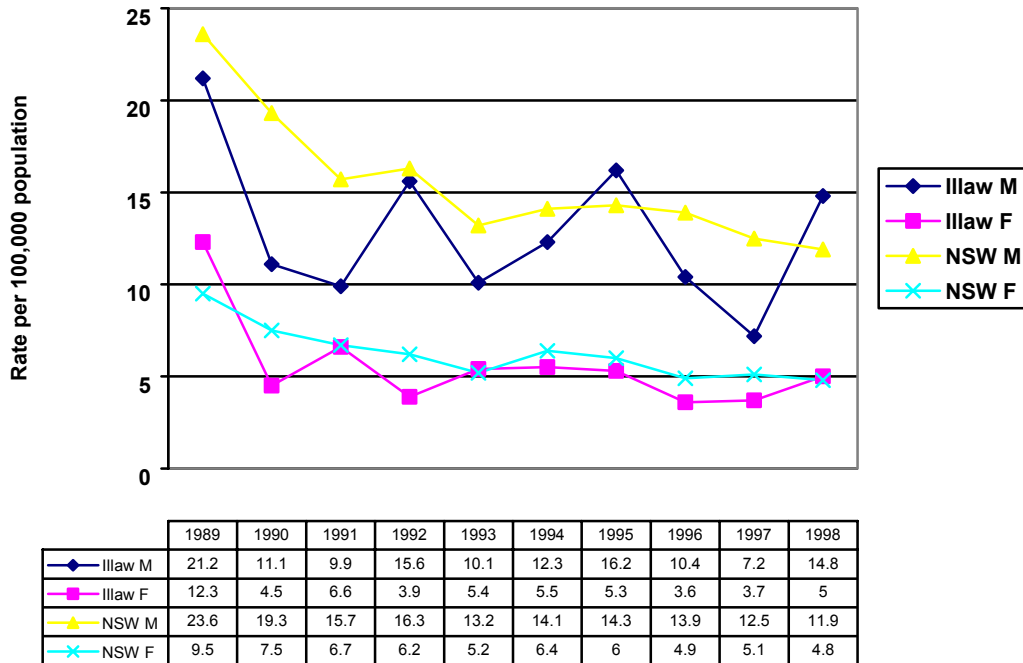
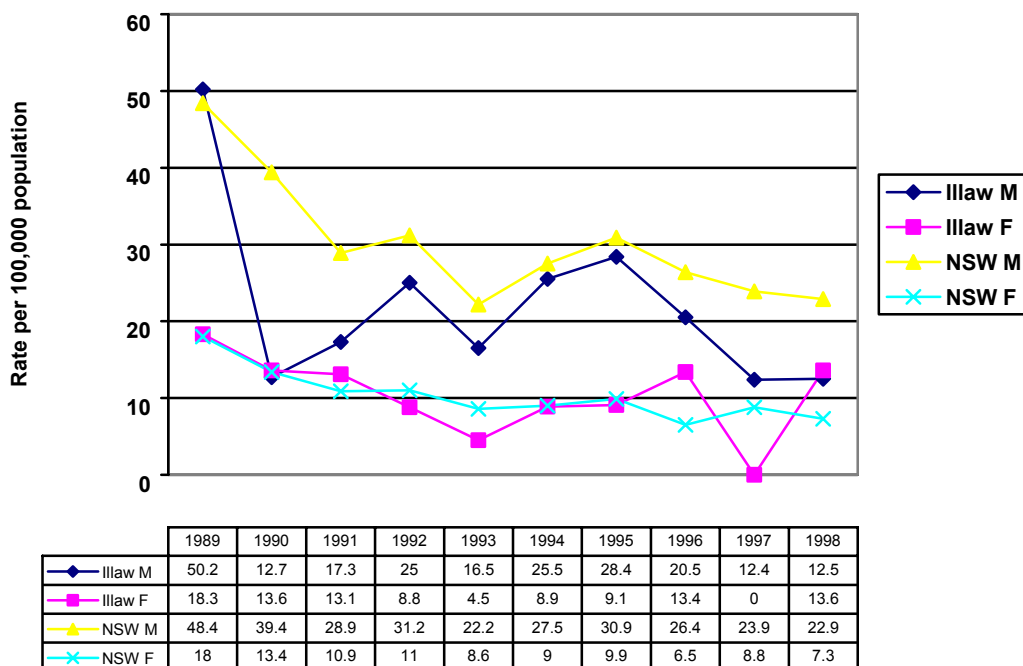


FIGURE 12:
Trends in Directly Age-Standardised Road Injury Death Rates among Residents of Illawarra Health Area and NSW¹, 15-24 Years, by Sex, 1989 – 1998



APPENDIX

International Classification of Disease (ICD) External Codes (E Codes) used to Define Causes

CAUSE	ICD9 E CODE DIAGNOSIS	COMMENTS
Falls	E880-885.9, E886.1-888	Excludes falls in sports E886.0 Exception: Falls trends, as shown in Figures 15 and 16, have included falls in sports, i.e. E880-888, and excluded same day admissions, to allow comparability with NSW data reported in NSW Health's <i>Report of the Chief Health Officer 2000</i> ¹ .
Road injury	E810-819, E826-829	
Self-harm/ attempted suicide	E950-959	
Interpersonal violence	E960-964, E965.5-969	Excludes assault by fire-arms E965.0-965.4
Sports injury	E886.0, E917.0, E927	Includes falls in sports E886.0
Machinery-in-operation	E836, E919.1-919.9, E920.0-920.2	
Motor vehicle non-traffic accidents	E820-825	
Unintentional poisoning – drugs, medicines, biologicals	E850-859	
Fire, burns, scalds	E890-899, E924.0, E924.8, E924.9	
Unintentional poisoning – other	E860-869	
Drowning, submersion	E830, E832, E910, E984	
Fire-arms	E922, E965.0-965.4, E970, E985.0-985.4	Includes assault (interpersonal violence) by fire-arms E965.0-965.4
Other	All other E codes	But excludes medical misadventures (E870-879) and adverse effects of drugs etc (E930-949)

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