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Hospitalisation as a Consequence of Deliberate Self-harm in Western Australia, 1981–1998

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Foreword

Hospitalisations as a Consequence of Deliberate Self-harm in Western Australia, 1981-1998 updates an earlier publication by the Health Department of Western Australia examining trends in hospitalisation due to deliberate self harm, including attempted suicide. The value of this report is enhanced however by being jointly published with an analysis of suicide trends over the same time period. This second report, *Suicide in Western Australia, 1986 to 1997*, has been prepared by the Government's Youth Suicide Advisory Committee.

Both the Health Information Centre and Youth Suicide Advisory Committee are to be congratulated for surmounting the difficulties in ensuring that their separate analyses covered the same time span, addressed relevant policy issues and were released concurrently. This will be of enormous benefit for policy makers and others with an interest in this important social issue.

As *Hospitalisation as a Consequence of Deliberate Self-harm in Western Australia, 1981–1998* shows, the majority of people hospitalised for deliberate self-harm do not subsequently commit suicide. However, an attempted suicide remains a major predictor of future attempts or suicide. This is why trends in deliberate self-harm are so important. They are likely to indicate where government should focus attention and whether existing strategies are making an impact.

Since 1989 there have been concerted efforts in Western Australia to reduce the rate of suicide among 15-24 year olds. During the course of the 1990s this also became a national focus.

It is pleasing to note that the report shows that since 1990 there has been a significant downward trend in the rates of deliberate self-harm for both young men and women aged 15-19 years. However, there has been no change in the rates for 20-24 year old men and those for 20-24 year old women have increased.

This information will cause us to re-examine approaches to reducing youth suicide and ensure that strategies have greater relevance to young adults.

The rates of deliberate self harm among Aboriginal people are of great concern and reinforce the value of the across government Aboriginal youth suicide prevention policy that was introduced in November 1998. Although continual monitoring of the current data is essential, the historical data provided in this report will contribute to providing a baseline from which to measure the effectiveness of the strategies associated with the policy as well as shape strategies.

At a national level, suicide prevention strategy has been expanded to cover all age groups while retaining a focus on youth. Within Western Australia the policy focus remains on young people. The information contained in *Hospitalisation as a Consequence of Deliberate Self-harm in Western Australia, 1981–1998* and *Suicide in Western Australia, 1986 to 1997* will enable an informed decision about the extent to which strategies are developed for different age groups and other population subgroups.

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Executive summary

Overview

During the period 1981 to 1998, the age-standardised admission rate for deliberate self-harm was 117.2 and 175.0 per 100,000 among males and females respectively. The hospitalisation rate for *persons* committing deliberate self-harm was 98.3 per 100,000 among males and 146.2 per 100,000 among females, as some people had multiple admissions for deliberate self-harm.

Male admission rates increased significantly (0.8% per year) during this period but no significant change occurred among females. Of concern however is that between 1991 and 1998 female admission rates showed a significant increase (3.7% per year).

The age groups with the highest admission rates were the 20-24 year age group for males (278 per 100,000) and the 15-19 year age group for females (442.6 per 100,000). For the 15-19 year age group, admission rates significantly decreased for males and females. However, the admission rate among females aged 20-24 years increased from 1990 to 1998.

Drug use was the most common method, accounting for 74% and 89% of all deliberate self-harm admissions among males and females, respectively. Although, the rates of admission involving drug use decreased, the rates of admission involving the use of *tranquillisers & other psychotropic agents,*[i] (the most common drug used), *analgesics, antipyretics & antirheumatics* and *antidepressants* increased. The rates of admission involving the use of cutting/piercing also increased over the period.

Over the five years from 1994-98, the rates of admission for deliberate self-harm were highest in the most socioeconomically disadvantaged groups.

Regional differences

Overall, the admission rates for deliberate self-harm were highest for males in the metropolitan area and remote areas for females and increased in the rural and remote areas for both sexes but decreased for metropolitan females.

The major cause for hospital admission for deliberate self-harm involved drug use for people living in either the metropolitan or remote areas. In rural areas, cutting and piercing was the major cause.

Among rural males, the admission rates for deliberate self-harm were highest at an earlier age (15-19 years) than among males in the metropolitan and rural areas (20-24 years). Female admission rates were highest in the 15-19 year age group for all areas.

Aboriginal people

From 1981 to 1998, 7.5% of admissions were among Aboriginal people. Rates for deliberate self-harm increased significantly remaining three times higher than State males and females.

[i] Antidepressants were included separately.

Drugs were the most common method used for deliberate self-harm by Aboriginal males and females however, since 1993, cutting and piercing has been as common as the use of drugs by Aboriginal males.

Age patterns for Aboriginals differed to the State in that deliberate self-harm admission rates peaked at a later age (30-34 years) and were high over a wider age range (around 15-39 years).

Between 1981 and 1998, the rate of deliberate self-harm admissions for Aboriginal people were generally highest in the metropolitan area and lowest in the remote parts of the State. The admission rate peaked at an earlier age for Aboriginal people living in the metropolitan area (25-29 years) than for Aboriginals living in rural and remote areas (30-34 years).

Repeated deliberate self-harm

Of all people who were hospitalised for deliberate self-harm over the period 1981 to 1997, 78% were neither admitted again under the same circumstances nor committed suicide by the end of 1997. The other 22% were subsequently either readmitted due to injuries sustained in deliberate self-harm or completed suicide with their next episode.

Compared to the general population, the rate of death in people discharged after their initial deliberate self-harm event was significantly higher with the all-cause rate of death being nearly five times higher in males and more than three times higher in females. However, both sexes were over twenty times more likely to die from suicide, six to ten times more likely to die from accidental injury and poisoning, and twice as likely to die from natural causes relative to the general population.

The greatest risk of death for people discharged after deliberate self-harm occurred within the first year after their initial discharge, regardless of gender or the cause of death. Although the majority of deaths were attributable to natural causes, such as cancer and cardiovascular diseases, a significant proportion were due to mental disorders (mainly alcohol and drug dependence).

A large proportion of repeated deliberate self-harm episodes occurred within the first year after initial discharge, with the risk of repeating highest within the first month of the initial discharge. Among males, those aged 25 to 54 years had a higher risk of repeating, whereas females aged 25 to 44 years had the highest risk of repeating. Overall, the risks of a repeated episode was higher in males, non-Aboriginals, residents of the metropolitan area, and people using a violent method resulting in their initial hospitalisation. In addition, people with low socioeconomic disadvantage and multiple hospitalisations had an increased risk of only committing suicide.

People repeating within one month of any previous hospitalisation for deliberate self-harm accounted for a disproportionate amount of hospitalisation due to deliberate self-harm. Males, people aged 25 to 44 years and those using a violent method resulting in their initial hospitalisation were more likely to repeat within one month of any previous hospitalisation for deliberate self-harm.

1 Introduction

In 1996 the World Health Organisation (WHO), recognising the growing problem of suicide worldwide, urged member nations to address suicide as an important public health issue.[1] In Australia, the Commonwealth government responded to community and professional concern about the problem of suicide among youth by allocating $31 million for the development and implementation of a National Youth Suicide Prevention Strategy. This strategy has since been updated and re-focused to include prevention of suicide among all age groups with funding of $39.2 million for four years commencing in 1999/2000.[2] The overall goals of the strategy are to reduce deaths due to suicide, to reduce injury and self-harm resulting from suicide attempts and to reduce the prevalence of suicidal thinking and behaviour. It is underpinned by a whole population (public health) approach. It also includes provisions for high-risk populations and individuals.

One of the overall goals of the National strategy is the development of more effective services to prevent mortality and minimise risk of further injury or premature death of individuals at special risk of suicide. Studies which have followed up presentations at emergency departments following suicide attempt suggest that people who are actively followed up are less likely to repeat their attempt, and more likely to gain access to appropriate treatment.[3,4,5,6]

Attempted suicides are more difficult to study than suicide deaths because there are no generally accepted reporting procedures or well-accepted definitions, but it is important to try to quantify suicide attempts as they are one of the best predictors of subsequent completed suicide.[7] Analysing the characteristics of people hospitalised for deliberate self-harm helps to identify the risk factors among population subgroups, which are useful in developing potential interventions, particularly for people who repeat, and evaluating the outcomes of such interventions. Although not all self-harming behaviour is an attempt at suicide, the distinction between the two diagnoses is difficult to make from the ICD-9 codes alone, and this report does not attempt to separate cases of deliberate self-harm from attempted suicides. In this report the term deliberate self-harm is used to describe both diagnoses.

The majority of suicide attempts are thought to go undetected, with only an estimated 5% to 30% of suicide attempts resulting in admission to hospital.[8] However, hospital inpatient records have been used in this study because they provide the only reliable source of information about deliberate self-harm in WA. This means that only the more serious cases of deliberate self-harm will be included. These cases result in a greater burden to the community, both in terms of utilisation of hospital resources and the higher mortality rates compared to the general population.[9] In addition, by linking hospital records for the same individual, recurrent deliberate self-harm behaviour can be traced. A history of deliberate self-harm, particularly repeated attempts, is a major risk factor for suicide and hospitalisation provides an important opportunity for intervention.

In addition to updating the findings of a previous report about deliberate self-harm in WA,[10] this report takes a different approach from the earlier one to enable comparisons with a separate report on suicide deaths.[11] It documents the numbers and rates of hospital admissions for deliberate self-harm in WA for 1981 to 1998, including age and gender variations, time trends, regional variations, and differences in the rates among the Aboriginal population.

2 Data sources and methods

Hospital separation data were extracted from the Hospital Morbidity Data System (HMDS), which is maintained by the Health Department of Western Australia (HDWA). Patients that died before being discharged from hospital were not included for all admissions. Statewide admissions included patients whose place of residence was unknown, interstate or overseas. However, these were not included in the geographic breakdowns.

Population figures by gender and five-year age-groups were obtained from estimates made by the HDWA, which were derived from estimated resident populations provided by the Australian Bureau of Statistics (ABS) (ABS Catalogue No. 3235.5).

2.1 Methods of deliberate self-harm

The methods of deliberate self-harm were analysed according to the International Classification of Diseases 9th Revision (ICD-9) (WHO 1977)[12] external cause categories and codes (E-codes):

- Analgesics, antipyretics and antirheumatics (E950.0)
- Barbiturates, other sedatives and hypnotics (E950.1-E950.2)
- Tranquillisers and other psychotropic agents excluding antidepressants (E950.3)[i]
- Antidepressants (major diagnosis code 969.0 *and* E950.3)
- Other and unspecified drugs and medicines (E950.4-E950.5)
- Poisons[ii] (E950.6-E950.9)
- Carbon monoxide poisoning (E952.0-E952.1)
- Hanging (E953.0)
- Firearms (E955.0-E955.4, E955.9)
- Cutting/piercing instruments (E956)
- Other methods (all other E-codes between E950 and E959 not included above).

In this report, 'drugs' refers to codes E950.0 to E950.5, and 'other and unspecified drugs and medicines' has been abbreviated to 'other drugs'. The ICD-9 changed to ICD-9-CM in 1988 but this did not affect the E-codes.

[i] Antidepressants are excluded from this category and included as a separate category.

[ii] Includes poisoning from ingestion of solid and liquid substances, including unspecified poisons (this may include drugs if unknown to attending doctor). In this report, poisons includes alcohol but in Hillman S, 2000, alcohol was extracted and included with drugs.

2.2 Rates

Age-standardised and age-specific rates were calculated using the Rates Calculator.[iii] This program calculates age-standardised rates using the direct method.[13] Age-standardisation uses a standard population (the Australian 1991 population was used in this report) to eliminate the effects of differences in the age structure of various populations. This allows comparisons between groups with different age compositions. Confidence intervals define the range of values within which the rate is likely to lie.

Standardised rate ratios (SRR), which are derived by dividing the observed number of cases by the expected number of cases, were also calculated using the Rates Calculator. The expected number of cases was estimated by applying the State gender, age and race-specific rates to the population of the area in question. The State SRR is always 1.0, therefore an SRR of 2.0 indicates that the observed rate in a particular area is twice that expected, based on the State rate.

2.3 Trend analysis

The Rates Calculator calculated the time trend analysis, using the Poisson regression of age-specific rates, with the year effect averaged over all age groups, to estimate the average change in the admission rate.[14] The likelihood-ratio chi square test and average year-to-year rate ratios were calculated to establish the nature and significance (at the 95% level) of the trend in rates over time.

2.4 Socioeconomic status

Socioeconomic status was estimated for each postcode using the Index of Disadvantage, as calculated by the ABS from the 1996 Census of Population and Housing (SEIFA96, ABS Catalogue No. 2033.030.001).[iv] A disadvantage value was calculated for each area by taking a weighted average of the composite Collectors Districts (weighted by population figures supplied by the ABS). The range of disadvantage values for Western Australia was divided into quintiles, and each area then assigned the appropriate disadvantage quintile.

[iii] The *Rates Calculator* was written by Dr Jim Codde (Director of Epidemiology and Analytical Services, HDWA).

[iv] For a more comprehensive discussion of this index, see ABS Information Paper: 1996 Census of Population and Housing Socioeconomic Indexes for Areas (ABS Catalogue No. 2039.0).

2.5 Regions

The regions are the metropolitan, rural and remote areas of Western Australia. The metropolitan area includes the North Metropolitan, East Metropolitan, South East Metropolitan and South West Metropolitan Health Zones; the rural area includes the South West, Great Southern, Midlands and Midwest Health Zones and the remote area includes the Goldfields, Pilbara and Kimberley Health Zones.

2.6 Repeated deliberate self-harm episodes

For individuals discharged for deliberate self-harm from 1981 to 1997, an analysis of survival and repetition of deliberate self-harm serious enough to require hospitalisation was performed, using linked hospital discharge and death data. Linked data were provided by the WA Linked Data Project. An episode of deliberate self-harm was defined in this report as a hospitalisation for injuries sustained in an act of deliberate self-harm or a death attributable to suicide.

The first discharge for an individual during the study period defined the initial hospitalisation (index case) for the purposes of this study, although, particularly for individuals hospitalised at the start of the period, this may not have been the case. The study excluded patients who died during the initial hospitalisation or those transferred to another hospital, and the number of patients lost to follow-up was not determined.

A subgroup of the study group was chosen to assess the degree of mortality experienced by people discharged for deliberate self-harm, compared to the general population. People initially discharged from 1990 to 1992 were selected to allow nine years of data for identification of index cases and five years of data for follow up. Indirect standardisation using the 1996 Western Australian population as the standard, allowed calculation of the expected deaths in this group due to suicide, natural causes, accidental injury and poisoning, and all-causes.

A life table method was used to calculate the probabilities of survival and repeated admissions for deliberate self-harm over time. Calculation of the odds ratios used Cox regression by gender, age, residential area, socioeconomic status, Aboriginality and the use of a violent method[v] in the initial deliberate self-harm episode, on both survival and repetition. In addition, the effect of multiple admissions on suicide survival was analysed. The Wilcoxon (Gehan) test, a pairwise test, determined differences in the cumulative probability of survival between levels of these factors. The effect of gender, age, residential area, socioeconomic status, Aboriginality, and the initial method of deliberate self-harm on short-term repetition[vi] was analysed using logistic regression to derive odds ratios. The statistical package SPSS was utilised to produce all statistics.

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[v] Violent methods included jumping, shooting, hanging, cutting/piercing, and colliding with a moving vehicle.

[vi] Includes deaths and hospitalisations for deliberate self-harm occurring within a month of a previous hospital episode for deliberate self-harm.

3 State overview

3.1 Numbers and age-standardised rates

There were 41,452 hospital admissions for deliberate self-harm from 1981 to 1998 (males 16,884; females 24,568) – an average of 938 admissions per year for males and 1,365 admissions for females per year (Table 1).

Table 1 Numbers and age-standardised admission rates for deliberate self-harm by gender and time period

Western Australia, 1981-86, 1987-92, 1993-98

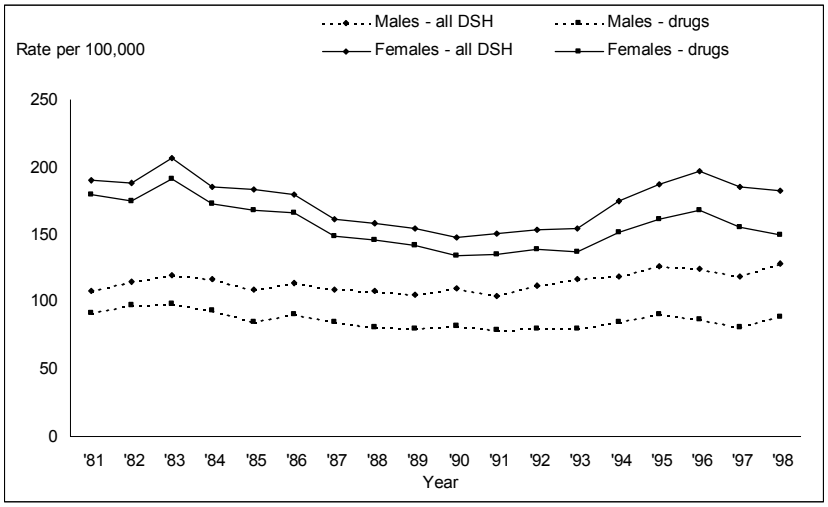
	Males		Females	
Years	*Numbers*	**ASR[1,2] per 100,000**	*Numbers*	**ASR[1,2] per 100,000**
1981-86	4,921	115.7 (112.4-118.9)	7,803	189.2 (185.0-193.5)
1987-92	5,376	110.2 (107.3-113.2)	7,393	155.2 (151.6-158.7)
1993-98	6,587	125.0 (122.0-128.1)	9,372	182.1 (178.4-185.8)
All years (1981-98)	*16,884*	*117.2 (115.4-119.0)*	*24,568*	*175.0 (172.8-177.2)*

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals

In 1998, the age-standardised rate for deliberate self-harm admissions was 131.8 admissions per 100,000 population for males and 184.4 for females. The rate has been around one and a half times higher for females than males over the 18-year period (Appendix Table 1). For the period 1981-1998, the rate was 117.2 admissions per 100,000 for males and 175.0 for females (Table 1).

The male admission rate significantly increased over the period by an average of 0.8% per year. Overall, the female rate showed no significant change. However, there was a statistically significant decrease from 1981 to 1991 (average annual decrease of 2.9%) and a statistically significant increase from 1991 to 1998 (average annual increase of 3.7%) (Figure 1).

Figure 1 Age-standardised admission rates for all deliberate self-harm (DSH), and poisonings using drugs, by gender and year, Western Australia, 1981 to 1998

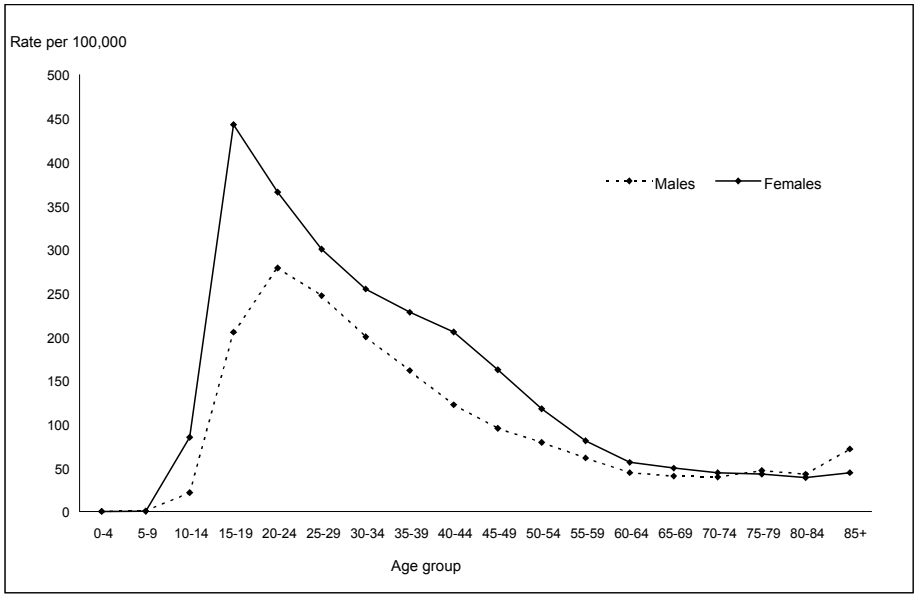


Age-standardised rates were calculated for three six-year periods, 1981-86, 1987-92 and 1993-98, to enable comparisons between metropolitan, rural and remote areas, and Health Zones. The age-standardised rate for males for the 1981-86 period was 115.7 deliberate self-harm admissions per 100,000. During the period 1987-92, it remained steady at 110.2, but increased to 125.0 during 1993-98. The female deliberate self-harm admission rate was 189.2 per 100,000 during 1981-86, decreased to 155.2 in 1987-92, then returned to a level similar to the first period in 1993-98 (182.1) (Table 1).

3.2 Age-specific rates

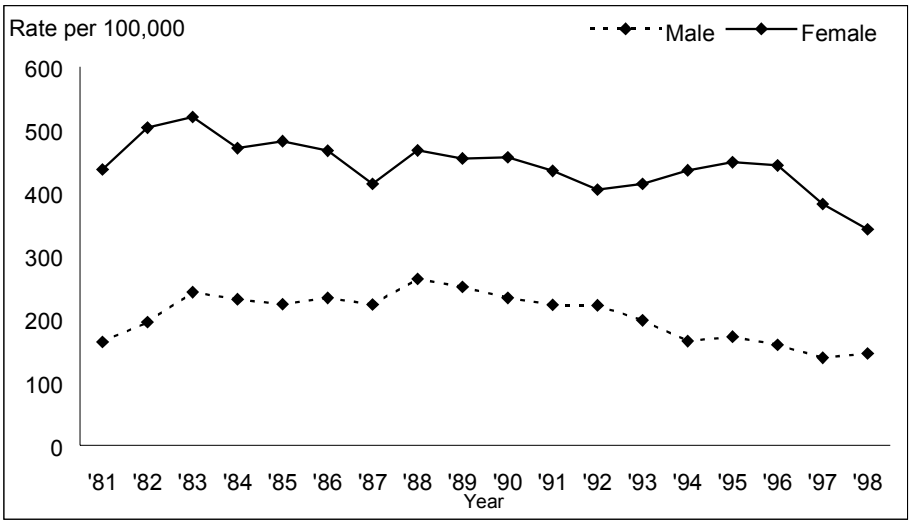
For the period 1981 to 1998, the age groups with the highest deliberate self-harm admission rates were the 20-24 year age group for males (278.6 admissions per 100,000) and the 15-19 year age group for females (442.6), after which rates decreased with age (Figure 2).

Figure 2 Age-specific admission rates for deliberate self-harm, Western Australia 1981 to 1998



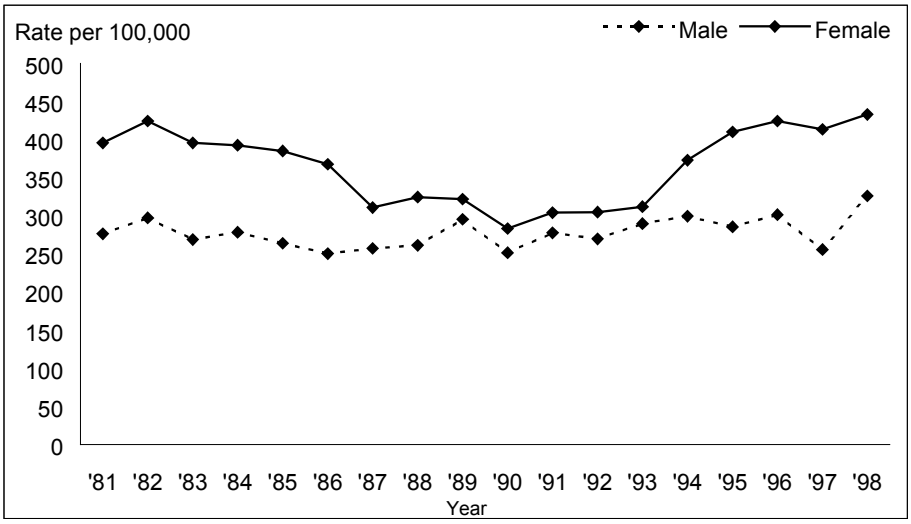
The rate of admission among females aged 15-19 years decreased significantly ($P<0.001$) from 435 per 100,000 in 1981 to 342 per 100,000 in 1998. Similarly, among males aged 15-19 years the rate of admission also significantly decreased ($P = 0.02$) from 1981 to 1998. However, rates initially increased from 164 per 100,000 in 1981 to a peak of 264 per 100,000 in 1988, followed by a decline to 146 per 100,000 in 1998 (Figure 3).

Figure 3 Admission rates for deliberate self-harm, among 15-19 year olds by gender, Western Australia, 1981 to 1998



Overall, there was no significant change in admission rates for deliberate self-harm among 20-24 year olds of either sex. The rate among males remained stable from 1981 to 1998, whereas the female rate decreased markedly from 396 per 100,000 in 1981 to 293 per 100,000 in 1990 but increased to 433 per 100,000 in 1998 (Figure 4).

Figure 4 Admission rates for deliberate self-harm, among 20-24 year olds by gender, Western Australia, 1981 to 1998



3.3 Methods of deliberate self-harm

The use of drugs was by far the most common method of deliberate self-harm for males and females. From 1981 to 1998, 12,424 males (74% of all deliberate self-harm admissions for males) and 21,838 females (89% of all deliberate self-harm admissions for females) were admitted to hospital for deliberate self-harm using drugs (Table 2).

Table 2 Numbers, percentages, age-standardised rates and average annual percentage changes in rates of admissions for deliberate self-harm (DSH), by gender and method

Western Australia, 1981-98

	Numbers	Percentage	ASR per 100,000[1,2]		Ave % change[3,4]	
Males						
Drugs	12,424	73.6	86.2	(84.6-87.7)	-0.6	(S)
Cutting/piercing	2,228	13.2	15.4	(14.8-16.1)	5.1	(S)
Poisons	630	3.7	4.4	(4.0-4.7)	*	*
Carbon monoxide	438	2.6	3.1	(2.8-3.3)	*	*
Hanging	235	1.4	1.6	(1.4-1.8)	*	*
Firearms	115	0.7	0.8	(0.6-0.9)	*	*
Other methods	814	4.8	5.7	(5.3-6.1)	*	*
All DSH	*16,884*	*100.0*	*117.2*	*(115.4-119.0)*	*0.8*	*(S)*
Females						
Drugs	21,838	88.9	155.5	(153.5-157.6)	-0.9	(S)
Cutting/piercing	1,562	6.4	11.1	(10.5-11.7)	8.6	(S)
Poisons	485	2.0	3.5	(3.1-3.8)	*	*
Carbon monoxide	110	0.5	0.8	(0.6-0.9)	*	*
Hanging	65	0.3	0.5	(0.3-0.6)	*	*
Firearms	13	0.1	*	*	*	*
Other methods	495	2.0	3.5	(3.2-3.8)	*	*
All DSH	*24,568*	*100.0*	*175.0*	*(172.8-177.2)*	*-0.1*	*(NS)*

Notes:
1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 Average annual percentage change in age-standardised rates
4 Letters in parentheses indicate whether the change is statistically significant (S) or not (NS) at the p = 0.05 level
* Number of admissions too low to calculate rates and do trend analysis

The admission rate due to deliberate self-harm involving drugs has decreased significantly over the 18-year period (males by 0.6%; females by 0.9%), whereas the rate for deliberate self-harm using cutting/piercing has increased significantly (males by 5.1%; females by 8.6%) (Table 2). The number of admissions for deliberate self-harm using poisons, carbon monoxide, hanging, firearms and 'other' methods were very low for some years so trends could not be observed for any of these methods (Appendix Tables 2 and 3).

The rates for deliberate self-harm admissions using various drugs changed over the 18-year period. Overall, tranquillisers and other psychotropic agents (excluding antidepressants) were the most commonly used drugs. The rate of admissions for deliberate self-harm using this category of drug increased for males but decreased for females over the period. However, between 1981 and 1991 rates decreased significantly (males by 4.6% per year; females by 8.6%), and between 1991 and 1998, rates increased significantly (males by 6.9%; females by 9.1%) (Figure 5; Table 3; Appendix Tables 4 and 5).

Between 1981 and 1998, the admission rates for deliberate self-harm using analgesics, antipyretics and antirheumatics, and antidepressants significantly increased for both genders. Admissions rates due to barbiturates, other sedatives and hypnotics were low for males, hence no trend was observed, but significantly decreased for females. Admission rates due to the use of 'other drugs' significantly decreased for both males and females (Figure 5; Table 3; Appendix Tables 4 and 5).

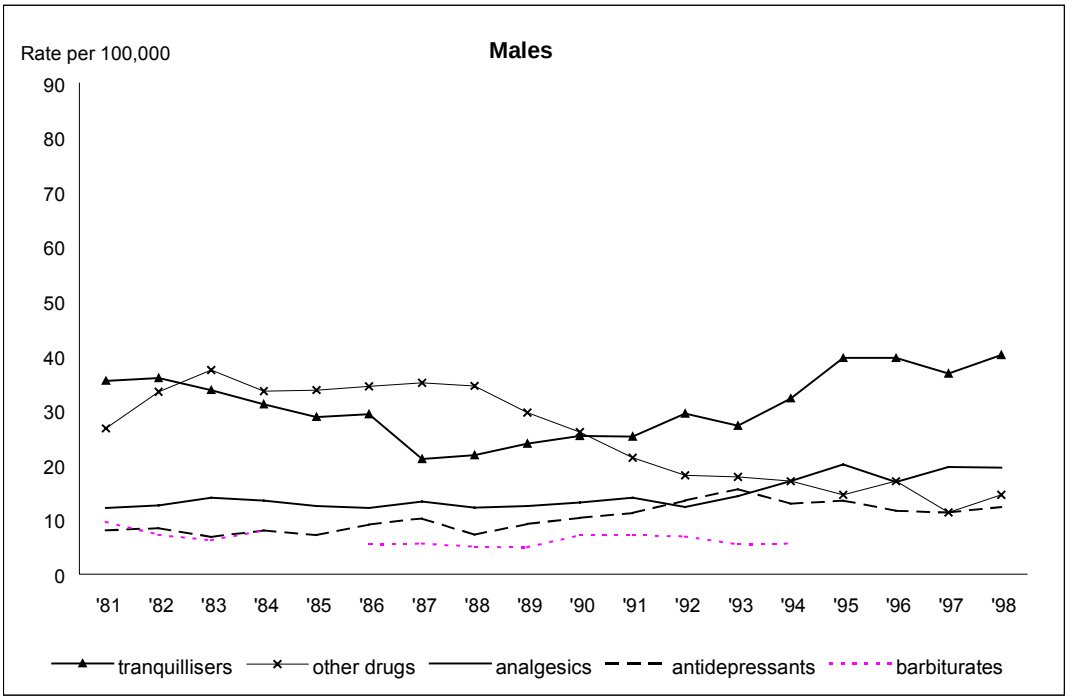
Table 3 Numbers, percentages, age-standardised rates and average annual percentage changes in rates of hospital admissions for drug-caused deliberate self-harm, by gender and type of drug

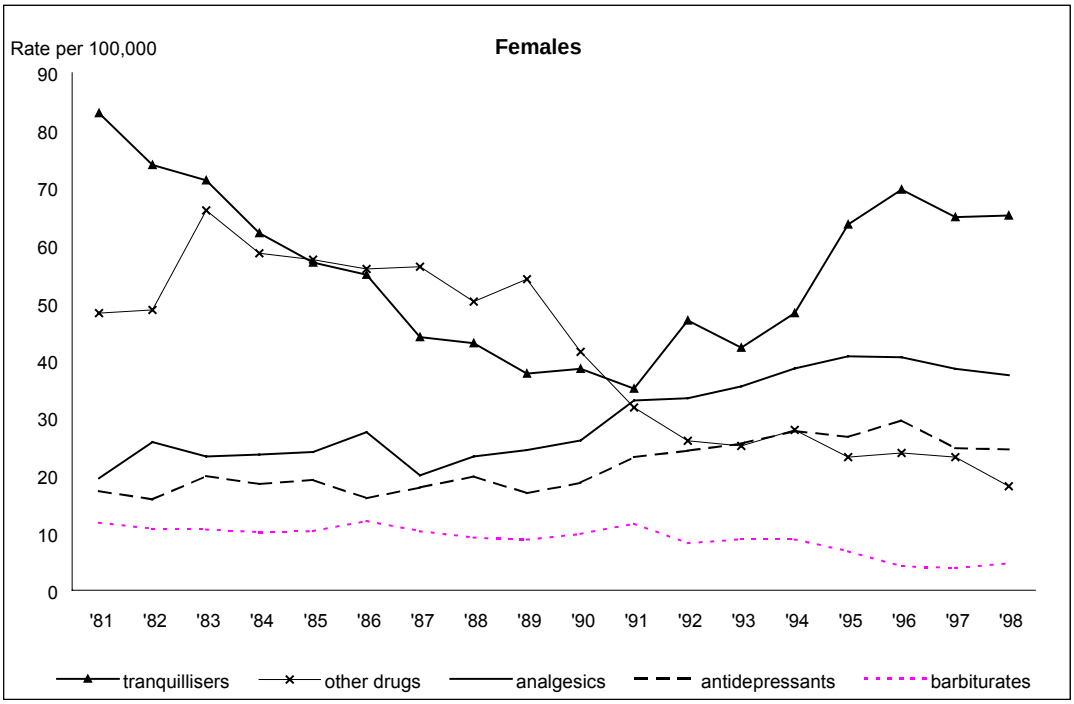
Western Australia, 1981-98

	Numbers	Percentage	ASR per 100,000[1,2]		Ave % change[3,4]	
Males						
Tranquillisers and other psychotropic agents[5]	4,450	35.8	31.0	(30.0-31.9)	1.5	(S)
Other drugs	3,568	28.7	24.7	(23.8-25.5)	-5.8	(S)
Analgesics, antipyretics and antirheumatics	2,135	17.2	14.8	(14.1-15.4)	2.9	(S)
Antidepressants	1,523	12.2	10.6	(10.0-11.1)	3.7	(S)
Barbiturates, other sedatives and hypnotics	748	6.0	5.2	(4.9-5.6)	*	*
All drugs	*12,424*	*100.0*	*86.2*	*(84.6-87.7)*	*-0.6*	*(S)*
Females						
Tranquillisers and other psychotropic agents[5]	7,707	35.3	55.0	(53.8-56.3)	-0.7	(S)
Other drugs	5,610	25.7	39.8	(38.8-40.9)	-6.4	(S)
Analgesics, antipyretics and antirheumatics	4,261	19.5	30.2	(29.3-31.1)	4.3	(S)
Antidepressants	3,045	13.9	21.8	(21.0-22.5)	3.3	(S)
Barbiturates, other sedatives and hypnotics	1,215	5.6	8.7	(8.2-9.2)	-4.4	(S)
All drugs	*21,838*	*100.0*	*155.5*	*(153.5-157.6)*	*-0.9*	*(S)*

Notes:
1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 Average annual percentage change in age-standardised rates
4 Letters in parentheses indicate whether the change is statistically significant (S) or not (NS) at the p = 0.05 level
5 Excludes antidepressants
* Number of admissions too low to calculate rates and do trend analysis

Figure 5 Age-standardised admission rates for deliberate self-harm using drugs by drug type, gender and year, Western Australia, 1981 to 1998





3.4 Socioeconomic status

The first admissions for first deliberate self-harm between 1994 and 1998 were selected to determine whether the socioeconomic status of individuals was a risk factor for deliberate self-harm. Only the first admission was selected as the socioeconomic status of an individual may have changed during the reporting period. There was insufficient data in 1998 to enable all first admissions for deliberate self-harm in that year to be selected, so the age-standardised rates reported are underestimated (Table 4). However, any risk associated with socioeconomic status may still be estimated from the available data.

The two most disadvantaged groups (Groups 1 and 2) had the highest rates of deliberate self-harm for both males and females, and the rates decreased with increasing advantage. The rates for males and females in the most disadvantaged group were nearly double those of the least disadvantaged group (Table 4; Figure 6). Socioeconomic status did not seem to influence the choice of drug or other method used in deliberate self-harm.

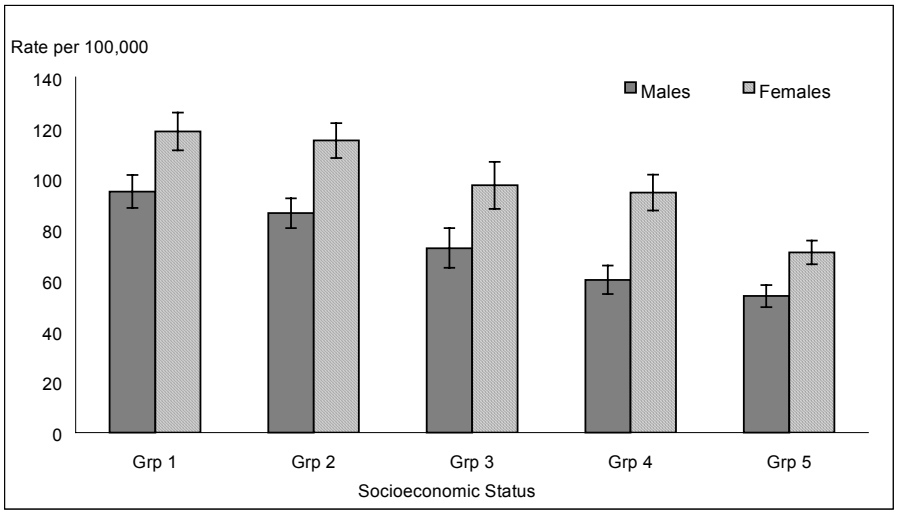
Table 4 Numbers and age-standardised rates for first admission for deliberate self-harm by socioeconomic status and gender

Western Australia, 1994-98

Socioeconomic status[3]	Males				Females			
	No.	ASR[1,2] per 100,000			No.	ASR[1,2] per 100,000		
Group 1	823	95.0	(88.5-101.5)	▲	964	118.6	(111.1-126.1)	▲
Group 2	833	86.5	(80.6-92.4)	▲	1,099	115.1	(108.3-121.9)	▲
Group 3	342	72.7	(64.9-80.4)		432	97.4	(88.2-106.7)	
Group 4	452	60.2	(54.6-65.8)		696	94.6	(87.6-101.7)	
Group 5	612	53.8	(49.5-58.1)		874	71.0	(66.2-75.7)	

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 Group 1 is most disadvantaged and Group 5 is least disadvantaged
▲ Significantly high rates compared to Groups 3-5 ($p < 0.05$)

Figure 6 Age-standardised rates for first admission for deliberate self-harm, by socioeconomic status and gender, Western Australia, 1994 to 1998



4 Metropolitan, rural and remote variations

4.1 Numbers and age-standardised rates

In 1998, the age-standardised admission rates (per 100,000 person years) for deliberate self-harm hospital admissions in the metropolitan, rural and remote areas were:

- Metropolitan area – males 126.6; females 181.9
- Rural areas – males 131.0; females 185.6
- Remote areas – males 141.3; females 177.8 (Appendix Table 6).

Although in 1998 remote areas had the highest admission rate for deliberate self-harm among males and rural areas had the highest rate for females, this was not the case throughout all the 18-year period. The highest rates for males were found among those living in the metropolitan area in the earlier years, whereas in the later years males living in remote areas had the highest rates. Overall, however, the metropolitan area had the highest rate for males (metropolitan: 120.5 per 100,000; remote: 113.7; rural: 92.8) (Figure 7; Table 5; Appendix Table 6).

For females, the highest rates occurred in the metropolitan and remote areas in the earlier years, then for seven consecutive years the highest rates were found in remote areas and for the last three years in rural areas. Hence, over the whole period, remote areas had the highest admission rate for deliberate self-harm (remote: 191.2 per 100,000; metropolitan: 176.5; rural 153.5) (Figure 7; Table 5; Appendix Table 6).

Table 5 Numbers and admission rates for deliberate self-harm (DSH), by gender and area for selected methods

Western Australia, 1981 to 1998

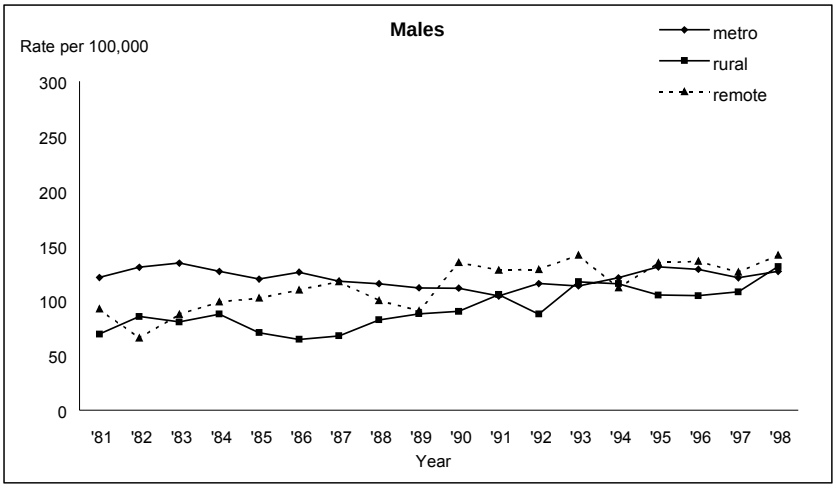
	Drugs			Cutting/piercing			All DSH		
Year	No.	ASR[1,2] per 100,000		No.	ASR[1,2] per 100,000		No.	ASR[1,2] per 100,000	
Males									
Metropolitan	9,754	91.6	(89.8-93.4)	1,476	13.9	(13.2-14.6)	12,819	120.5	(118.4-122.6)
Rural	1,621	66.1	(62.9-69.3)	2,276	92.8	(88.9-96.6)	2,276	92.8	(88.9-96.6)
Remote	813	64.4	(59.7-69.0)	379	28.5	(25.5-31.4)	1,453	113.7	(107.6-119.9)
Females									
Metropolitan	17,098	159.0	(156.6-161.4)	1,055	9.8	(9.2-10.4)	18,982	176.5	(174.0-179.0)
Rural	3,033	134.8	(130.0-139.6)	3,451	153.5	(148.3-158.6)	3,451	153.5	(148.3-158.6)
Remote	1,579	154.6	(146.7-162.5)	256	22.7	(19.9-25.5)	1,980	191.2	(182.5-200.0)

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals

Admission rates for deliberate self-harm have shown significant changes over the period 1981 to 1998.

- In the metropolitan area the admission rate for females decreased significantly (by an average of 0.8% per year), but there was no significant change for males.
- Rural areas showed a significant increase for both males and females (males 3.4% per year; females 2.3%).
- Remote areas showed a significant increase for both males and females (males 3.3% per year; females 1.2%) (Figure 7; Table 6).

Figure 7 Age-standardised admission rates for all deliberate self-harm by gender, area and year, Western Australia, 1981 to 1998



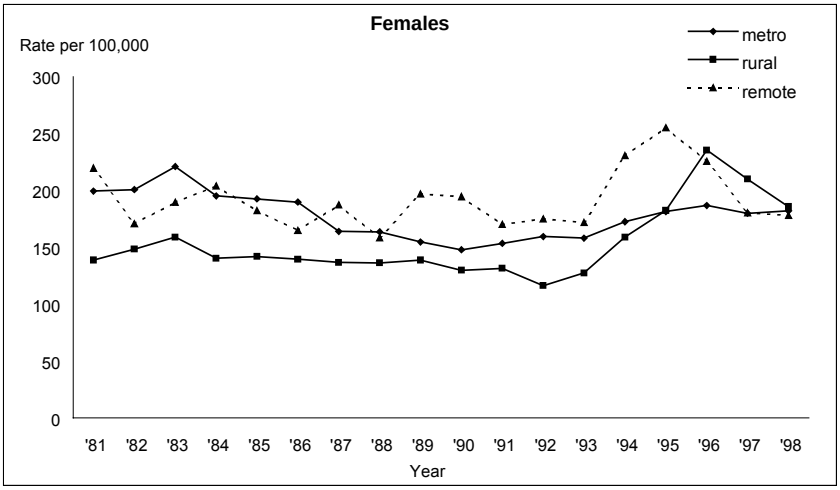


Table 6 Average annual changes in age-standardised rates for deliberate self-harm (DSH), admissions by gender, area and selected methods

Western Australia, 1981 to 1998

		Males (%)		Females (%)	
Metro					
	Drugs	-1.0	(S)	-1.3	(S)
	Cutting/piercing	2.0	(S)	5.7	(S)
	All DSH	-0.1	(NS)	-0.8	(S)
Rural					
	Drugs	1.2	(S)	0.9	(S)
	All DSH	3.4	(S)	2.3	(S)
Remote					
	Drugs	-1.5	(S)	-1.3	(S)
	All DSH	3.3	(S)	1.2	(S)
State					
	Drugs	-0.6	(S)	-0.9	(S)
	Cutting/piercing	5.1	(S)	8.6	(S)
	All DSH	0.8	(S)	-0.1	(NS)

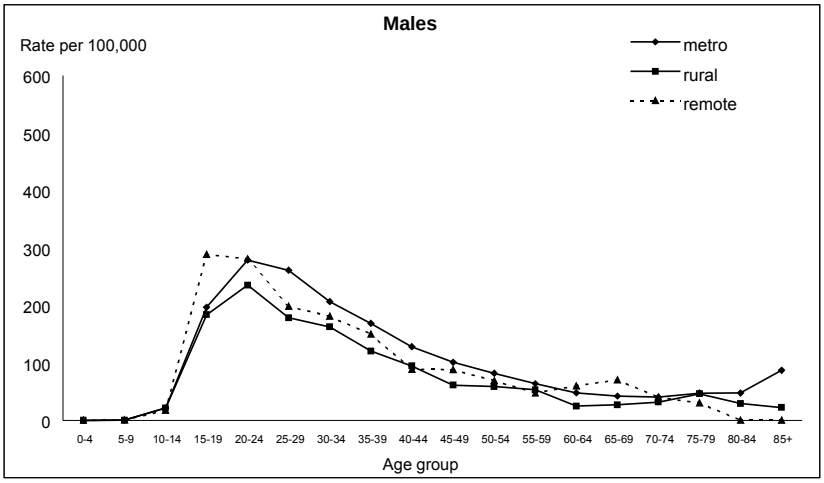
Notes: S = significant ($p \leq 0.05$); NS = not significant ($p > 0.05$)
For methods not included here the number of admissions was too low to do trend analysis

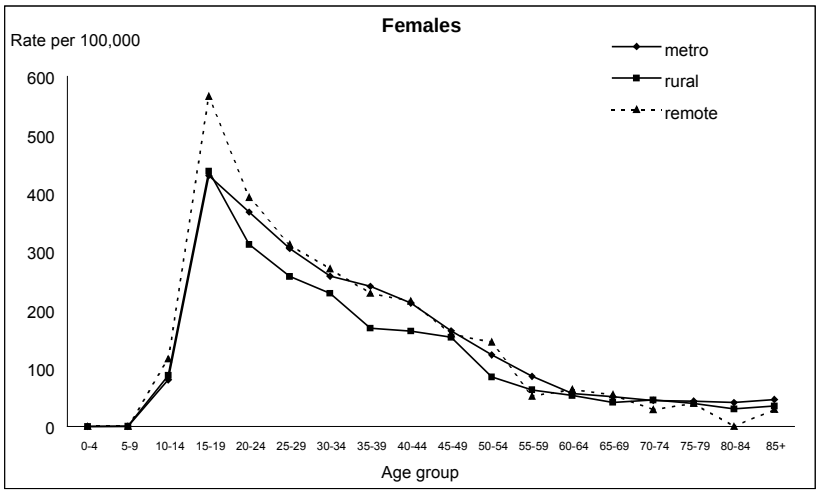
4.2 Age-specific rates

For the period 1981 to 1998, the highest admission rates for deliberate self-harm among males were in the 20-24 year age group for the metropolitan and rural areas (278.7 and 235.0 admissions per 100,000 respectively). This age group also had the highest admission rates for male deliberate self-harm statewide. In remote areas rates for males were highest in the 15-19 year age group (288.7 per 100,000). Female admission rates for deliberate self-harm were highest in the 15-19 year age group for all areas (metropolitan 429.9; rural 437.3 and remote 565.8 per 100,000) (Figure 8).

The majority of admissions occurred in the younger age groups. Rates were higher than 150 admissions per 100,000 for metropolitan males in the 15 to 39 year age groups and for rural and remote males in the 15 to 34 year age groups. Rates were higher than 250 admissions per 100,000 for metropolitan and remote females in the 15 to 34 year age groups and for rural females in the 15 to 29 year age groups (Figure 8).

Figure 8 Age-specific admission rates for deliberate self-harm by gender, area and age group, Western Australia, 1981 to 1998





4.3 Methods of deliberate self-harm

The use of drugs was by far the most common method of deliberate self-harm for both sexes in all areas over the period studied. However, males in remote areas used cutting/piercing as commonly as drugs from 1993 onwards (Figure 9; Appendix Tables 7 and 8). In all areas, the number of admissions for other methods was very low and trends could not be observed (Appendix Tables 9-11).

For deliberate self-harm using drugs over the period 1981-1998, in the metropolitan area there were 9,754 admissions for males (76% of all deliberate self-harm admissions for metro males) and 17,098 admissions for females (90% of all deliberate self-harm admissions for metro females). In rural areas there were 1,621 admissions for males (71% of all deliberate self-harm admissions for rural males) and 3,033 admissions for rural females (88% of all deliberate self-harm admissions for rural females). In remote areas there were 813 admissions for males (56% of all deliberate self-harm admissions for remote males), and 1,579 admissions for females (80% of all deliberate self-harm admissions for remote females) (Table 5).

Deliberate self-harm involving cutting and piercing over the period 1981-1998 accounted for 26% of all deliberate self-harm admissions for remote males (379 admissions) and 13% for remote females (256 admissions) (Table 5).

4.4 Trends

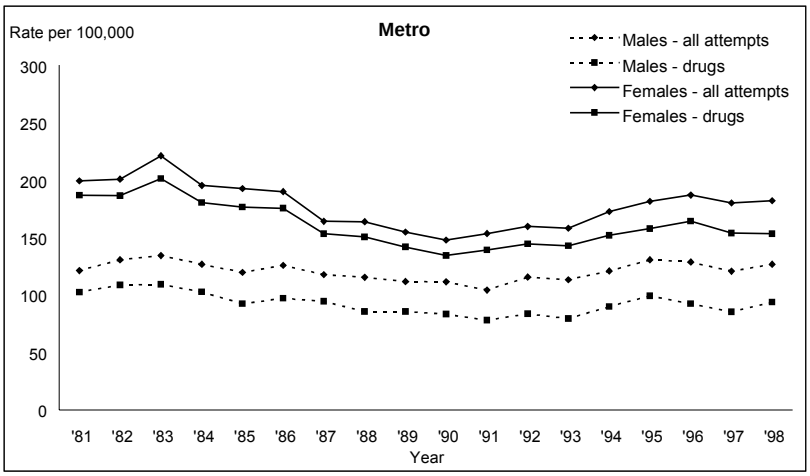
There have been some significant trends in the rate of hospital admissions due to deliberate self-harm over the period.

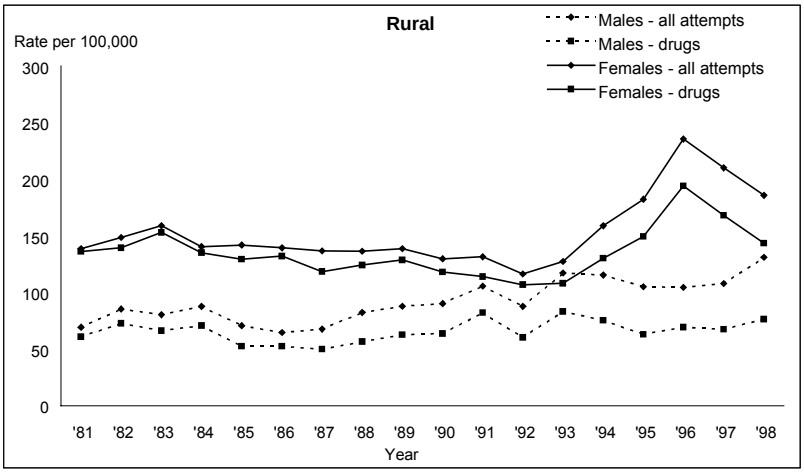
In the metropolitan area, the rate of admissions for deliberate self-harm using drugs significantly decreased for both males (by an average of 1.0% per year) and females (by 1.3%), whilst the use of cutting/piercing significantly increased for both males (by 2.0%) and females (by 5.7%) (Figure 9; Table 6).

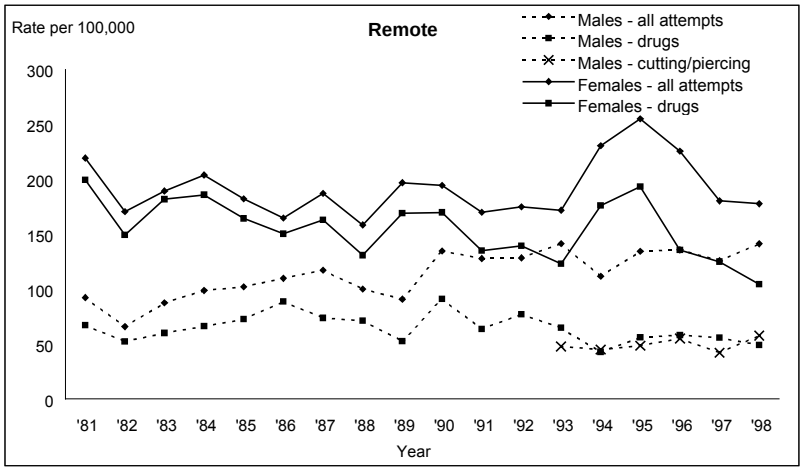
In rural areas, the rate of admissions for deliberate self-harm using drugs significantly increased (males by 1.2%; females by 0.9%). The numbers of admissions for deliberate self-harm using cutting/piercing were too low to calculate rates and determine trends in rural areas (Figure 9; Table 6; Appendix Table 8).

In remote areas, the rate of admissions for deliberate self-harm using drugs significantly decreased for both males (by 1.5%) and females (by 1.3%). From 1993, males living in remote areas were admitted to hospital for deliberate self-harm involving cutting/piercing as commonly as for deliberate self-harm involving drugs, indicating an increase in the use of cutting/piercing. However, this was not statistically tested, because the number of admissions was too low until 1993. (Figure 9; Table 6; Appendix Table 8). The number of admissions for cutting/piercing for remote females was too low to calculate rates and determine trends. However, the number of admissions for deliberate self-harm using cutting/piercing has increased over the period (Appendix Table 8).

Figure 9 Age-standardised admission rates for all deliberate self-harm and for deliberate self-harm using drugs by area and gender, Western Australia, 1981 to 1998







Note: Rates of deliberate self-harm were not shown for methods which were responsible for less than 30 hospital admissions per year over the 18-year period

5 The Aboriginal population

5.1 Numbers and age-standardised rates

Over the period 1981-1998, there were 3,090 hospital admissions for Aboriginal people committing deliberate self-harm (males 1,268; females 1,822) – an average of 70 admissions per year for males and 101 admissions per year for females (Table 7). This represents about 7.5% of the State average number of admissions for deliberate self-harm per year.

The age-standardised admission rate for deliberate self-harm among Aboriginal males in 1998 was 543.4 admissions per 100,000 population and 536.0 for Aboriginal females. For the 18-year period, Aboriginal male and female rates were about three times higher than the total State male and female rates (Figure 10).

Table 7 Numbers, percentages and age-standardised rates for admissions for deliberate self-harm (DSH), among Aboriginal people, by gender and method

Western Australia, 1981-98

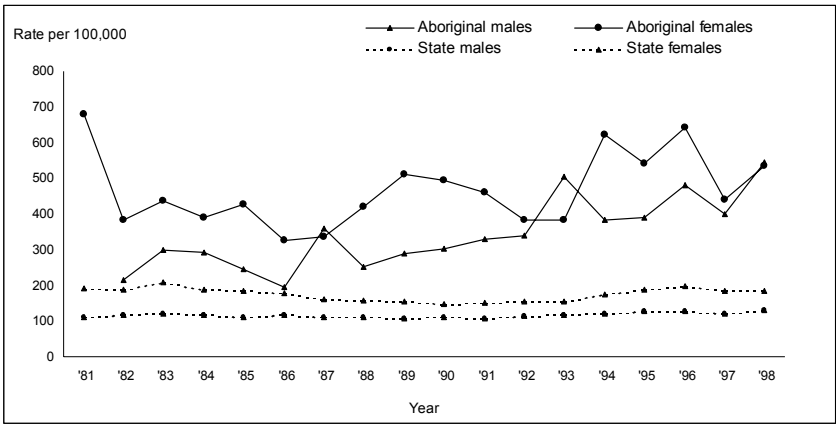
	Numbers	Percentage	ASR[1,2] per 100,000	
Males				
Drugs	612	48.3	175.1	(160.2-190.1)
Cutting/piercing	416	32.8	113.5	(101.9-125.2)
Poisons	78	6.2	19.5	(14.7-24.2)
Hanging	46	3.6	11.2	(7.8-14.7)
Firearms	30	2.4	9.5	(5.8-13.3)
Carbon monoxide	3	0.2	*	*
Other methods	83	6.5	21.8	(16.7-26.9)
All DSH	*1,268*	*100.0*	*351.4*	*(330.6-372.2)*
Females				
Drugs	1,369	75.2	358.7	(338.4-379.1)
Cutting/piercing	319	17.5	77.8	(68.9-86.7)
Poisons	59	3.2	16.4	(11.8-21.0)
Hanging	14	0.8	*	*
Firearms	2	0.1	*	*
Carbon monoxide	2	0.1	*	*
Other methods	57	3.1	16.6	(11.9-21.2)
All DSH	*1,822*	*100.0*	*473.2*	*(450.0-496.4)*

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
* Number of admissions too low to calculate rates

For most of the period studied, the Aboriginal rate for females was generally higher than for males (Figure 10). For the whole period the rate was 351.4 admissions per 100,000 for Aboriginal males and 473.2 for Aboriginal females.

The rates increased significantly over the period by an average of 4.7% per year for Aboriginal males (1982 to 1998) and 1.6% per year for Aboriginal females (1981 to 1998) (Figure 10). The reason for the different time periods for males and females is that the number of males hospitalised for deliberate self-harm was too low to calculate rates in 1981.

Figure 10 Age-standardised deliberate self-harm admission rates in the Aboriginal and total State populations, Western Australia, 1981 to 1998



5.2 Methods of deliberate self-harm

The use of drugs was the most common method of deliberate self-harm for the period 1981 to 1998, but the patterns of methods of deliberate self-harm varied throughout the years for both Aboriginal males and females.

For the period 1981 to 1998, Aboriginal males using drugs in deliberate self-harm accounted for 612 admissions (48% of all deliberate self-harm admissions amongst Aboriginal males), while females accounted for 1,369 admissions (75% of all deliberate self-harm admissions amongst Aboriginal females). For Aboriginal males, admissions due to deliberate self-harm involving cutting/piercing accounted for 33% of all deliberate self-harm (416 admissions), whereas for Aboriginal females, the contribution of cutting/piercing was 18% of all deliberate self-harm (319 admissions) (Table 7).

For Aboriginal males, drugs were used most commonly in deliberate self-harm in the earlier years, whereas since 1993, cutting/piercing has become as common as the use of drugs. The numbers of admissions for deliberate self-harm involving other methods have remained low with insufficient numbers to observe trends (Table 7; Appendix Tables 12-14).

For Aboriginal females, drugs were the most commonly used method in deliberate self-harm, with no significant change over the period. Rates of admissions for deliberate self-harm involving cutting/piercing could be calculated from 1994, but the numbers for deliberate self-harm involving other methods remained very low with insufficient numbers to observe trends (Table 7; Appendix Tables 12-14).

For drug-caused deliberate self-harm, 'other' drugs were used most commonly among the Aboriginal population (males 83.3 admissions per 100,000 population; females 158.2), whereas for the whole State, tranquillisers and other psychotropic agents were the most commonly used drugs. The numbers of admissions for the various drugs were too low to determine any statistically significant trends over the period (Table 8; Appendix Table 14).

Table 8 Numbers, percentages and age-standardised rates for admissions for deliberate self-harm using drugs among the Aboriginal population

Western Australia, 1981-98

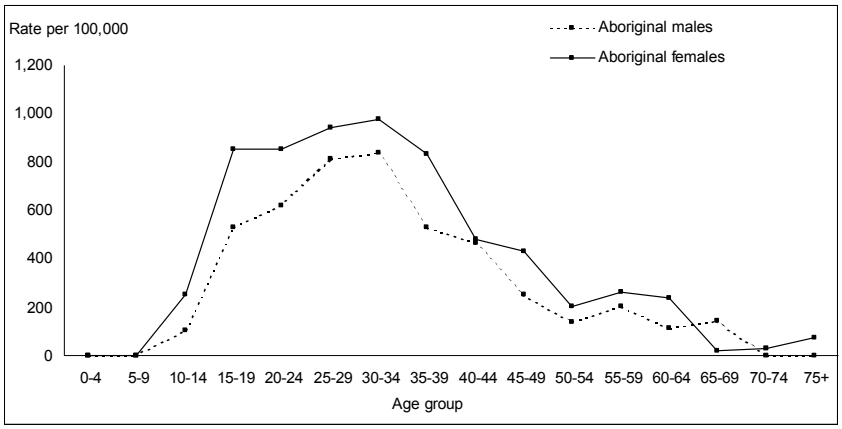
	Numbers	Percentage of all drugs	ASR[1,2] per 100,000	
Males				
Other drugs	288	47.0	83.3	(72.9-93.7)
Tranquillisers and other psychotropic agents excluding antidepressants	182	29.7	52.3	(44.1-60.4)
Analgesics, antipyretics and antirheumatics	82	13.4	21.8	(16.8-26.9)
Antidepressants	40	6.5	12.0	(8.0-16.1)
Barbiturates, other sedatives and hypnotics	20	3.3	*	*
All drugs	*612*	*100.0*	*175.1*	*(160.2-190.1)*
Females				
Other drugs	613	44.8	158.2	(144.7-171.7)
Tranquillisers and other psychotropic agents excluding antidepressants	356	26.0	99.0	(87.9-110.0)
Analgesics, antipyretics and antirheumatics	231	16.9	53.4	(46.2-60.5)
Antidepressants	117	8.5	33.9	(27.4-40.4)
Barbiturates, other sedatives and hypnotics	52	3.8	14.3	(10.2-18.4)
All drugs	*1,369*	*100.0*	*358.7*	*(338.4-379.1)*

Notes: 1 ASR = age-standardised rates; standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
* Number of admissions too low to calculate rate

5.3 Age-specific rates

Overall, Aboriginal males and females aged between 30 and 34 years had the highest admission rate (males 837.4 admissions per 100,000; females 975.3). However, the rates were high for all Aboriginal people aged between 15 and 39 years. The patterns of age-specific rates for Aboriginal males and females differed slightly from their State equivalents with Aboriginal rates remaining high until the 30-34 years age group before decreasing with age (Figure 11).

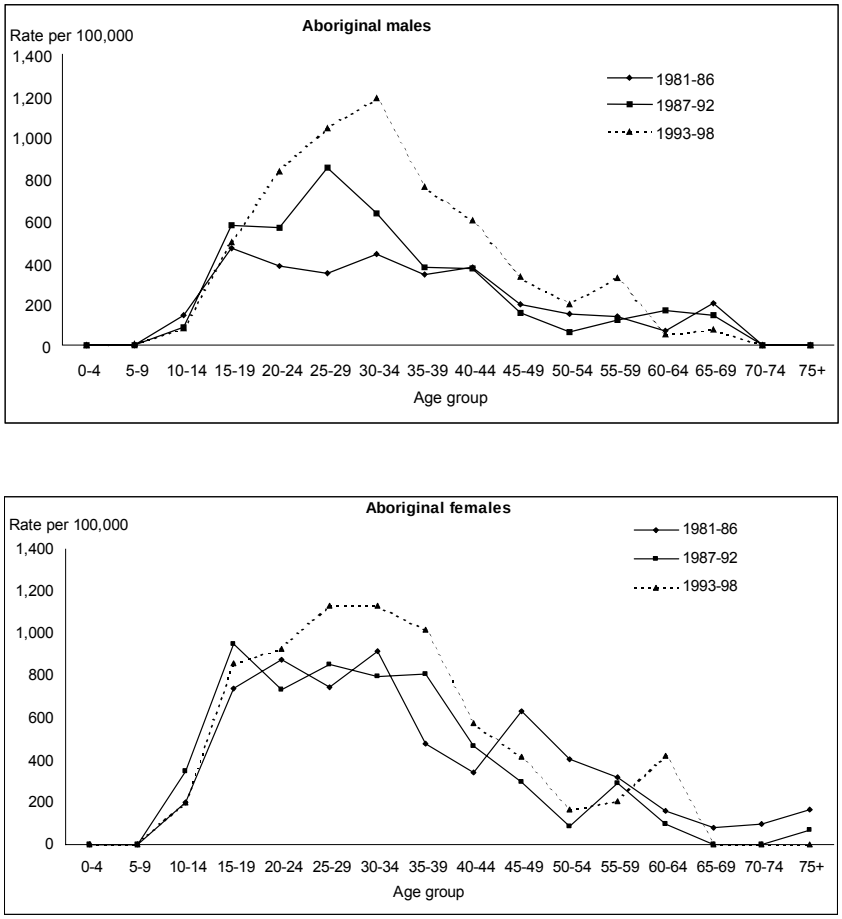
Figure 11 Age-specific admission rates for deliberate self-harm among the Aboriginal population, Western Australia, 1981 to 1998



The age group with the highest deliberate self-harm admission rate among Aboriginal people varied from year to year so the 18-year period was divided into three 6-year periods. For Aboriginal males, for 1981-1986, the age group with the highest admission rate was the 15-19 year age group (466.4 admissions per 100,000), for 1987-1992, the 25-29 year age group (854.6) and for 1993-1998, the 30-34 year age group (1,188). The age-specific rates for the age groups 20-24 to 35-39 years increased progressively over the three periods.

For Aboriginal females in 1981-1986, deliberate self-harm rates were highest in the 30-34 year age group (918.2 admissions per 100,000), for 1987-1992 the 15-19 year age group (947.8), and for 1993-1998, the 30-34 year age group (1,134) (Figure 12). The age-specific rates were highest in the period 1993-1998 for the age groups 20-24 to 35-39.

Figure 12 Age-specific admission rates for deliberate self-harm among the Aboriginal population, by time period, Western Australia, 1981 to 1998

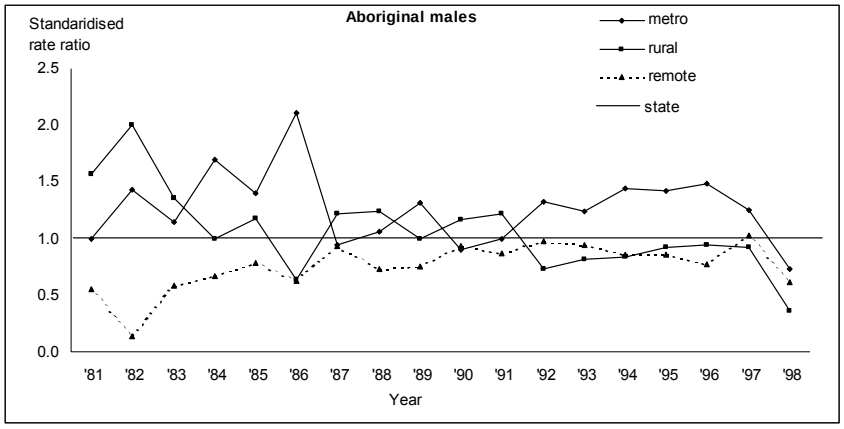


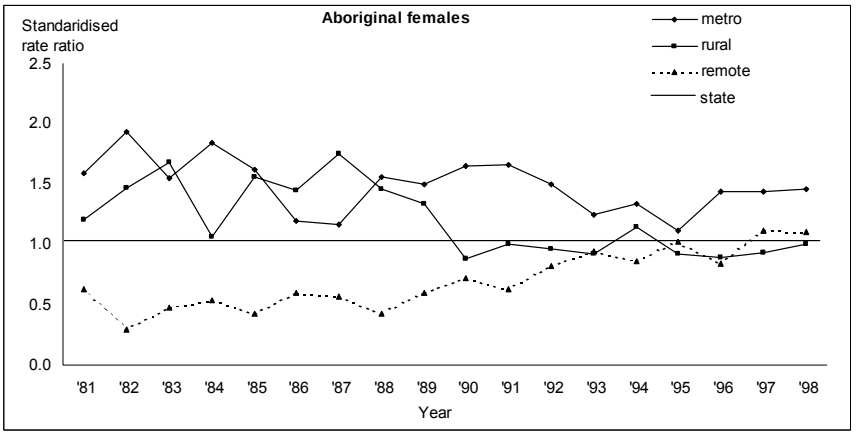
5.4 Metropolitan, rural and remote variations among the Aboriginal population

5.4.1 Numbers, standardised rate ratios and age-standardised rates

Due to the small number of admissions for deliberate self-harm among the Aboriginal population, it was difficult to compare rates in the various areas of Western Australia. To overcome this limitation, standardised rate ratios were calculated. Aboriginal people living in the metropolitan area had higher rate ratios than Aboriginal people statewide, while Aboriginal people living in remote areas had lower rate ratios than their counterparts statewide for most of the period studied. Aboriginal people living in rural areas had higher rates in the earlier years and lower rates for more recent years compared to Aboriginal people statewide (Figure 13).

Figure 13 Standardised rate ratios for deliberate self-harm admissions among the Aboriginal population, Western Australia, 1981 to 1998





To measure changes in deliberate self-harm admission rates over time for Aboriginal people living in the metropolitan, rural and remote areas, age-standardised rates were calculated for 1981-86, 1987-92 and 1993-98.

For the period 1993-1998, the age-standardised rates for Aboriginal males were 582.7 deliberate self-harm admissions per 100,000 in the metropolitan area, 393.4 in rural areas, and 397.2 in remote areas. For Aboriginal females the rates were 656.0 in the metropolitan area, 496.0 in rural areas and 455.1 in remote areas (Table 9).

There was a significant increase in rates between the 1987-92 and 1993-98 periods for Aboriginal males living in the metropolitan area and Aboriginal females living in remote areas. There was also an increase between all periods for Aboriginal males living in remote areas (Table 9).

Overall, the deliberate self-harm admission rates for Aboriginal males were 436.9 admissions per 100,000 in the metropolitan area, 363.6 in rural areas, and 279.4 in remote areas. For Aboriginal females the rates were, 655.1 in the metropolitan area, 516.6 in rural areas and 324.0 in remote areas. Hence, the metropolitan area had the highest rates and the remote areas the lowest rates for Aboriginal males and females (Table 9).

Table 9 Numbers and age-standardised admission rates for deliberate self-harm among the Aboriginal population, by area, gender and time period

Western Australia, 1981-86, 1987-92, 1993-98

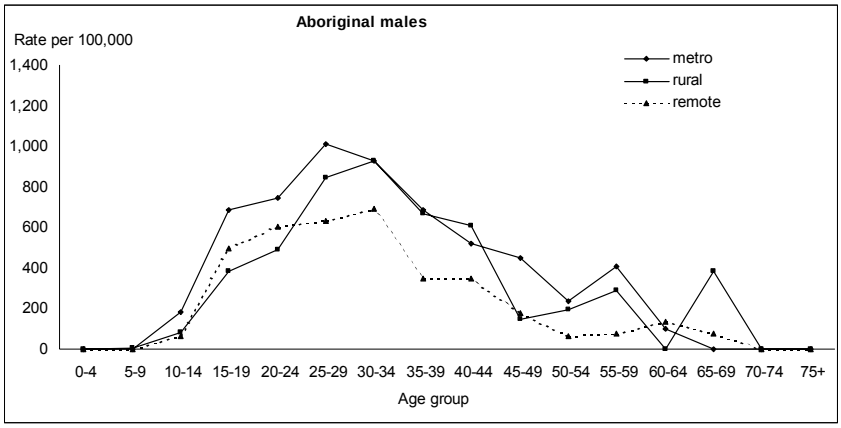
	Metro			Rural			Remote		
Years	**No.**	**ASR[1,2] per 100,000**		**No.**	**ASR[1,2] per 100,000**		**No.**	**ASR[1,2] per 100,000**	
Aboriginal Males									
1981-86	89	325.8	(246.6-405.1)	80	311.7	(235.4-388.0)	62	133.7	(97.7-169.7)
1987-92	122	333.3	(265.2-401.4)	117	357.7	(286.9-428.5)	148	261.1	(216.4-305.7)
1993-98	236	582.7	(503.9-661.6)	147	393.4	(327.1-459.6)	246	397.2	(345.2-449.2)
All years (1981-98)	*447*	*436.9*	*(392.1-481.8)*	*344*	*363.6*	*(321.9-405.4)*	*456*	*279.4*	*(252.4-306.5)*
Aboriginal Females									
1981-86	197	681.4	(571.7-791.0)	158	584.0	(475.3-692.6)	94	201.6	(157.8-245.4)
1987-92	241	619.1	(535.2-703.0)	185	495.3	(418.5-572.1)	154	267.2	(222.3-312.0)
1993-98	278	656.0	(576.2-735.9)	202	496.0	(420.9-571.1)	301	455.1	(402.0-508.1)
All years (1981-98)	*716*	*655.1*	*(603.6-706.6)*	*545*	*516.6*	*(468.2-564.9)*	*549*	*324.0*	*(295.6-352.4)*

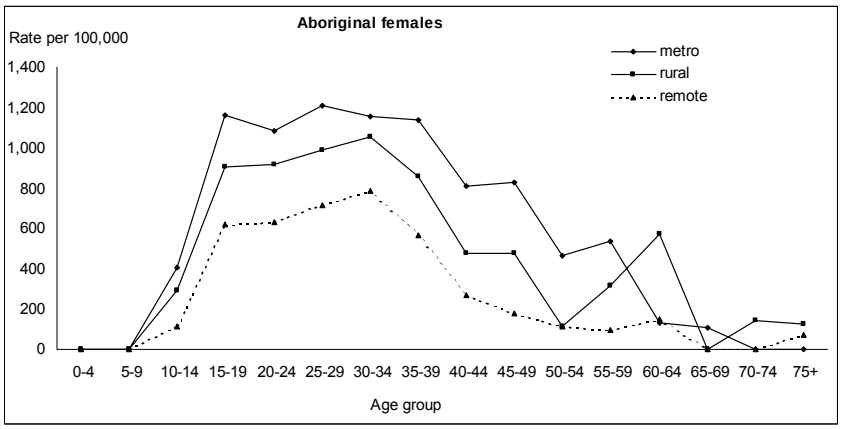
Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals

5.4.2 Age-specific rates

To determine the age group with the highest age-specific admission rate for deliberate self-harm in each area, admissions for the whole 18-year period were combined. For the metropolitan area, rates were highest in the 25-29 years age group (males 1,008 admissions per 100,000 population; females 1,208). For the rural and remote areas, rates were highest in the 30-34 years age group (rural: males 926 per 100,000; females 1,054; remote: males 689; females 785) (Figure 14).

Figure 14 Age-specific admission rates for deliberate self-harm among the Aboriginal population, by area and gender, Western Australia, 1981 to 1998





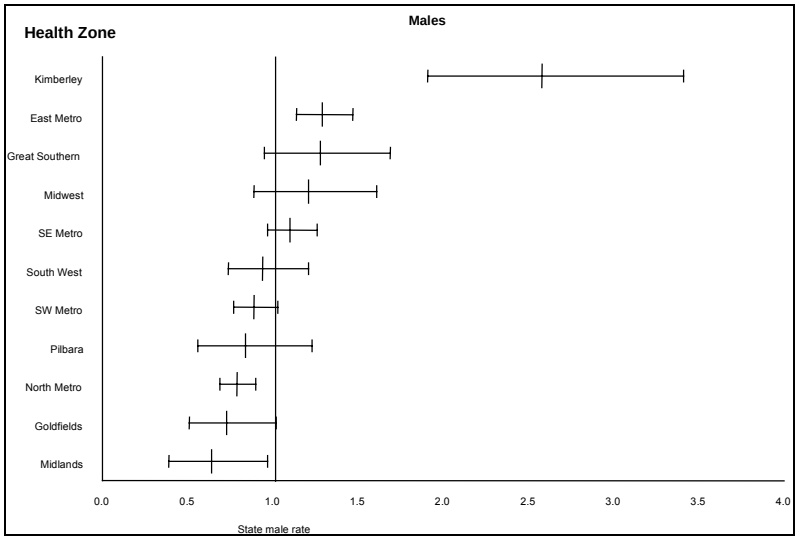
6 Health Zones

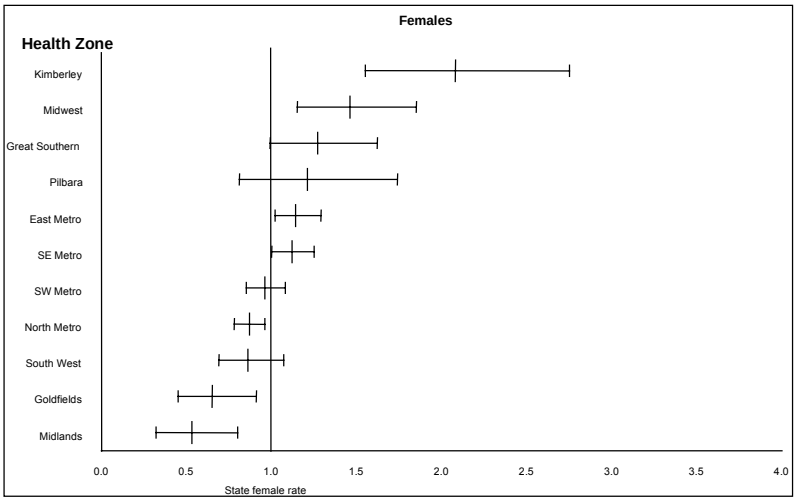
Due to the small number of admissions due to deliberate self-harm in some Health Zones, standardised rate ratios (SRR) were calculated to allow Health Zones to be compared with the State (Figures 1 and 2). To measure the size of the problem of deliberate self-harm admissions and changes over time, age-standardised rates were calculated for 1981-86, 1987-92 and 1993-98 for each Health Zone.

In 1998, the SRR for admissions due to deliberate self-harm was highest in the Kimberley Health Zone. The rate for Kimberley males was more than two-and-a-half times that of the State male rate and the rate for females more than twice the State female rate. Rates for both genders in the East Metropolitan Health Zone were significantly higher than the State gender-specific rates, as was the rate for females in the Midwest Health Zone. Both genders in the North Metropolitan and Midlands Health Zones had admission rates significantly lower than the respective State sex-specific rates, as did females in the Goldfields Health Zone (Figure 15).

The following sections provide a description of the number of admissions, rates, methods used, age at admission and changes over time in each Health Zone.

Figure 15 Standardised rate ratios for deliberate self-harm admissions by Health Zones and gender, 1998





6.1 North Metropolitan Health Zone

Between 1981 and 1998 there were 8,965 hospital admissions for deliberate self-harm by residents of the North Metropolitan Health Zone (males 3,389; females 5,576) – an average of 188 admissions per year for males and 310 admissions per year for females (Table 10).

Overall, the deliberate self-harm admission rate for males in this Health Zone was 94.0 per 100,000 and 150.3 for females (Table 10). These were significantly lower than the State rates (males 117.2; females 175.0). Over the periods 1981-86, 1987-92 and 1993-98, admission rates for deliberate self-harm significantly decreased over the whole period for females, whereas males showed a significant decrease between the first and second period, but no significant change overall (Table 11).

The SRR showed that males in this Health Zone had lower rates than State males throughout 1981 to 1998, and females had lower rates than State females, except in 1984 (Figure 16).

Table 10 Numbers, percentages and age-standardised rates of admissions for deliberate self-harm (DSH), by method and gender, North Metropolitan Health Zone

North Metropolitan Health Zone, 1981-98

	Number	Percentage	ASR[1,2] per 100,000		
Males					
Drugs	2,593	76.5	71.7	(69.0-74.5)	▼
Cutting/piercing	344	10.2	9.6	(8.6-10.6)	
Poisons	120	3.5	3.3	(2.7-3.9)	
Carbon monoxide	121	3.6	3.4	(2.8-4.0)	
Hanging	32	0.9	0.9	(0.6-1.2)	
Firearms	9	0.3	*	*	
Other methods	170	5.0	4.8	(4.1-5.5)	
All DSH	*3,389*	*100.0*	*94.0*	*(90.8-97.2)*	
Females					
Drugs	4,998	89.6	134.7	(131.0-138.5)	▼
Cutting/piercing	315	5.6	8.5	(7.6-9.5)	
Poisons	98	1.8	2.6	(2.1-3.1)	
Carbon monoxide	34	0.6	0.9	(0.6-1.2)	
Hanging	9	0.2	*	*	
Firearms	0	0.0	*	*	
Other methods	122	2.2	3.3	(2.7-3.9)	
All DSH	*5,576*	*100.0*	*150.3*	*(146.4-154.3)*	▼

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
* Number of admissions too low to calculate rates

Drugs were the most common method of deliberate self-harm in this Health Zone, accounting for 77% of all deliberate self-harm admissions for males and 90% for females. Overall, the admission rate for deliberate self-harm using drugs was 71.7 per 100,000 for males and 134.7 for females. The rate for cutting/piercing, the next most common method, was 9.6 for males and 8.5 for females (Table 10).

Over the periods 1981-86, 1987-92 and 1993-98, rates for deliberate self-harm using drugs significantly decreased over the whole period for both sexes, and rates for deliberate self-harm involving cutting/piercing among females significantly increased between the second and third period, although there was no significant change over the whole period (Tables 10 and 11). Rates for other methods were not calculated as the numbers of admissions were too low (Appendix Table 15).

The age groups with the highest deliberate self-harm admission rates varied annually, but overall, males aged 25-29 years had the highest admission rate (209.4 admissions per 100,000), and females aged 15-19 years had the highest rate (342.0) (Figure 17).

Table 11 Number of admissions and age-standardised admission rates for deliberate self-harm, using drugs, cutting and piercing, and all deliberate self-harm (DSH), North Metropolitan Health Zone

North Metropolitan Health Zone, 1981-86, 1987-92, 1993-98

Period	All DSH				Drugs				Cutting/piercing			
	No.	ASR[1,2] per 100,000			No.	ASR[1,2] per 100,000			No.	ASR[1,2] per 100,000		
Males												
1981-86	1,072	103.9	(97.6-110.3)		856	82.5	(76.9-88.1)		101	10.0	(8.0-12.1)	
1987-92	1,064	86.7	(81.5-91.9)	▼	813	66.0	(61.5-70.6)	▼	114	9.4	(7.6-11.1)	
1993-98	1,253	93.0	(87.8-98.1)		924	68.5	(64.0-72.9)		129	9.6	(8.0-11.3)	
Females												
1981-86	1,880	177.1	(169.1-185.1)		1,705	160.7	(153.0-168.3)		88	8.1	(6.4-9.8)	
1987-92	1,664	131.8	(125.4-138.1)	▼	1,513	119.8	(113.8-125.9)	▼	79	6.3	(4.9-7.7)	
1993-98	2,032	146.3	(139.9-152.7)		1,780	128.1	(122.1-134.0)		148	10.8	(9.0-12.5)	▲

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively

Figure 16 Standardised rate ratios for deliberate self-harm admissions, North Metropolitan Health Zone, 1981 to 1998

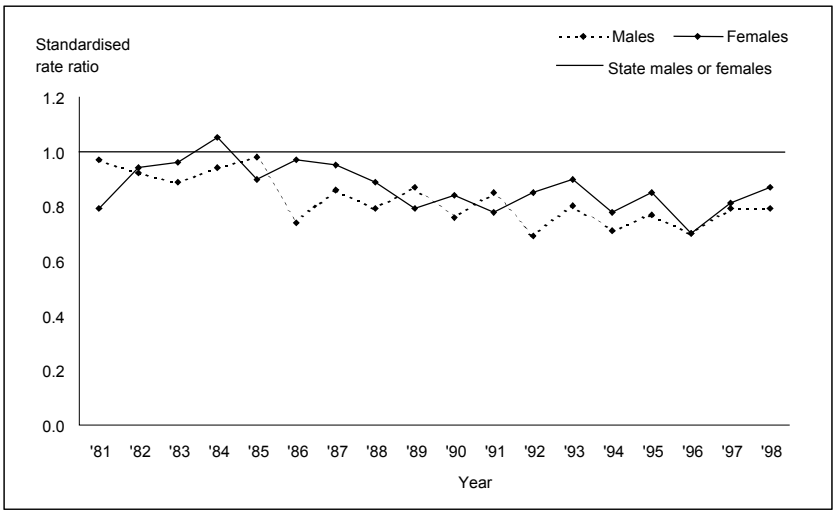
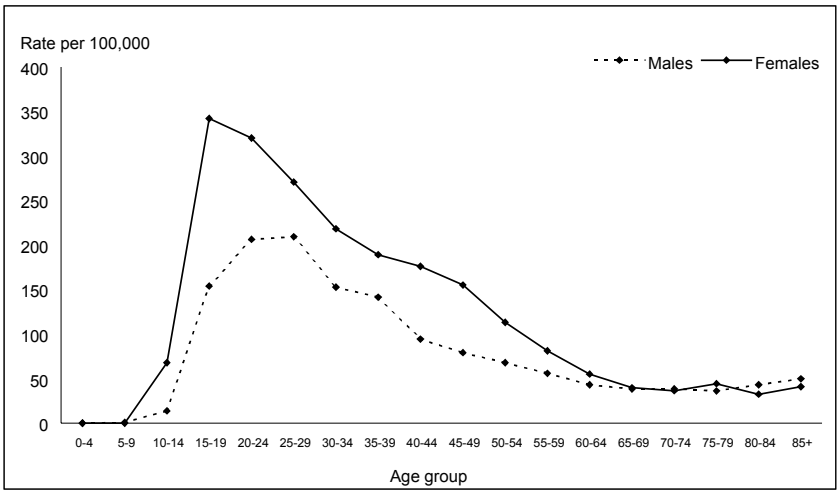


Figure 17 Age-specific admission rates for deliberate self-harm, North Metropolitan Health Zone, 1981 to 1998



6.2 East Metropolitan Health Zone

Between 1981 and 1998 there were 8,538 hospital admissions for deliberate self-harm by residents of the East Metropolitan Health Zone (males 3,618; females 4,920) – an average of 201 admissions per year for males and 273 admissions per year for females (Table 12).

Overall, the deliberate self-harm admission rate for males in this Health Zone was 162.0 per 100,000 and 224.8 for females (Table 12). These were significantly higher than the State rates (males 117.2; females 175.0). Over the periods 1981-86, 1987-92 and 1993-98, admission significantly decreased between the first and second periods, then significantly increased between the second and third periods for both sexes. Overall there was no significant change (Table 13).

The SRR showed that males and females in this Health Zone had higher rates than State males and females throughout 1981 to 1998 (Figure 18).

Table 12 Numbers, percentages and age-standardised rates of admissions for deliberate self-harm (DSH), by method and gender, East Metropolitan Health Zone

East Metropolitan Health Zone, 1981-98

	Number	Percentage	ASR[1,2] per 100,000		
Males					
Drugs	2,856	78.9	127.8	(123.1-132.5)	▼
Cutting/piercing	385	10.6	17.2	(15.4-18.9)	
Poisons	103	2.8	4.6	(3.7-5.5)	
Carbon monoxide	81	2.2	3.6	(2.8-4.4)	
Hanging	31	0.9	1.4	(0.9-1.9)	
Firearms	9	0.2	*	*	
Other methods	153	4.2	7.0	(5.9-8.2)	
All DSH	*3,618*	*100.0*	*162.0*	*(156.7-167.3)*	
Females					
Drugs	4,424	89.9	202.2	(196.3-208.2)	▼
Cutting/piercing	296	6.0	13.4	(11.9-15.0)	▲
Poisons	82	1.7	3.8	(3.0-4.6)	
Carbon monoxide	28	0.6	*	*	
Hanging	12	0.2	*	*	
Firearms	1	0.0	*	*	
Other methods	77	1.6	3.5	(2.7-4.3)	
All DSH	*4,920*	*100.0*	*224.8*	*(218.5-231.1)*	

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
* Number of admissions too low to calculate rates

Drugs were the most common method of deliberate self-harm in this Health Zone, accounting for 79% of all deliberate self-harm admissions for males and 90% for females. Overall, the admission rate for deliberate self-harm using drugs was 127.8 per 100,000 for males and 202.2 for females. The rate for cutting/piercing, the next most common method, was 17.2 for males and 13.4 for females (Table 12).

Over the periods 1981-86, 1987-92 and 1993-98, rates for deliberate self-harm using drugs significantly decreased over the whole period for both sexes. Rates for deliberate self-harm involving cutting/piercing increased between the second and third period for both sexes, although only the rate for females showed a significant increase over the whole period (Tables 12 and 13). Rates for other methods were not calculated as the numbers of admissions were too low (Appendix Table 16).

The age groups with the highest deliberate self-harm admission rates varied annually, but overall, males aged 20-24 years had the highest admission rate (398.5 admissions per 100,000), and females aged 15-19 years had the highest rate (589.9) (Figure 19).

Table 13 Number of admissions and age-standardised admission rates for deliberate self-harm (DSH), using drugs, cutting and piercing, and all deliberate self-harm, East Metropolitan Health Zone

East Metropolitan Health Zone, 1981-86, 1987-92, 1993-98

Period	All DSH				Drugs				Cutting/piercing			
	No.	ASR[1,2] per 100,000			No.	ASR[1,2] per 100,000			No.	ASR[1,2] per 100,000		
Males												
1981-86	1,168	177.5	(167.2-187.8)		967	147.2	(137.8-156.5)		123	18.2	(15.0-21.4)	
1987-92	1,104	146.6	(137.9-155.3)	▼	872	115.7	(108.0-123.4)	▼	101	13.3	(10.7-15.9)	
1993-98	1,346	164.9	(156.1-173.8)	▲	1,017	124.4	(116.7-132.1)		161	19.9	(16.8-22.9)	▲
Females												
1981-86	1,572	243.3	(231.2-255.5)		1,444	223.9	(212.2-235.6)		64	9.4	(7.1-11.7)	
1987-92	1,506	203.0	(192.7-213.2)	▼	1,375	185.3	(175.5-195.1)	▼	87	11.7	(9.2-14.2)	
1993-98	1,842	230.7	(220.2-241.2)	▲	1,605	200.9	(191.1-210.8)		145	18.2	(15.2-21.1)	▲

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively

Figure 18 Standardised rate ratios for deliberate self-harm admissions, East Metropolitan Health Zone, 1981 to 1998

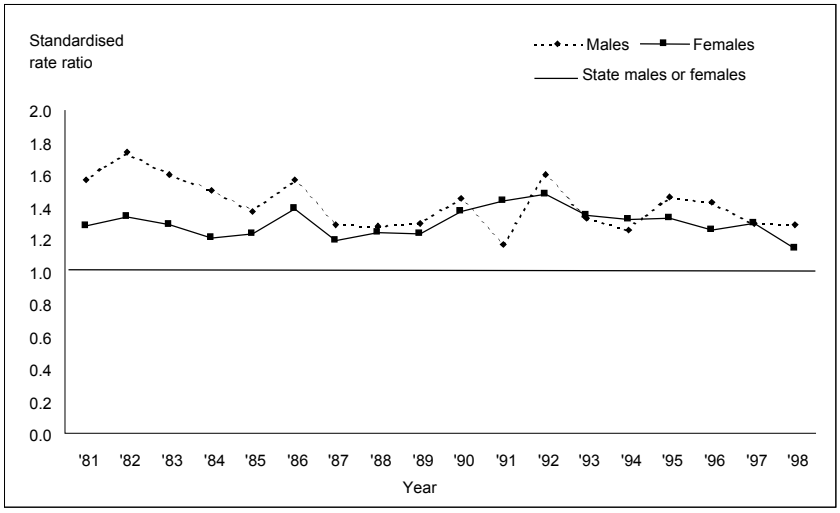
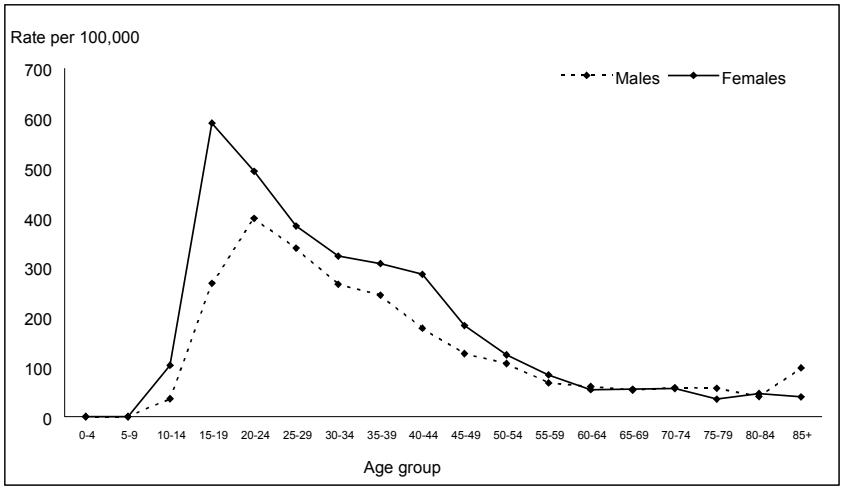


Figure 19 Age-specific admission rates for deliberate self-harm, East Metropolitan Health Zone, 1981 to 1998



6.3 South East Metropolitan Health Zone

Between 1981 and 1998 there were 8,206 hospital admissions for deliberate self-harm by residents of the South East Metropolitan Health Zone (males 3,235; females 4,971) – an average of 180 admissions per year for males and 276 admissions per year for females (Table 14).

Overall, the deliberate self-harm admission rate for males in this Health Zone was 126.9 per 100,000 and 193.6 for females (Table 14). These were significantly higher than the State rates (males 117.2; females 175.0). Over the periods 1981-86, 1987-92 and 1993-98, admission rates for deliberate self-harm significantly increased over the whole period for males, whereas females showed significant changes between the periods, but no significant change overall (Table 15).

The SRR showed that males in this Health Zone had higher rates than State males for most years except for 1983, 1985 and 1993, and females had higher rates than State females, apart from 1995 (Figure 20).

Table 14 Numbers, percentages and age-standardised rates of admissions for deliberate self-harm (DSH), by method and gender, South East Metropolitan Health Zone

South East Metropolitan Health Zone, 1981-98

	Number	Percentage	ASR[1,2] per 100,000		
Males					
Drugs	2,399	74.2	94.2	(90.4-98.0)	
Cutting/piercing	417	12.9	16.2	(14.6-17.7)	▲
Poisons	109	3.4	4.4	(3.5-5.2)	
Carbon monoxide	118	3.6	4.7	(3.9-5.6)	
Hanging	41	1.3	1.6	(1.1-2.0)	
Firearms	14	0.4	*	*	
Other methods	137	4.2	5.4	(4.5-6.3)	
All DSH	*3,235*	*100.0*	*126.9*	*(122.6-131.3)*	▲
Females					
Drugs	4,506	90.6	175.5	(170.4-180.6)	▼
Cutting/piercing	250	5.0	9.6	(8.4-10.8)	▲
Poisons	75	1.5	2.9	(2.3-3.6)	
Carbon monoxide	21	0.4	*	*	
Hanging	13	0.3	*	*	
Firearms	2	0.0	*	*	
Other methods	104	2.1	4.1	(3.3-4.9)	
All DSH	*4,971*	*100.0*	*193.6*	*(188.2-199.0)*	

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
* Number of admissions too low to calculate rates

Drugs were the most common method of deliberate self-harm in this Health Zone, accounting for 74% of all deliberate self-harm admissions for males and 91% for females. Overall, the admission rate for deliberate self-harm using drugs was 94.2 per 100,000 for males and 175.5 for females. The rate for cutting/piercing, the next most common method, was 16.2 for males and 9.6 for females (Table 14).

Over the periods 1981-86, 1987-92 and 1993-98, rates for deliberate self-harm using drugs among females decreased over the whole period, and rates for deliberate self-harm involving cutting/piercing increased over the whole period for both genders (Tables 14 and 15). Rates for other methods were not calculated as the number of admissions was too low (Appendix Table 17).

The age groups with the highest deliberate self-harm admission rates varied annually. Overall, males aged 20-24 years had the highest admission rate (288.1 admissions per 100,000), and females aged 15-19 years had the highest rate (494.4) (Figure 21).

Table 15 Number of admissions and age-standardised admission rates for deliberate self-harm (DSH) using drugs, cutting and piercing, and all deliberate self-harm, South East Metropolitan Health Zone

South East Metropolitan Health Zone, 1981-86, 1987-92, 1993-98

Period	All DSH			Drugs				Cutting/piercing			
	No.	ASR[1,2] per 100,000		No.	ASR[1,2] per 100,000			No.	ASR[1,2] per 100,000		
Males											
1981-86	888	116.4	(108.7-124.2)	708	92.8	(85.9-99.7)		98	12.6	(10.1-15.1)	
1987-92	1,075	122.4	(115.1-129.8)	787	89.8	(83.5-96.1)		137	15.4	(12.8-18.0)	
1993-98	1,272	139.9	(132.2-147.6)	904	99.4	(92.9-105.9)		182	20.0	(17.1-22.9)	
Females											
1981-86	1,640	212.0	(201.7-222.4)	1,523	196.7	(186.8-206.7)		62	8.1	(6.1-10.2)	
1987-92	1,544	175.6	(166.9-184.4)	1,429	162.6	(154.1-171.0)	▼	62	7.0	(5.2-8.7)	
1993-98	1,787	195.5	(186.4-204.6)	1,554	170.2	(161.7-178.6)		126	13.8	(11.4-16.3)	▲

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively

Figure 20 Standardised rate ratios for deliberate self-harm admissions, South East Metropolitan Health Zone, 1981 to 1998

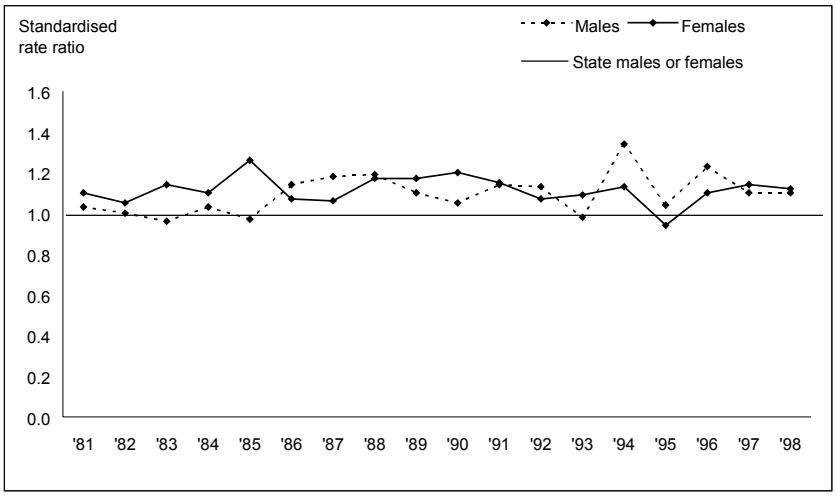
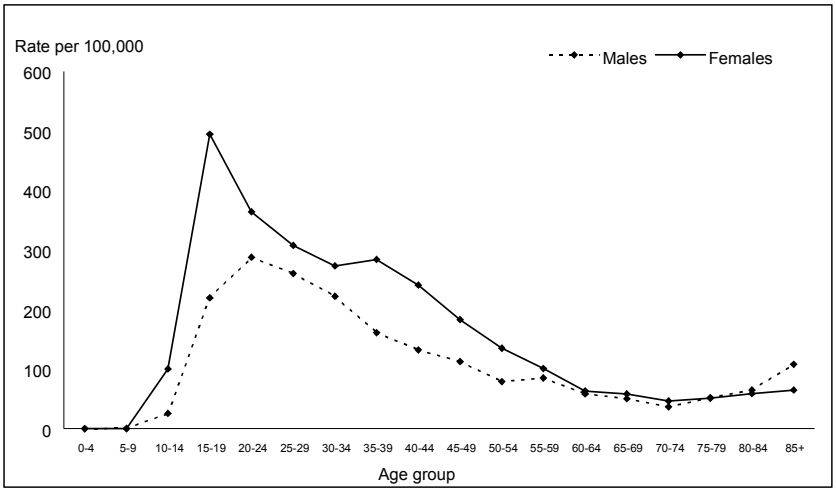


Figure 21 Age-specific admission rates for deliberate self-harm, South East Metropolitan Health Zone, 1981 to 1998



6.4 South West Metropolitan Health Zone

Between 1981 and 1998 there were 6,092 hospital admissions for deliberate self-harm by residents of the South West Metropolitan Health Zone (males 2,577; females 3,515) – an average of 143 admissions per year for males and 195 admissions per year for females (Table 16).

Overall, the deliberate self-harm admission rate for males in this Health Zone was 115.1 per 100,000 and 153.8 for females (Table 16). These were lower than the State rates (males 117.2; females 175.0) but only the female rate was significantly lower. Over the periods 1981-86, 1987-92 and 1993-98, admission rates for deliberate self-harm significantly decreased over the whole period for females, whereas there were no significant changes for males (Table 17).

The SRR showed that male rates in this Health Zone were generally higher than State male rates in the 1980s and lower in the 1990s, and females had lower rates than State females from 1983 onwards (Figure 22).

Table 16 Numbers, percentages and age-standardised rates of admissions for deliberate self-harm (DSH), by method and gender, South East Metropolitan Health Zone

South West Metropolitan Health Zone, 1981-98

	Number	Percentage	ASR[1,2] per 100,000		
Males					
Drugs	1,906	74.0	85.0	(81.2-88.8)	▼
Cutting/piercing	330	12.8	14.9	(13.2-16.5)	
Poisons	94	3.6	4.2	(3.4-5.1)	
Carbon monoxide	67	2.6	3.0	(2.2-3.7)	
Hanging	34	1.3	1.5	(1.0-2.0)	
Firearms	11	0.4	*	*	
Other methods	135	5.2	6.0	(5.0-7.0)	
All DSH	*2,577*	*100.0*	*115.1*	*(110.6-119.5)*	
Females					
Drugs	3,172	90.2	138.7	(133.8-143.5)	▼
Cutting/piercing	194	5.5	8.5	(7.3-9.7)	▲
Poisons	62	1.8	2.7	(2.0-3.3)	
Carbon monoxide	14	0.4	*	*	
Hanging	6	0.2	*	*	
Firearms	2	0.0	*	*	
Other methods	67	1.9	3.0	(2.3-3.7)	
All DSH	*3,517*	*100.0*	*153.8*	*(148.7-158.9)*	▼

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
* Number of admissions too low to calculate rates

Drugs were the most common method of deliberate self-harm in this Health Zone, accounting for 74% of all deliberate self-harm admissions for males and 90% for females. Overall, the admission rate for deliberate self-harm using drugs was 85.0 per 100,000 for males and 138.7 for females. The rate for cutting/piercing, the next most common method, was 14.9 for males and 8.5 for females (Table 16).

Over the periods 1981-86, 1987-92 and 1993-98, rates for deliberate self-harm using drugs decreased over the whole period for both sexes, and rates for deliberate self-harm involving cutting/piercing increased over the whole period for females (Tables 16 and 17). Rates for other methods were not calculated as the number of admissions was too low (Appendix Table 18).

The age groups with the highest deliberate self-harm admission rates varied annually, but overall, males aged 20-24 years had the highest admission rate (267.4 admissions per 100,000), and females aged 15-19 years had the highest rate (350.5) (Figure 23).

Table 17 Number of admissions and age-standardised admission rates for deliberate self-harm (DSH), using drugs, cutting and piercing, and all deliberate self-harm, South West Metropolitan Health Zone

South West Metropolitan Health Zone, 1981-86, 1987-92, 1993-98

Period	All DSH			Drugs				Cutting/piercing			
	No.	ASR[1,2] per 100,000		No.	ASR[1,2] per 100,000			No.	ASR[1,2] per 100,000		
Males											
1981-86	735	122.7	(113.8-131.7)	582	97.5	(89.5-105.5)		74	12.1	(9.3-14.9)	
1987-92	812	108.2	(100.7-115.6)	593	78.8	(72.4-85.1)	▼	122	16.3	(13.4-19.3)	
1993-98	1,030	115.4	(108.3-122.5)	731	81.7	(75.7-87.6)		134	15.2	(12.6-17.8)	
Females											
1981-86	1,073	176.2	(165.7-186.8)	1,014	166.6	(156.3-176.9)		32	5.1	(3.3-6.9)	
1987-92	1,013	132.0	(123.8-140.1)	923	120.2	(112.4-127.9)	▼	51	6.7	(4.8-8.5)	
1993-98	1,429	157.0	(148.8-165.1)	1,233	135.3	(127.7-142.9)		111	12.3	(10.0-14.6)	▲

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively

Figure 22 Standardised rate ratios for deliberate self-harm admissions, South West Metropolitan Health Zone, 1981 to 1998

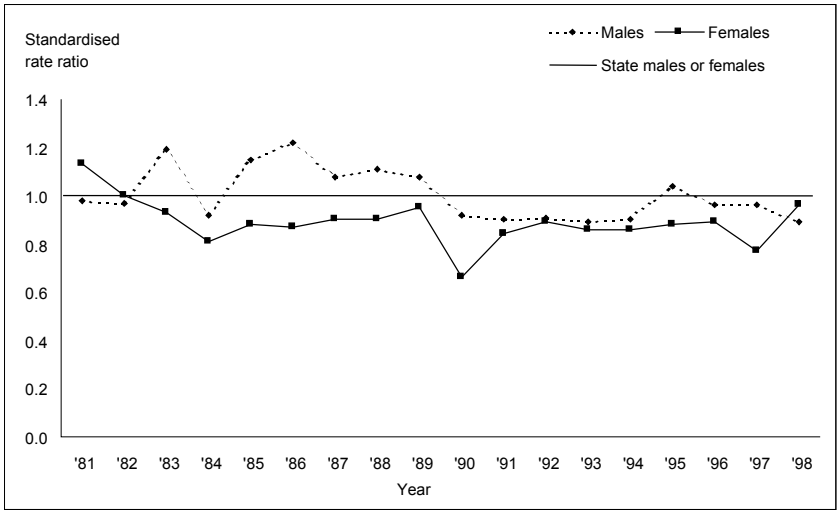
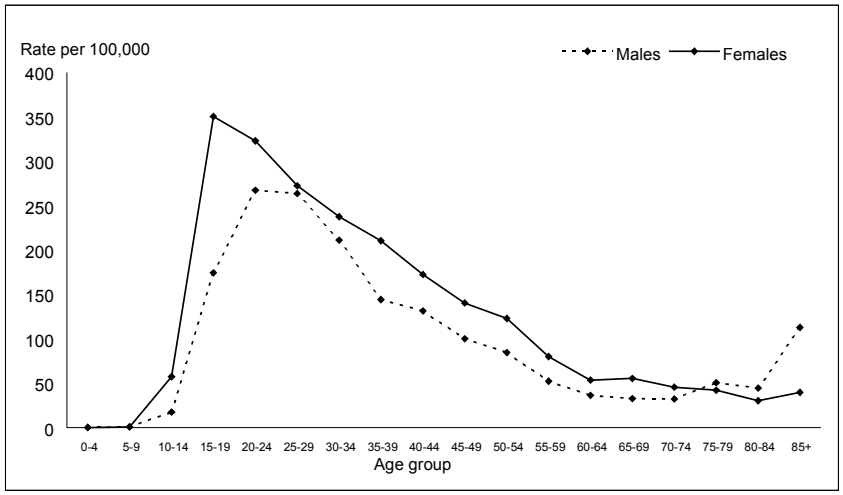


Figure 23 Age-specific admission rates for deliberate self-harm, South West Metropolitan Health Zone, 1981 to 1998



6.5 Kimberley Health Zone

Between 1981 and 1998 there were 784 hospital admissions for deliberate self-harm by residents of the Kimberley Health Zone (males 375; females 409) – an average of 21 admissions per year for males and 23 admissions per year for females (Table 18).

Overall, the deliberate self-harm admission rate for males in this Health Zone was 162.4 per 100,000 and 201.4 for females (Table 18). These were significantly higher than the State rates (males 117.2; females 175.0). Over the periods 1981-86, 1987-92 and 1993-98, admission rates for deliberate self-harm significantly increased for both genders (Table 19)

The SRR showed that males in this Health Zone had lower rates than State males from 1981 to 1986 then higher rates from 1987 onwards. Similarly, females in this Health Zone generally had lower rates than State females from 1981 to 1988 and higher rates from 1989 to 1998 (Figure 24).

Table 18 Numbers, percentages and age-standardised rates of admissions for deliberate self-harm (DSH), by method and gender, Kimberley Health Zone

Kimberley Health Zone, 1981-98

	Number	Percentage	ASR[1,2] per 100,000		
Males					
Drugs	131	34.9	60.1	(49.2-70.9)	
Cutting/piercing	158	42.1	66.5	(56.0-77.0)	
Poisons	14	3.7	*	*	
Carbon monoxide	3	0.8	*	*	
Hanging	21	5.6	*	*	
Firearms	16	4.3	*	*	
Other methods	32	8.5	13.1	(8.5-17.6)	
All DSH	*375*	*100.0*	*162.4*	*(145.5-179.3)*	▲
Females					
Drugs	249	60.9	127.3	(111.1-143.5)	
Cutting/piercing	116	28.4	52.1	(42.6-61.7)	
Poisons	11	2.7	*	*	
Carbon monoxide	0	0.0	*	*	
Hanging	5	1.2	*	*	
Firearms	1	0.2	*	*	
Other methods	27	6.6	*	*	
All DSH	*409*	*100.0*	*201.4*	*(181.4-221.3)*	▲

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
* Number of admissions too low to calculate rates

The most common methods of deliberate self-harm in this Health Zone were cutting/piercing for males and drugs for females. Among males 42% of all deliberate self-harm admissions involved cutting/piercing and among females 61% involved drugs. Overall, the admission rates for deliberate self-harm using drugs and cutting/piercing were 60.1 and 66.5 per 100,000 respectively among males and 127.3 and 52.1 respectively among females (Table 18).

Over the periods 1981-86, 1987-92 and 1993-98, rates for deliberate self-harm involving cutting/piercing increased between the second and third period for males (Tables 18 and 19). The numbers of female admissions for cutting/piercing deliberate self-harm during the first two periods and rates for other methods were not calculated as the number of admissions was too low (Table 19 and Appendix Table 19).

Age groups with the highest rates varied annually, but overall, the age groups with the highest rates were 20-24 years for males (377.2 admissions per 100,000) and 15-19 years for females (581.6) (Figure 25).

Table 19 Number of admissions and age-standardised admission rates for deliberate self-harm (DSH), using drugs, cutting and piercing, and all deliberate self-harm, Kimberely Health Zone

Kimberley Health Zone, 1981-86, 1987-92, 1993-98

Period	All DSH				Drugs				Cutting/piercing			
	No.	ASR[1,2] per 100,000			No.	ASR[1,2] per 100,000			No.	ASR[1,2] per 100,000		
Males												
1981-86	39	56.1	(38.2-74.0)		20	*	*		11	*	*	
1987-92	117	152.4	(123.2-181.6)	▲	51	71.4	(49.9-92.9)		42	52.0	(36.0-68.1)	
1993-98	219	260.1	(225.0-295.2)	▲	60	75.2	(55.4-95.0)		105	122.4	(98.7-146.1)	▲
Females												
1981-86	69	123.5	(93.3-153.8)		58	106.9	(78.3-135.4)		11	*	*	
1987-92	111	172.7	(139.5-205.9)		81	132.1	(102.4-161.7)		21	*	*	
1993-98	229	294.1	(255.5-332.7)	▲	110	142.3	(115.4-169.2)		84	103.8	(81.4-126.2)	

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively

Figure 24 Standardised rate ratios for deliberate self-harm admissions, Kimberley Health Zone, 1981 to 1998

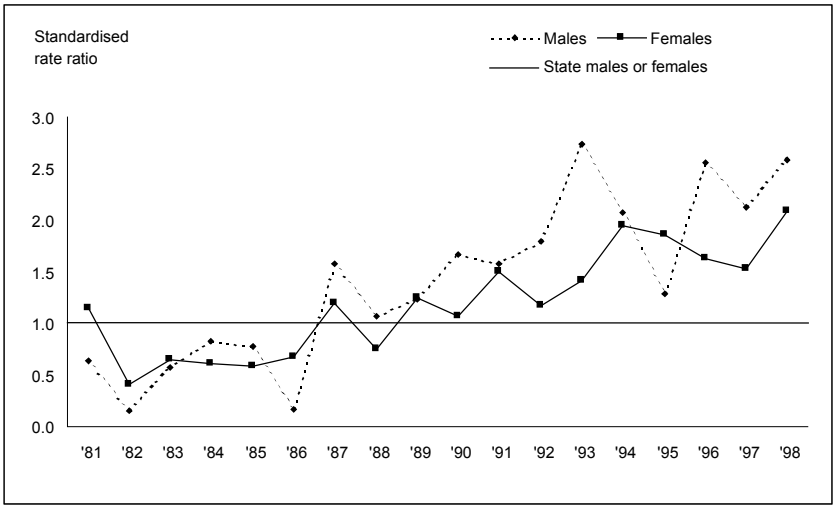
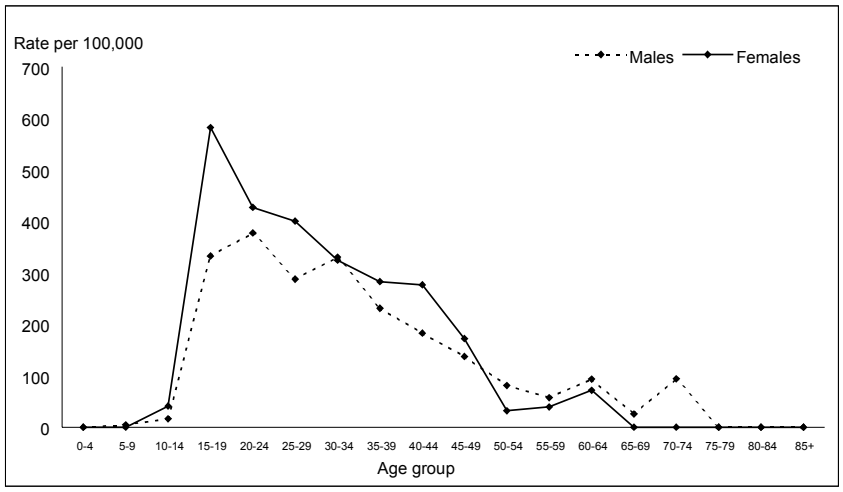


Figure 25 Age-specific admission rates for deliberate self-harm, Kimberley Health Zone, 1981 to 1998



6.6 Pilbara Health Zone

Between 1981 and 1998 there were 1,056 hospital admissions for deliberate self-harm by residents of the Pilbara Health Zone (males 392; females 664) – an average of 22 admissions per year for males and 37 admissions per year for females (Table 20).

Overall, the deliberate self-harm admission rate for males in this Health Zone was 81.0 per 100,000 and 179.5 for females (Table 20). The male rate was significantly lower than the State rate for males (117.2), whereas the female rate was not significantly different to the State rate for females (175.0). Over the periods 1981-86, 1987-92 and 1993-98, there were no significant changes in admission rates for deliberate self-harm (Table 21).

The SRR showed that males in this Health Zone generally had lower rates than State males. The fluctuating SRR for females in this Health Zone reflected the small number of admissions annually. From 1994 to 1998 females had higher rates than State females (Figure 26).

Table 20 Numbers, percentages and age-standardised rates of admissions for deliberate self-harm (DSH), by method and gender, Pilbara Health Zone

Pilbara Health Zone, 1981-98

	Number	Percentage	ASR[1,2] per 100,000		
Males					
Drugs	249	63.5	51.1	(43.9-58.3)	▼
Cutting/piercing	96	24.5	18.5	(14.6-22.4)	
Poisons	11	2.8	*	*	
Carbon monoxide	3	0.8	*	*	
Hanging	8	2.0	*	*	
Firearms	7	1.8	*	*	
Other methods	18	4.6	*	*	
All DSH	*392*	*100.0*	*81.0*	*(71.1-90.8)*	
Females					
Drugs	530	79.8	145.1	(130.1-160.1)	▼
Cutting/piercing	86	12.9	20.8	(16.2-25.5)	
Poisons	23	3.5	*	*	
Carbon monoxide	3	0.5	*	*	
Hanging	5	0.7	*	*	
Firearms	3	0.5	*	*	
Other methods	14	2.1	*	*	
All DSH	*664*	*100.0*	*179.5*	*(162.7-196.4)*	

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
* Number of admissions too low to calculate rates

Drugs were the most common method of deliberate self-harm in this Health Zone, accounting for 64% of all deliberate self-harm admissions for males and 80% for females. Overall, the admission rate for deliberate self-harm using drugs was 51.1 per 100,000 for males and 145.1 for females. The rate for cutting/piercing, the next most common method, was 18.5 for males and 20.8 for females (Table 21).

Over the period 1981-86 to 1993-98, rates for deliberate self-harm using drugs significantly decreased for both sexes (Tables 20 and 21). Rates for deliberate self-harm involving cutting/piercing for the first two periods and rates for other methods were not calculated, as the number of admissions was too low (Table 21 and Appendix Table 20).

The age groups with the highest deliberate self-harm admission rates varied annually, but overall, males aged 20-24 years had the highest admission rate (222.7 admissions per 100,000), and females aged 15-19 years had the highest rate (527.9) (Figure 27).

Table 21 Number of admissions and age-standardised admission rates for deliberate self-harm (DSH), using drugs, cutting and piercing, and all deliberate self-harm, Pilbara Health Zone

Pilbara Health Zone, 1981-86, 1987-92, 1993-98

Period	All DSH			Drugs			Cutting/piercing		
	No.	ASR[1,2] per 100,000		No.	ASR[1,2] per 100,000		No.	ASR[1,2] per 100,000	
Males									
1981-86	139	75.5	(62.0-89.1)	121	64.1	(52.2-75.9)	8	*	*
1987-92	120	83.3	(61.7-104.9)	75	50.9	(36.8-64.9)	27	*	*
1993-98	133	90.3	(73.6-106.9)	53	37.2	(25.5-48.9)	61	40.5	(30.2-50.9)
Females									
1981-86	229	198.3	(161.5-235.2)	209	174.5	(142.3-206.6)	4	*	*
1987-92	224	172.2	(147.0-197.4)	181	140.7	(117.5-164.0)	29	*	*
1993-98	211	168.1	(144.7-191.4)	140	114.9	(95.2-134.5)	53	40.3	(29.2-51.5)

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively

Figure 26 Standardised rate ratios for deliberate self-harm admissions, Pilbara Health Zone, 1981 to 1998

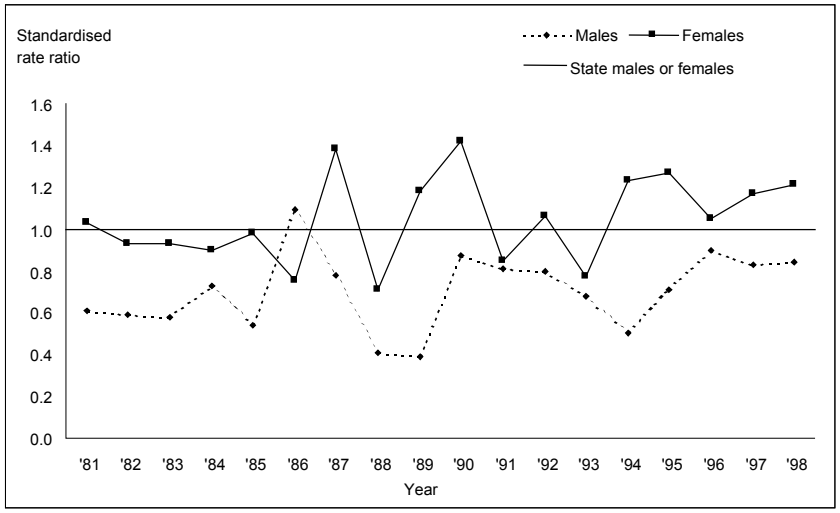
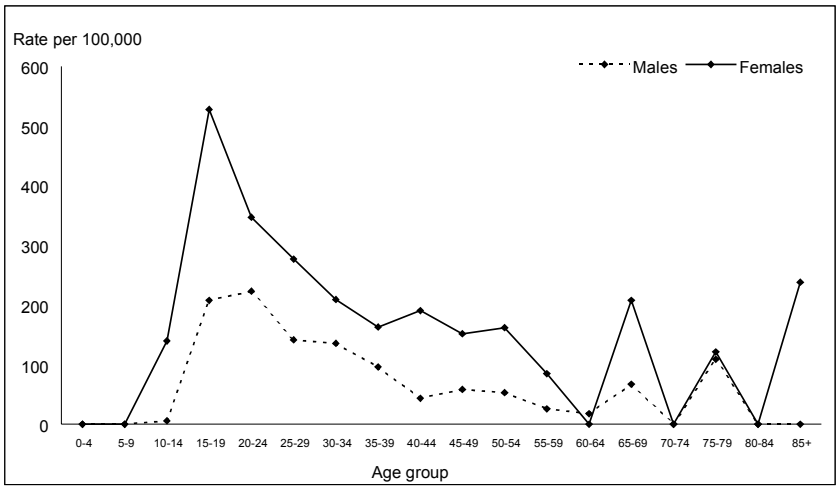


Figure 27 Age-specific admission rates for deliberate self-harm, Pilbara Health Zone, 1981 to 1998



6.7 Midwest Health Zone

Between 1981 and 1998 there were 1,533 hospital admissions for deliberate self-harm by residents of the Midwest Health Zone (males 613; females 920) – an average of 34 admissions per year for males and 51 admissions per year for females (Table 22).

Overall, the deliberate self-harm admission rate for males in this Health Zone was 114.6 per 100,000 and 194.8 for females (Table 22). The male rate is not significantly different from the State male rate (117.2), but the female rate is significantly higher than the State female rate (175.0). Over the periods 1981-86, 1987-92 and 1993-98, rates significantly increased for males. Females showed a significant increase between the second and third periods, but no significant change overall (Table 23).

The SRR showed that males in this Health Zone generally had lower rates than State males until 1990, after which they had higher rates. SRR for females in this Health Zone fluctuated because of the small annual number of admissions. From 1993-98, females had higher rates than State females (Figure 28).

Table 22 Numbers, percentages and age-standardised rates of admissions for deliberate self-harm (DSH), by method and gender, Midwest Health Zone

Midwest Health Zone, 1981-98

	Number	Percentage	ASR[1,2] per 100,000		
Males					
Drugs	405	66.1	75.8	(68.4-83.3)	▲
Cutting/piercing	98	16.0	18.1	(14.5-21.7)	
Poisons	33	5.4	6.0	(4.0-8.1)	
Carbon monoxide	10	1.6	*	*	
Hanging	23	3.8	*	*	
Firearms	10	1.6	*	*	
Other methods	34	5.5	6.7	(4.4-9.1)	
All DSH	*613*	*100.0*	*114.6*	*(105.5-123.7)*	▲
Females					
Drugs	782	85.0	165.4	(153.7-177.0)	
Cutting/piercing	87	9.5	18.2	(14.4-22.0)	
Poisons	34	3.7	7.5	(4.9-10.0)	
Carbon monoxide	0	0.0	*	*	
Hanging	1	0.1	*	*	
Firearms	0	0.0	*	*	
Other methods	16	1.7	*	*	
All DSH	*920*	*100.0*	*194.8*	*(182.1-207.4)*	

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
* Number of admissions too low to calculate rates

Drugs were the most common method of deliberate self-harm in this Health Zone, accounting for 66% of all deliberate self-harm admissions among males and 85% among females. Overall, the admission rate using drugs was 75.8 per 100,000 for males and 165.4 for females. The rate for cutting/piercing, the next most common method, was 18.1 for males and 18.2 for females (Table 22).

Over the periods 1981-86, 1987-92 and 1993-98, the rate of using drugs significantly increased over the whole period for males and between the second and third period for females (Tables 22 and 23). Rates involving cutting/piercing for the early periods and rates for other methods were not calculated as the number of admissions was too low (Table 23 and Appendix Table 21).

The age groups with the highest deliberate self-harm admission rates varied annually, but overall, males aged 20-24 years had the highest admission rate (261.3 admissions per 100,000), and females aged 15-19 years had the highest rate (524.0) (Figure 29).

Table 23 Number of admissions and age-standardised admission rates for deliberate self-harm (DSH), using drugs, cutting and piercing, and all deliberate self-harm, Midwest Health Zone

Midwest Health Zone, 1981-86, 1987-92, 1993-98

Period	All DSH				Drugs				Cutting/piercing		
	No.	ASR[1,2] per 100,000			No.	ASR[1,2] per 100,000			No.	ASR[1,2] per 100,000	
Males											
1981-86	133	80.7	(66.8-94.7)		99	60.4	(48.3-72.5)		9	*	*
1987-92	208	110.0	(94.9-125.0)	▲	134	71.7	(59.5-84.0)		41	21.2	(14.7-27.7)
1993-98	272	147.8	(130.1-165.4)	▲	172	92.7	(78.8-106.7)		48	26.2	(18.8-33.7)
Females											
1981-86	280	189.3	(166.9-211.7)		263	177.9	(156.1-199.6)		8	*	*
1987-92	262	162.7	(142.8-182.7)		224	139.3	(120.9-157.7)		29	*	*
1993-98	378	234.0	(210.3-257.7)	▲	295	181.4	(160.5-202.2)	▲	50	31.6	(22.8-40.4)

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively

Figure 28 Standardised rate ratios for deliberate self-harm admissions, Midwest Health Zone, 1981 to 1998

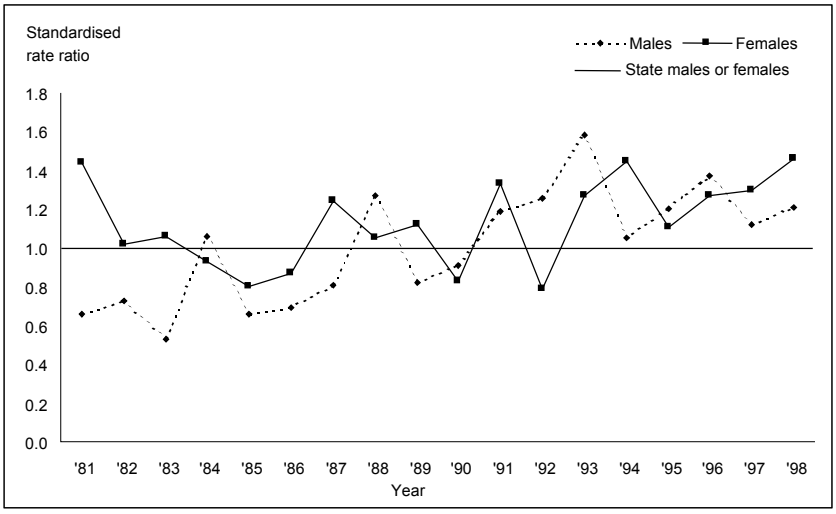
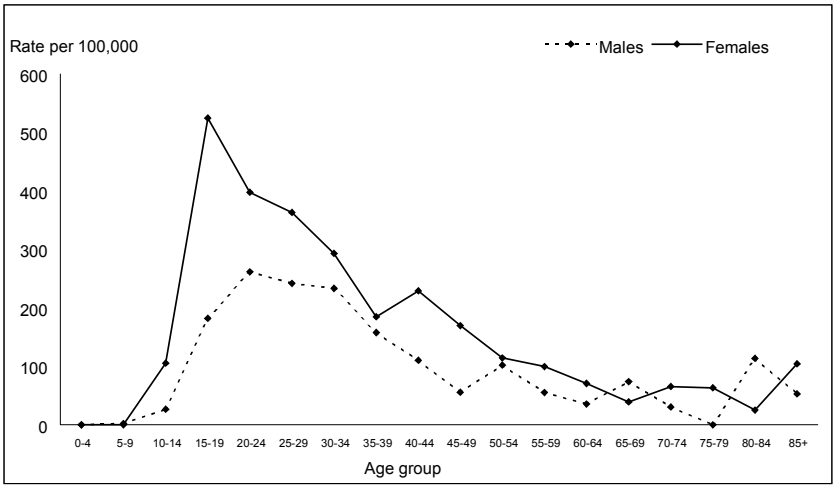


Figure 29 Age-specific admission rates for deliberate self-harm, Midwest Health Zone, 1981 to 1998



6.8 Midlands Health Zone

Between 1981 and 1998 there were 949 hospital admissions for deliberate self-harm by residents of the Midlands Health Zone (males 375; females 574) – an average of 21 admissions per year for males and 32 admissions per year for females (Table 24).

Overall, the deliberate self-harm admission rate for males in this Health Zone was 78.4 per 100,000 and 139.5 for females (Table 24). These were significantly lower than the State rates (males 117.2; females 175.0). Over the periods 1981-86, 1987-92 and 1993-98, there were no significant changes in admission rates for deliberate self-harm (Table 25).

The SRR showed that males in this Health Zone had lower rates than State males throughout the period, and females had lower rates than State females, except in 1988, 1989 and 1997 (Figure 30).

Table 24 Numbers, percentages and age-standardised rates of admissions for deliberate self-harm (DSH), by method and gender, Midlands Health Zone

Midlands Health Zone, 1981-98

	Number	Percentage	ASR[1,2] per 100,000	
Males				
Drugs	273	72.8	56.8	(50.0-63.6)
Cutting/piercing	44	11.7	9.3	(6.6-12.1)
Poisons	18	4.8	*	*
Carbon monoxide	5	1.3	*	*
Hanging	4	1.1	*	*
Firearms	11	2.9	*	*
Other methods	20	5.3	*	*
All DSH	*375*	*100.0*	*78.4*	*(70.4-86.3)*
Females				
Drugs	525	91.5	127.4	(116.4-138.4)
Cutting/piercing	30	5.2	7.4	(4.7-10.1)
Poisons	5	0.9	*	*
Carbon monoxide	0	0.0	*	*
Hanging	0	0.0	*	*
Firearms	1	0.2	*	*
Other methods	13	2.3	*	*
All DSH	*574*	*100.0*	*139.5*	*(128.0-151.0)*

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
* Number of admissions too low to calculate rates

Drugs were the most common method of deliberate self-harm in this Health Zone, accounting for 73% of all deliberate self-harm admissions for males and 92% for females. Overall, the admission rate for deliberate self-harm using drugs was 56.8 per 100,000 for males and 127.4 for females. The rate for cutting/piercing, the next most common method, was 9.3 for males and 7.4 for females (Table 24).

Over the periods 1981-86, 1987-92 and 1993-98, no significant changes in admission rates for deliberate self-harm using drugs occurred (Tables 24 and 25). Rates for other methods were not calculated as the number of admissions were too low (Table 2 and Appendix Table 22).

The age groups with the highest deliberate self-harm admission rates varied annually, but overall, males aged 30-34 years had the highest admission rate (178.8 admissions per 100,000), although the rate for the 20-24 and 15-19 year age groups were similar (173.0 and 177.4 respectively). Females aged 15-19 years had the highest rate (412.7 admissions per 100,000) (Figure 31).

Table 25 Number of admissions and age-standardised admission rates for deliberate self-harm (DSH), using drugs, cutting and piercing, and all deliberate self-harm, Midlands Health Zone

Midlands Health Zone, 1981-86, 1987-92, 1993-98

Period	All DSH			Drugs			Cutting/piercing		
	No.	ASR[1,2] per 100,000		No.	ASR[1,2] per 100,000		No.	ASR[1,2] per 100,000	
Males									
1981-86	125	75.6	(62.2-88.9)	100	60.3	(48.4-72.2)	11	*	*
1987-92	129	80.5	(66.5-94.5)	91	55.9	(44.3-67.4)	12	*	*
1993-98	121	78.1	(64.0-92.2)	82	52.6	(41.1-64.2)	21	*	*
Females									
1981-86	175	127.6	(108.6-146.7)	170	123.9	(105.2-142.7)	1	*	*
1987-92	191	138.9	(119.0-158.8)	176	127.7	(108.7-146.8)	10	*	*
1993-98	208	150.8	(129.9-171.7)	179	128.9	(109.7-148.2)	19	*	*

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
* Number of admissions too low to calculate rates

Figure 30 Standardised rate ratios for deliberate self-harm admissions, Midlands Health Zone, 1981 to 1998

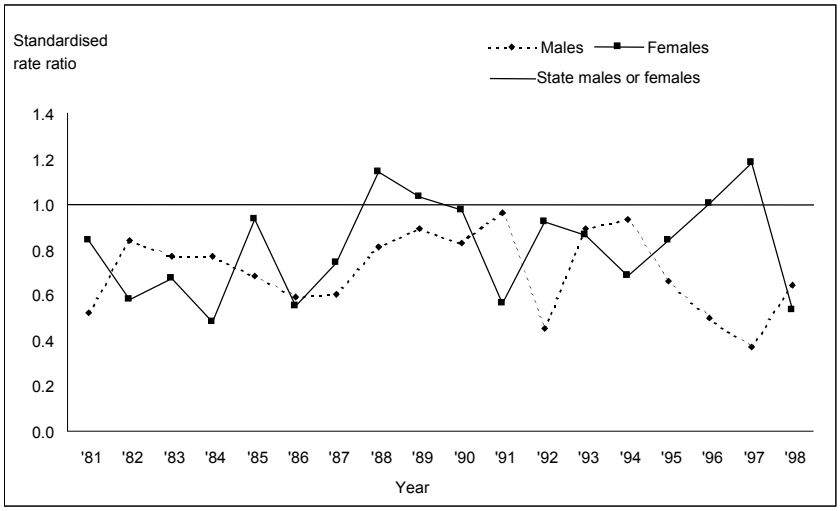
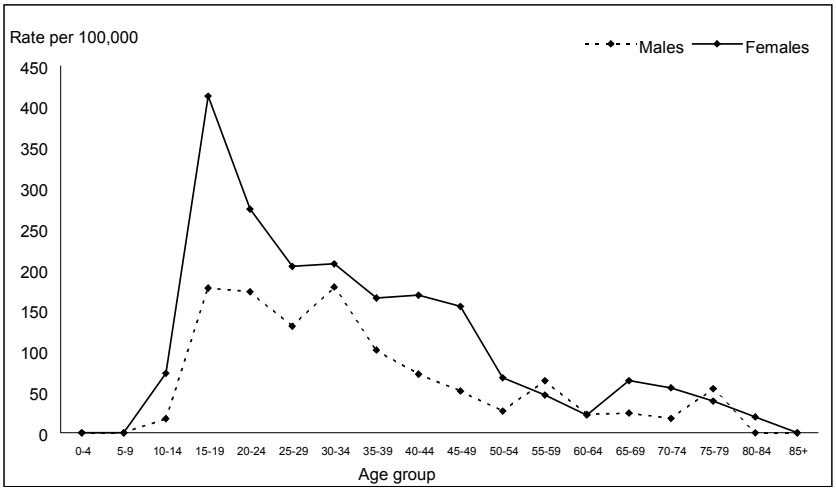


Figure 31 Age-specific admission rates for deliberate self-harm, Midlands Health Zone, 1981 to 1998



6.9 Goldfields Health Zone

Between 1981 and 1998 there were 1,593 hospital admissions for deliberate self-harm by residents of the Goldfields Health Zone (males 686; females 907) – an average of 38 admissions per year for males and 50 admissions per year for females (Table 26).

Overall, the deliberate self-harm admission rate for males in this Health Zone was 123.6 per 100,000 and 203.0 for females (Table 26). The male rate was not significantly different from the State male rate (117.2), but the female rate was significantly higher than the State female rate (175.0). Over the periods 1981-86, 1987-92 and 1993-98, there were no significant changes in admission rates for deliberate self-harm (Table 27).

The SRR showed that males and females in this Health Zone generally had higher rates than their State counterparts, although over the last few years they were lower (Figure 32).

Table 26 Numbers, percentages and age-standardised rates of admissions for deliberate self-harm (DSH), by method and gender, Goldfields Health Zone

Goldfields Health Zone, 1981-98

	Number	Percentage	ASR[1,2] per 100,000		
Males					
Drugs	433	63.1	78.0	(70.4-85.6)	▼
Cutting/piercing	125	18.2	21.9	(17.9-25.8)	
Poisons	40	5.8	7.9	(5.4-10.4)	
Carbon monoxide	11	1.6	*	*	
Hanging	15	2.2	*	*	
Firearms	13	1.9	*	*	
Other methods	49	7.1	9.1	(6.4-11.8)	
All DSH	*686*	*100.0*	*123.6*	*(114.0-133.2)*	
Females					
Drugs	800	88.2	179.7	(167.0-192.4)	▼
Cutting/piercing	54	5.9	11.3	(8.2-14.4)	
Poisons	26	2.9	*	*	
Carbon monoxide	3	0.3	*	*	
Hanging	3	0.3	*	*	
Firearms	2	0.2	*	*	
Other methods	19	2.1	*	*	
All DSH	*907*	*100.0*	*203.0*	*(189.5-216.4)*	

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
* Number of admissions too low to calculate rates

Drugs were the most common method of deliberate self-harm in this Health Zone, accounting for 63% of all deliberate self-harm admissions for males and 88% for females. Overall, the admission rate for deliberate self-harm using drugs was 78.0 per 100,000 for males and 179.7 for females. The rate for cutting/piercing, the next most common method, was 21.9 for males and 11.3 for females (Table 26).

Over the periods 1981-86, 1987-92 and 1993-98, rates for deliberate self-harm using drugs decreased over the whole period for both genders (Tables 26 and 27). Rates for deliberate self-harm involving cutting/piercing for some periods and rates for other methods were not calculated as the numbers of admissions were too low (Table 27 and Appendix Table 23).

The age groups with the highest deliberate self-harm admission rates varied annually, but overall, males aged 15-19 years had the highest admission rate (330.6 admissions per 100,000), and females aged 15-19 years had the highest rate (587.3) (Figure 33).

Table 27 Number of admissions and age-standardised admission rates for deliberate self-harm (DSH), using drugs, cutting and piercing, and all deliberate self-harm, Goldfields Health Zone

Goldfields Health Zone, 1981-86, 1987-92, 1993-98

Period	All DSH			Drugs			Cutting/piercing		
	No.	ASR[1,2] per 100,000		No.	ASR[1,2] per 100,000		No.	ASR[1,2] per 100,000	
Males									
1981-86	209	124.7	(107.3-142.0)	148	86.9	(72.6-101.2)	28	*	*
1987-92	246	134.3	(116.8-151.8)	165	91.2	(76.7-105.7)	38	19.5	(13.1-26.0)
1993-98	231	111.4	(96.6-126.2)	120	58.2	(47.5-69.0)	59	27.6	(20.4-34.8)
Females									
1981-86	305	225.1	(199.2-251.0)	284	209.6	(184.6-234.6)	7	*	*
1987-92	291	192.5	(169.8-215.1)	256	171.0	(149.6-192.5)	20	*	*
1993-98	311	193.8	(171.7-215.8)	260	162.6	(142.3-182.8)	27	*	*

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
* Number of admissions too low to calculate rates

Figure 32 Standardised rate ratios for deliberate self-harm admissions, Goldfields Health Zone, 1981 to 1998

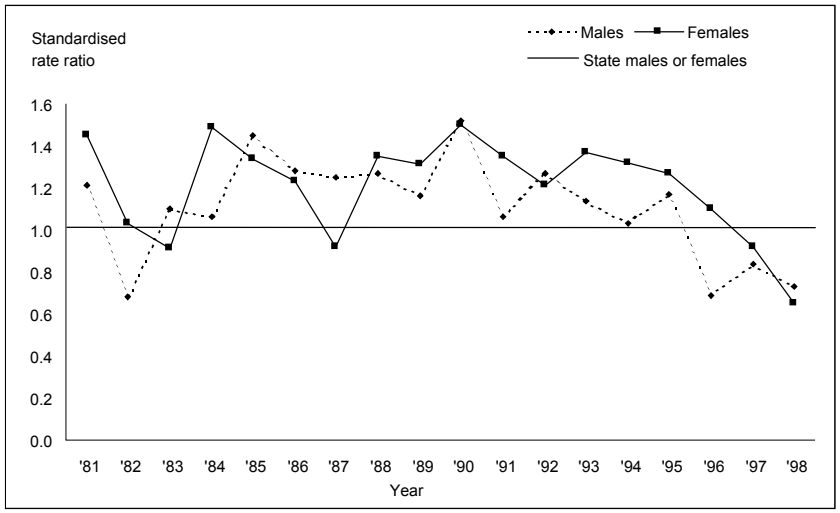
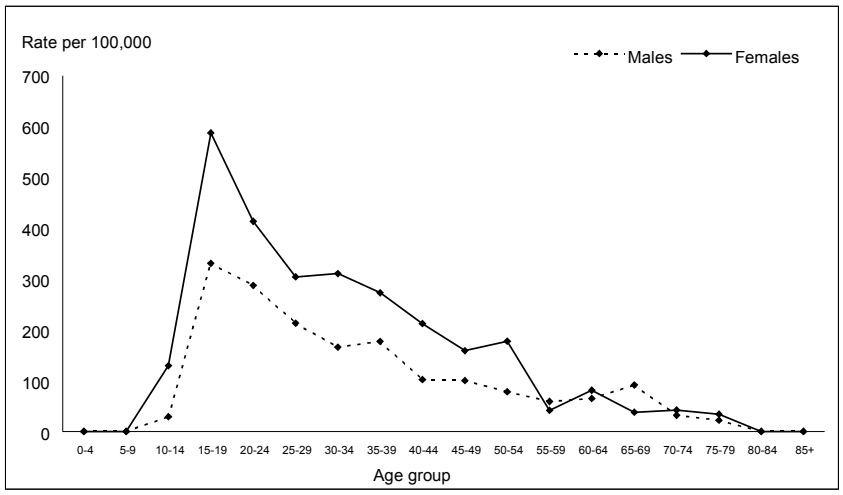


Figure 33 Age-specific admission rates for deliberate self-harm, Goldfields Health Zone, 1981 to 1998



6.10 Great Southern Health Zone

Between 1981 and 1998 there were 1,376 hospital admissions for deliberate self-harm by residents of the Great Southern Health Zone (males 539; females 837) – an average of 30 admissions per year for males and 46 admissions per year for females (Table 28).

Overall, the deliberate self-harm admission rate for males in this Health Zone was 92.4 per 100,000 and 153.3 for females (Table 28). These were significantly lower than the State rates (males 117.2; females 175.0). Over the periods 1981-86, 1987-92 and 1993-98, admission rates for deliberate self-harm significantly increased over the whole period for both genders (Table 29).

The SRR indicate that rates among males in this Health Zone were generally lower than State males apart from in 1991, 1994 and 1997-98. Rates among females in this Health Zone were lower than State females until 1994, after which rates became higher than State females (Figure 34).

Table 28 Numbers, percentages and age-standardised rates of admissions for deliberate self-harm (DSH), by method and gender, Great Southern Health Zone

Great Southern Health Zone, 1981-98

	Number	Percentage	ASR[1,2] per 100,000		
Males					
Drugs	386	71.6	66.4	(59.7-73.0)	
Cutting/piercing	80	14.8	13.7	(10.7-16.8)	
Poisons	30	5.6	4.9	(3.2-6.7)	
Carbon monoxide	8	1.5	*	*	
Hanging	7	1.3	*	*	
Firearms	8	1.5	*	*	
Other methods	20	3.7	*	*	
All DSH	*539*	*100.0*	*92.4*	*(84.6-100.2)*	▲
Females					
Drugs	720	86.0	132.0	(122.3-141.7)	
Cutting/piercing	66	7.9	12.1	(9.2-15.1)	
Poisons	31	3.7	5.6	(3.6-7.5)	
Carbon monoxide	3	0.4	*	*	
Hanging	6	0.7	*	*	
Firearms	0	0.0	*	*	
Other methods	11	1.3	*	*	
All DSH	*837*	*100.0*	*153.3*	*(142.8-163.7)*	▲

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
* Number of admissions too low to calculate rates

Drugs were the most common method of deliberate self-harm in this Health Zone, accounting for 72% of all deliberate self-harm admissions for males and 86% for females. Overall, the admission rate for deliberate self-harm using drugs was 66.4 per 100,000 for males and 132.0 for females. The rate for cutting/piercing, the next most common method, was 13.7 for males and 12.1 for females (Table 28).

Over the periods 1981-86, 1987-92 and 1993-98, rates for deliberate self-harm using drugs significantly increased between the second and third period for females, although there was no significant increase over the whole period (Table 29). Rates for other methods were not calculated as the number of admissions was too low (Table 29 and Appendix Table 24).

The age groups with the highest deliberate self-harm admission rates varied annually, but overall, males aged 20-24 years had the highest admission rate (276.3 admissions per 100,000), and females aged 15-19 years had the highest rate (421.3) (Figure 35).

Table 29 Number of admissions and age-standardised rates of admission for deliberate self-harm (DSH), using drugs, cutting and piercing, and all deliberate self-harm, Great Southern Health Zone

Great Southern Health Zone, 1981-86, 1987-92, 1993-98

Period	All DSH				Drugs				Cutting/piercing		
	No.	ASR[1,2] per 100,000			No.	ASR[1,2] per 100,000			No.	ASR[1,2] per 100,000	
Males											
1981-86	141	72.9	(60.8-85.0)		124	64.4	(53.0-75.8)		10	*	*
1987-92	168	85.9	(72.8-98.9)		118	60.8	(49.8-71.8)		22	*	*
1993-98	230	121.6	(105.7-137.4)	▲	144	75.6	(63.1-88.1)		48	25.8	(18.4-33.2)
Females											
1981-86	253	141.2	(123.8-158.7)		240	134.0	(117.0-151.0)		6	*	*
1987-92	210	114.7	(99.2-130.3)		189	103.1	(88.4-117.9)		15	*	*
1993-98	374	204.7	(183.7-225.7)	▲	291	160.4	(141.7-179.0)	▲	45	27.2	(19.4-35.0)

Notes:
1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
* Number of admissions too low to calculate rates

Figure 34 Standardised rate ratios for deliberate self-harm admissions, Great Southern Health Zone, 1981 to 1998

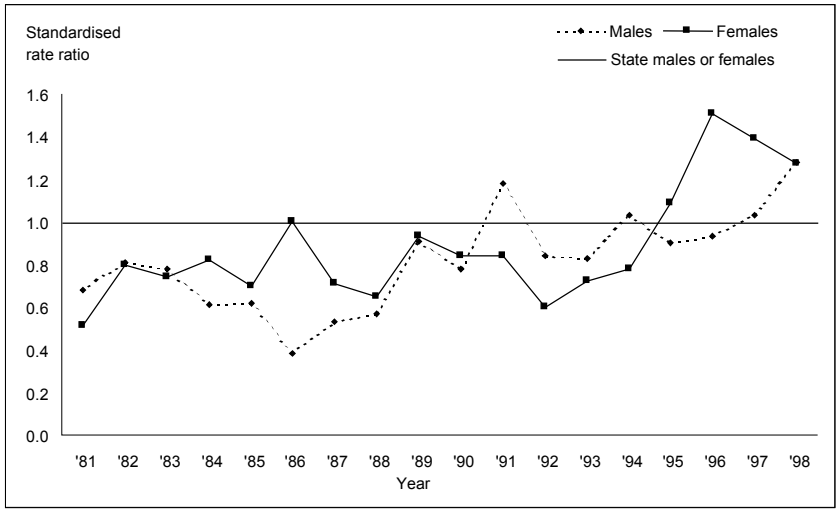
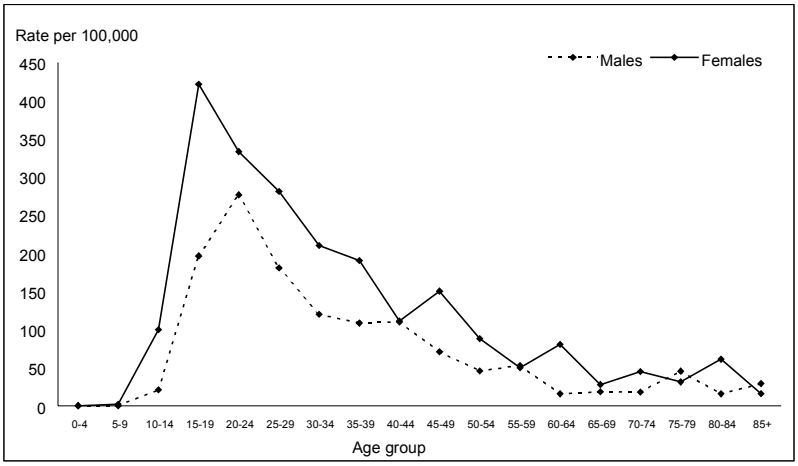


Figure 35 Age-specific admission rates for deliberate self-harm, Great Southern Health Zone, 1981 to 1998



6.11 South West Health Zone

Between 1981 and 1998 there were 1,869 hospital admissions for deliberate self-harm by residents of the South West Health Zone (males 749; females 1,120) – an average of 42 admissions per year for males and 62 admissions per year for females (Table 30).

Overall, the deliberate self-harm admission rate for males in this Health Zone was 87.6 per 100,000 and 136.8 for females (Table 30). These were significantly lower than the State rates (males 117.2; females 175.0). Over the periods 1981-86, 1987-92 and 1993-98, admission rates for deliberate self-harm significantly increased over the whole period for males, whereas females showed a significant increase between the second and third periods, but no significant change overall (Table 31).

The SRR showed that males and females in this Health Zone generally had lower rates than State males and females. However the SRR for both genders increased over the period (Figure 36).

Table 30 Numbers, percentages and age-standardised rates of admissions for deliberate self-harm (DSH), by method and gender, South West Health Zone

South West Health Zone, 1981-98

	Number	Percentage	ASR[1,2] per 100,000	
Males				
Drugs	558	74.4	65.1	(59.6-70.5)
Cutting/piercing	96	12.8	11.3	(9.0-13.6)
Poisons	43	5.7	5.0	(3.5-6.5)
Carbon monoxide	9	1.2	*	*
Hanging	14	1.9	*	*
Firearms	5	0.7	*	*
Other methods	25	3.3	*	*
All DSH	*750*	*100.0*	*87.6*	*(81.3-93.9)*
Females				
Drugs	1,007	89.8	122.9	(115.3-130.5)
Cutting/piercing	57	5.1	6.9	(5.1-8.7)
Poisons	31	2.8	3.8	(2.4-5.1)
Carbon monoxide	3	0.3	*	*
Hanging	2	0.2	*	*
Firearms	1	0.1	*	*
Other methods	20	1.8	*	*
All DSH	*1,121*	*100.0*	*136.8*	*(128.8-144.8)*

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
* Number of admissions too low to calculate rates

Drugs were the most common method of deliberate self-harm in this Health Zone, accounting for 74% of all deliberate self-harm admissions for males and 90% for females. Overall, the admission rate for deliberate self-harm using drugs was 65.1 per 100,000 for males and 122.9 for females. The rate for cutting/piercing, the next most common method, was 11.3 for males and 6.9 for females (Table 30).

Over the periods 1981-86, 1987-92 and 1993-98, there were no significant changes in admission rates for deliberate self-harm due to drugs (Table 31). Rates for other methods were not calculated as the number of admissions were too low (Table 31 and Appendix Table 25).

The age groups with the highest deliberate self-harm admission rates varied annually, but overall, males aged 20-24 years had the highest admission rate (223.9 admissions per 100,000), and females aged 15-19 years had the highest rate (409.7) (Figure 37).

Table 31 Number of admissions and age-standardised rates of admission for deliberate self-harm (DSH), using drugs, cutting and piercing, and all deliberate self-harm, South West Health Zone

South West Health Zone, 1981-86, 1987-92, 1993-98

Period	All DSH				Drugs				Cutting/piercing			
	No.	ASR[1,2] per 100,000			No.	ASR[1,2] per 100,000			No.	ASR[1,2] per 100,000		
Males												
1981-86	190	76.4	(65.4-87.3)		160	64.0	(54.0-74.0)		6	*	*	
1987-92	219	76.5	(66.3-86.6)		178	62.0	(52.9-71.2)		17	*	*	
1993-98	341	106.8	(95.3-118.2)	▲	220	68.8	(59.7-78.0)		73	23.1	(17.7-28.4)	
Females												
1981-86	300	129.2	(114.5-144.0)		285	122.8	(108.4-137.1)		4	*	*	
1987-92	331	120.2	(107.2-133.2)		307	111.1	(98.6-123.5)		6	*	*	
1993-98	490	157.8	(143.8-171.9)	▲	415	133.7	(120.7-146.6)		47	15.3	(10.9-19.7)	

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 Figures in parentheses are 95% confidence intervals
3 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
* Number of admissions too low to calculate rates

Figure 36 Standardised rate ratios for deliberate self-harm admissions, South West Health Zone, 1981 to 1998

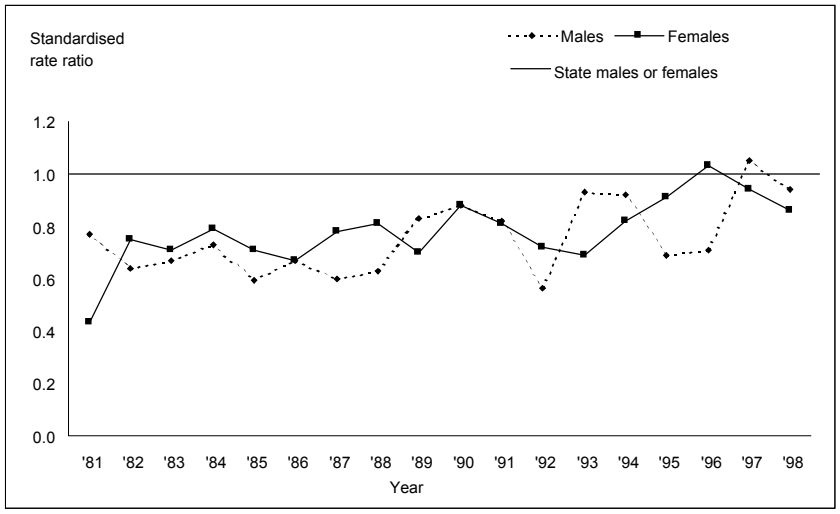
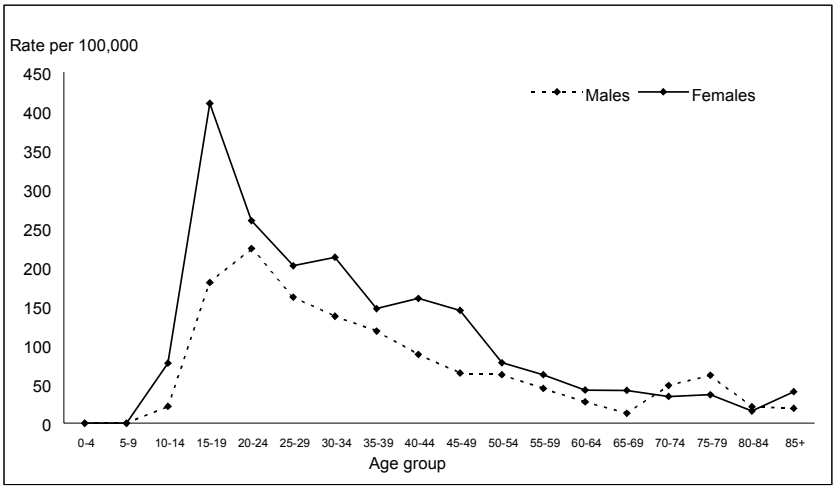


Figure 37 Age-specific admission rates for deliberate self-harm, South West Health Zone, 1981 to 1998



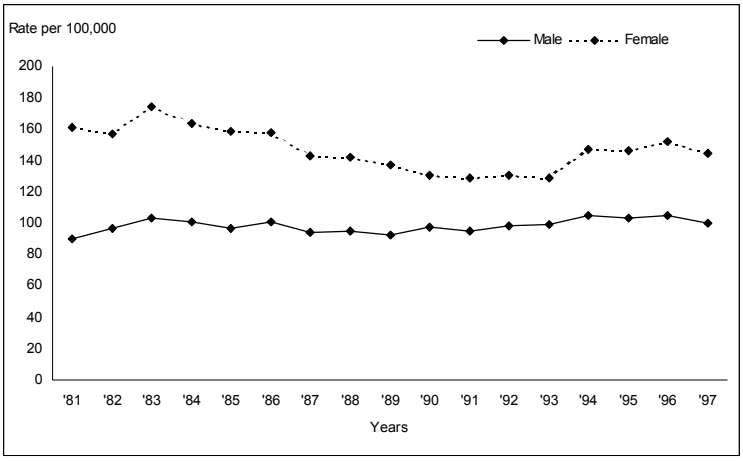
7 Repeated deliberate self-harm resulting in hospitalisation and death

Over the period 1981 to 1997, 26,561 people were admitted to hospital for deliberate self-harm. Of these, 225 (0.9%) died during their first recorded hospitalisation for deliberate self-harm (114 patients died as a result of deliberate self-harm during the initial episode of hospitalisation, and 111 died of another cause). As this analysis aims to provide information about people who commit deliberate self-harm more than once, only the 26,336 people who survived their initial hospitalisation for deliberate self-harm were studied further. Females accounted for the majority of these cases (59%).

Of people who survived the initial hospitalisation, 78% were never admitted again for deliberate self-harm, but 5,830 (22%) were subsequently either readmitted to hospital for deliberate self-harm (5,480) or committed suicide on their second attempt (380). Females accounted for 58% of the repeat episodes. Ten per cent of both males and females were admitted for deliberate self-harm three or more times.

The annual rate of discharge for deliberate self-harm among males increased significantly by 0.5% between 1981 (n = 625; ASR = 90.1) and 1997 (n = 902; ASR = 100.4). However, for females, the annual rate of discharge decreased significantly by 1.0% from 1981 (n = 1084; ASR = 161.4 per 100,000) to 1997 (n = 1263; ASR = 144.3) (Figure 38).

Figure 38 Age-standardised rate of people admitted for deliberate self-harm by gender, Western Australia, 1981 to 1997



7.1 Repeated episodes of deliberate self-harm resulting in death

The rate of death for people discharged after their initial hospital episode for deliberate self-harm during 1990 and 1992 was significantly higher than that of the general population. The all-cause rate of death was nearly five times higher for males and more than three times higher for females. However, both genders were over twenty times more likely to die from suicide, six to ten times more likely to die from accidental injury and poisoning, and twice as likely to die from natural causes compared to the general population (Table 32).

Table 32 Relative rates of deaths among people first discharged for deliberate self-harm between 1990 and 1992

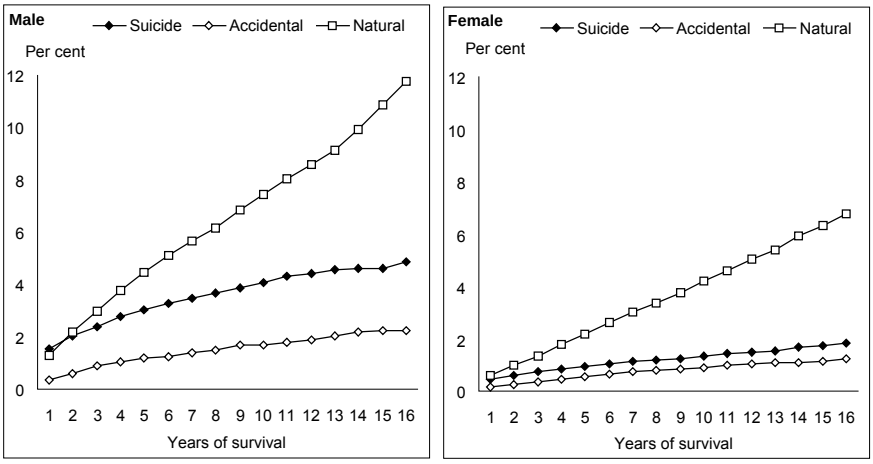
Cause of death	Males		Females	
	SMR[1]	95% CI[2]	SMR	95% CI
Suicide	22.8	(17.7-29.3)	21.5	(13.0-33.6)
Injury/poisoning	5.8	(3.9-8.3)	9.7	(5.8-15.4)
Natural	2.8	(2.2-3.6)	2.2	(1.7-2.9)
All	4.9	(4.2-5.7)	3.4	(2.7-4.2)

Note: 1 SMR = Standardised Mortality Ratio
2 CI = Confidence Interval of SMR

Among those people discharged alive between 1981 and 1997 after being admitted for deliberate self-harm, 8% (2,076) died by the end of the study period. Of these, 25% (552 deaths) were attributable to suicide and 12% (267) were coded as unintentional injuries and poisoning. Natural causes accounted for the remainder of the deaths.

The annual pattern of death due to suicide, accidental injury and poisoning, natural causes and 'all-causes' was found to be generally consistent throughout the period 1981-1996, so these records were pooled for further analysis. This revealed that the greatest risk of dying for those persons discharged after deliberate self-harm occurred within the first year after discharge, regardless of gender or the cause of death (i.e. suicide, accidental injury and poisoning, natural causes) (Figure 39).

Figure 39 Percentage of people dying from time of initial discharge, by gender and cause of death, Western Australia, 1981 to 1997



One year after initial discharge, a significantly higher proportion of males (3.2%) than females (1.2%) had died. After 16 years, 18.0% of males had died, with natural causes accounting for two-thirds of the mortality, whereas only 9.6% of all females had died with natural causes accounting for about 70% of the mortality. The high level of mortality due to natural causes may be explained in part by age, as 51% of males and 57% of females dying from this cause were aged 55 years or older at initial discharge.

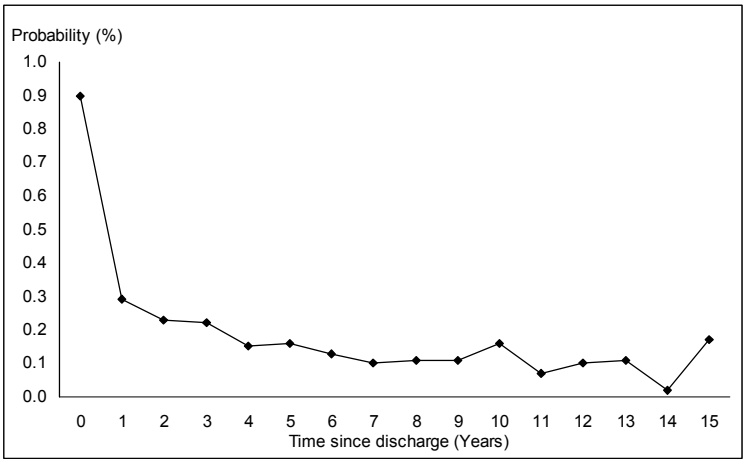
Within the first year after discharge the majority of deaths due to natural causes were attributable to cardiovascular diseases (males 29%; females 32%), cancers (males 22%; females 28%), respiratory diseases (males 15%; females 7%), and mental disorders (males 14%; females 12%). All deaths attributable to mental disorders in this period were among younger people (males 15 to 44 years; females 15 to 34). More than a year after discharge, a lower proportion of deaths was related to mental disorders (males 10%; females 8%), but there was an increase in cardiovascular disease deaths (males 38%; females 35%). During this time, 86% of male deaths and 65% of female deaths attributable to mental disorders were among people younger than 45 years. The majority of deaths attributable to mental disorders were due to alcohol and drug dependence.

A higher proportion of males committed suicide within the first year after discharge (1.5%), than died from either natural causes (1.3%) or accidental injury and poisoning (0.4%). Among females, the proportion completing suicide within the first year was only 0.4%; significantly less than males. Unlike males, however, the proportion of females dying from natural causes (0.6%) was higher than the proportion completing suicide. Mortality continued to rise with increasing time from discharge for both genders, mainly accounted for by natural causes and the ageing of the study group.

7.1.1 Risk factors associated with suicide

Of the people discharged between 1981 and 1997 for deliberate self-harm, 552 had committed suicide by the end of the study period. Two-thirds of these were males. The risk of suicide was highest during the year following discharge (1%) but decreased over time, stabilising at about five years (0.1%) (Figure 40). The probability of suicide remained significantly higher in males than females over the period (Figure 39).

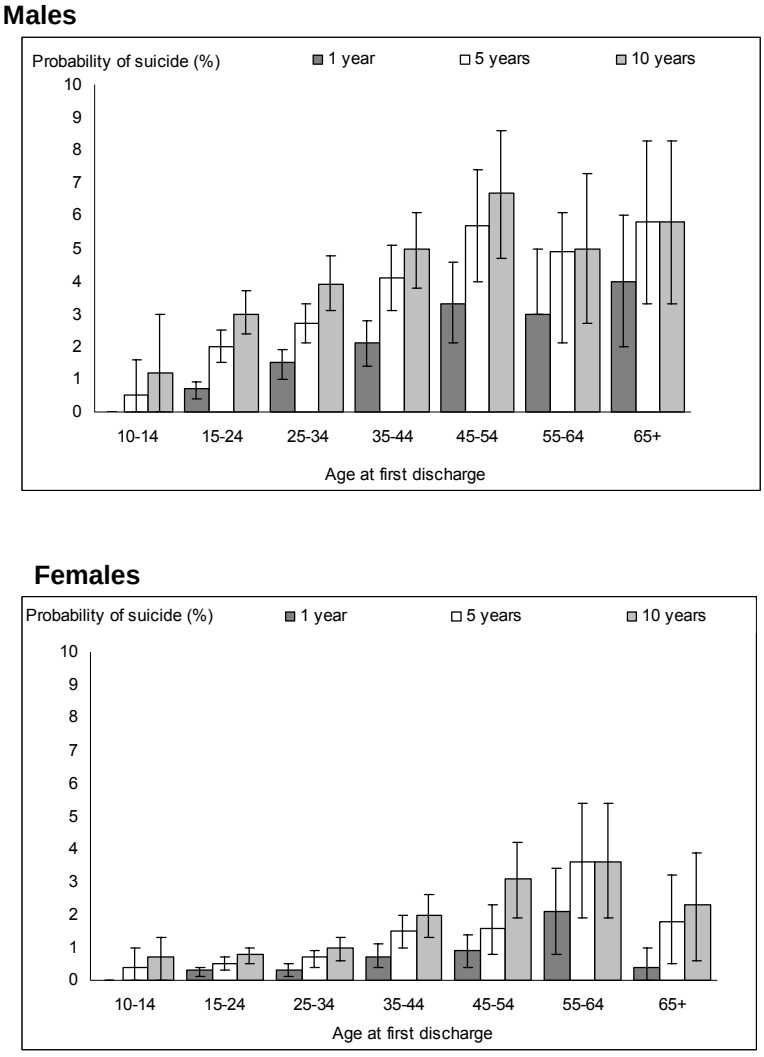
Figure 40 Probability[1] of suicide (%) by time since initial discharge



Note: 1 The probabilities used in this figure are hazard rates. This is an estimate of the probability that a person who has survived to the beginning of each year after discharge will commit suicide in that year.

Generally, males aged 45 to 54 years and females aged 55 to 64 years had the highest probability of suicide one, five and ten years after their first discharge for deliberate self-harm (Figure 41).

Figure 41 Probability of suicide (%) at one, five and ten years after the first discharge for deliberate self-harm, by age and gender



Note: The bars are the 95% confidence intervals for cumulative probability.

The factors shown in Table 33 were found to influence the risk of suicide. The most important points are:

- Males were three times more likely than females to commit suicide.
- Non-Aboriginals were more than three times as likely to commit suicide as Aboriginals. A year after discharge non-Aboriginals had a higher cumulative probability of suicide (0.9%) than Aboriginals (0.1%).
- People with a low level of socioeconomic disadvantage or in a higher socioeconomic group at the time of their initial discharge were 20% more likely to commit suicide than people with a high level of socioeconomic disadvantage or in a lower

socioeconomic group. Five years after their initial discharge, people with a low level of socioeconomic disadvantage had a significantly higher cumulative probability of suicide (2%) than people with a high level of socioeconomic disadvantage (1.5%).

- People living in remote areas at the time of their initial discharge were less likely to commit suicide compared to residents of the metropolitan area, but overall there was no significant difference between residents of rural and metropolitan areas. However, the probability of residents of both rural and remote areas committing suicide in the first year after hospitalisation was significantly lower (0.5%) than metropolitan residents (1.0%).
- A person with multiple admissions for deliberate self-harm was twice as likely to complete suicide than a person admitted only once. Although not significant one year after discharge, the probability of suicide was significantly higher five years after discharge among people with multiple admissions (2.7%) than among people admitted once (1.5%).
- The probability of completing suicide five years after discharge was significantly higher for people using a violent method resulting in their initial admission for deliberate self-harm (2.6%) compared to people who used non-violent methods (1.7%).

Table 33 Risk factors influencing the probability of suicide after the first discharge for deliberate self-harm

Risk factor	Adjusted HR[1,2]		95% CI[3]
Gender			
Male	3.1	▲	(2.6-3.7)
Female	1.0		
Aboriginality			
Non-Aboriginal	3.1	▲	(1.7-5.6)
Aboriginal	1.0		
Socioeconomic status			
Low disadvantage	1.2	▲	(1.0-1.5)
High disadvantage	1.0		
Place of residence			
Metropolitan	1.0		
Rural	0.9		(0.7-1.2)
Remote	0.6	▼	(0.4-0.9)
Repeat admissions			
Multiple	2.0	▲	(1.7-2.4)
Single	1.0		
Initial method			
Violent	1.3	▲	(1.0-1.7)
Non-violent	1.0		

Notes: 1 Hazard ratio (HR) adjusted using Cox's Proportional Hazards Modelling. Values are adjusted for all other factors in the Table.
2 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively.
3 Figures in parentheses are 95% confidence intervals.

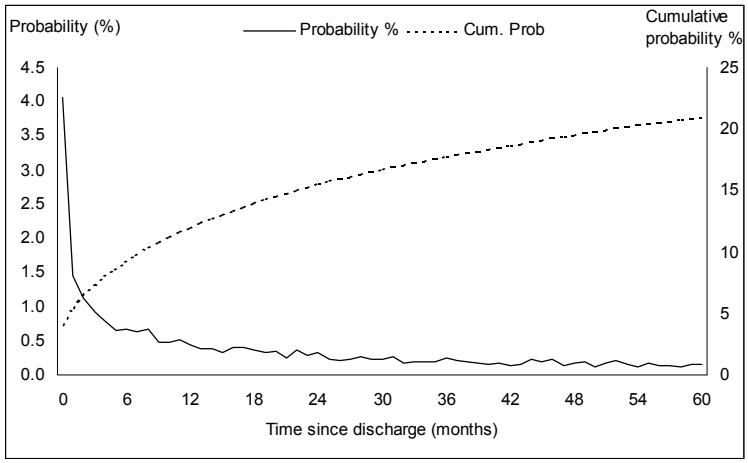
7.2 Risk factors associated with repeated deliberate self-harm

While about half of repeat episodes (death or hospital admission) for deliberate self-harm occur within a year of the initial discharge for deliberate self-harm, the time between the first and second episode ranged from within the same day to over 17 years, with a median of 372 days.

The probability of a repeated episode was highest in the first month after the initial discharge and decreased rapidly over the first year for both sexes, and stabilised at about five years following the initial discharge. For all people discharged for deliberate self-harm, the probability of a repeat episode within one month was 4%. After one year the probability had risen to 12%, and five years after the initial discharge the cumulative probability was 21% (Figure 42).

One month after the initial discharge, the probability of a repeat deliberate self-harm episode was higher for males (4.6%) than females (3.4%), and the male probability remained higher with increasing time after discharge. Overall, males were 10% more likely to repeat deliberate self-harm (Table 34).

Figure 42 Probability of a second episode for deliberate self-harm, by time since initial discharge



Note: Cumulative probability is the sum of the monthly probabilities.

Males of all ages were at equal risk of a second episode within a month of their first discharge, but after a year males aged between 25 and 54 years were at higher risk. Overall, females aged 25 to 44 years had a significantly higher probability of a second episode than females of other ages. Elderly females (65 years and over) were less likely to repeat than younger females.

Other factors, shown in Table 34, which were found to influence the risk of a second episode of deliberate self-harm include:

- The probability of non-Aboriginals committing deliberate self-harm a second time was significantly higher than for Aboriginal people.
- For people classified in the lowest and highest quintiles of socioeconomic disadvantage, there was no significant difference in the probability of a second episode of deliberate self-harm.
- Rural and remote area residents had a lower probability of a second episode of deliberate self-harm than metropolitan residents. These findings may relate to the reduced accessibility of hospitals and emergency health services in rural and especially remote areas, rather than a real reduction in repeated deliberate self-harm.
- People who used a violent method resulting in their initial admission for deliberate self-harm had a significantly higher probability of repeating one month after discharge (5.9%) than people who used non-violent methods (3.9%).

7.3 Risk factors associated with short-term repetition

Of the people hospitalised for repeated deliberate self-harm between 1981 and 1996, 63% (3,524) were hospitalised within a year of a previous discharge, and 49% within a month. Although people repeating within one month of a previous discharge for deliberate self-harm represented only 7% of all people hospitalised for deliberate self-harm, they accounted for over 20% of all hospitalisations involving deliberate self-harm between 1981 and 1996.

Odds ratios (both unadjusted and adjusted) indicated that gender, age, and the method used which resulted in the initial admission influenced the risk of short-term repetition. Being male, aged between 25 and 44 years, and using a violent method resulting in first admission, significantly increased the risk of short-term repetition (Table 35).

Table 34 Risk factors influencing the probability of a repeat episode after the first discharge for deliberate self-harm

Risk factor	Adjusted HR[1,2]		95% CI[3]
Gender			
Male	1.1	▲	(1.0-1.2)
Female	1.0		
Aboriginality			
Non-Aboriginal	1.3	▲	(1.2-1.4)
Aboriginal	1.0		
Socioeconomic status			
High disadvantage	1.0		(0.9-1.1)
Low disadvantage	1.0		
Place of residence			
Metropolitan	1.0		
Rural	0.9	▼	(0.8-1.0)
Remote	0.8	▼	(0.7-0.9)
Method			
Violent	1.1	▲	(1.0-1.2)
Non-violent	1.0		

Notes: 1 Hazard ratio (HR) adjusted using Cox's Proportional Hazards Modelling Values are adjusted for all other factors in the Table
2 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
3 Figures in parentheses are 95% confidence intervals

Table 35 Odds ratios (OR) for risk factors for repeated deliberate self-harm within one month of any previous discharge, 1981 to 1996

Risk factor	Adjusted OR[1]		95% CI[2]
Gender			
Male	1.2	▲	(1.1-1.3)
Female	1.0		
Age			
<= 14	1.0		
15-24	1.2		(0.9-1.6)
25-34	1.4	▲	(1.1-1.9)
35-44	1.4	▲	(1.1-1.9)
45-54	1.2		(0.9-1.6)
55-64	1.1		(0.7-1.6)
65+	1.0		(0.7-1.5)
Aboriginality			
Non-Aboriginal	1.2		(1.0-1.4)
Aboriginal	1.0		
Place of residence			
Metropolitan	1.0		
Rural	1.0		(0.8-1.1)
Remote	0.9		(0.8-1.1)
Socioeconomic status			
High disadvantage	1.1		(1.0-1.2)
Low disadvantage	1.0		
Method			
Violent	1.5	▲	(1.3-1.7)
Non-violent	1.0		

Notes: 1 The symbol ▲ indicates statistically significant increases in rates
2 Figures in parentheses are 95% confidence intervals

8 Discussion

People discharged for deliberate self-harm were found to be over three times more likely to die and over 20 times more likely to complete suicide than the general population. A Canadian study of hospital patients discharged for deliberate self-harm found a similar degree of mortality among such people.[9] The excessive mortality among people admitted for injuries sustained through deliberate self-harm, illustrates the importance of describing the characteristics of people hospitalised under these circumstances.

8.1 Gender

Over the period 1981 to 1997, the admission rate for deliberate self-harm was much higher for females than for males, with the younger age groups of both genders having the highest admission rates. However, after discharge for deliberate self-harm, males were three times more likely to commit suicide than females with a higher risk of repeating deliberate self-harm both overall and within a month of discharge. Furthermore, both the rate and incidence of hospitalisation due to deliberate self-harm among males increased over the study period.

8.2 Methods used in deliberate self-harm

A review of suicide in Australia also showed that females attempt suicide more often than males, while males complete suicide more often than females.[7] The choice of method is the most likely explanation because a higher proportion of males use violent methods to attempt suicide, which are more likely to result in a fatality, whereas females are more likely to overdose. The current study also revealed that people using violent methods in their initial attempt were more likely to subsequently commit suicide or repeat deliberate self-harm within a short time than people using non-violent methods (e.g. poisoning by drugs). This is of particular concern because the rate of admission for self-harm due to injuries sustained by cutting and piercing increased during the study.

Programs giving enhanced care, assessment and appropriate follow-up care to patients likely to repeat deliberate self-harm have been established in Perth hospital emergency departments. Research has shown that follow-up of teenage patients admitted for deliberate self-harm to emergency departments in Perth significantly reduced readmission to hospital as a result of deliberate self-harm.[3] This approach is consistent with recent research in the UK which recommends a case review prior to discharge, including assessment of risk and follow-up instigated within 48 hours for high risk patients and within one week for all discharges.[6]

Whilst attempts involving violent methods increase the risk of subsequent suicide, most admissions for attempted suicide are due to drug overdoses, with drugs prescribed for psychiatric illness being the most popular.[15] In this study overall admission rates for deliberate self-poisoning decreased over the study period, whilst admission rates for deliberate self-poisoning using prescribed or over-the-counter drugs increased. Similarly,

international studies have also shown an increase in antidepressant and analgesic use, especially paracetamol, for deliberate self-poisoning.[16,17,18,19]

Other studies have demonstrated the link between drug availability and self-poisoning and shown that restricting the access of prescribed drugs reduces self-poisoning.[16,20] Research suggests patients treated with psychotropic drugs for self-harm should be prescribed modern, less toxic drugs in limited supply to last no more than two weeks.[6] Strategies recommended to restrict the availability of over-the-counter drugs, such as paracetamol, include dispensing drugs in smaller amounts or combining an emetic or methionine to alleviate liver damage.[21]

8.3 Youth

A decrease in the rate of admission among 15-19 year old males and females indicates a decline in deliberate self-harm at least of the most severe kind, among adolescents. These findings are consistent with the strategies to reduce suicide among 15-24 year olds implemented by the Youth Suicide Advisory Committee since 1989. However, no such trend was apparent for young adults (20-24 years) and it is of concern that among females in this age group the rate of hospitalisation for deliberate self-harm increased since 1990.

The impact of strategies to reduce youth suicides may provide, in part, an explanation for a decline in deliberate self-harm among 15-19 year olds. However, the ageing of a vulnerable cohort of people aged 15-24 years in the late eighties and early nineties may offer an alternative explanation. As this cohort ages its rate of deliberate self-harm remains high while those among younger cohorts are lower. There is no clear evidence from the trends in hospitalisations of deliberate self-harm to determine the validity of either explanation.

8.4 Socioeconomic factors

Socioeconomic disadvantage was found to be a risk factor for hospitalisation due to deliberate self-harm. It is unclear whether this reflects differences in the type of medical care sought or in the incidence of deliberate self-harm among people of varying socioeconomic groups.

Among people previously hospitalised for deliberate self-harm, those who were subsequently more likely to commit suicide were in the higher socioeconomic group. This finding is similar to that of a study on suicide among the population of Western Australia.[22] Other research has associated accessibility to the means of suicide with the method used to commit suicide.[23] Thus, while still unclear, it may be that people from the higher socioeconomic groups have access to more alternative methods of committing suicide and thus are at greater risk of death following discharge from a previous self-harm attempt.

8.5 Geographical variations

Results of this study show that males living in the metropolitan area had higher admission rates for deliberate self-harm than males living in rural and remote areas. However, studies found that the suicide rate was higher for remote and rural males than metropolitan males.[22,24] Assuming that the incidence of deliberate self-harm is similar in all areas, the geographic variation in admission rates may be explained by different survival rates. These may differ because of differences in access to emergency health services and the method of self-harm. In remote areas, the chance of dying from an injury before reaching hospital is twice as high as in the metropolitan area.[25] Furthermore, people in remote areas more commonly use violent methods,[24] which also increases the likelihood of dying before medical assistance is available. The higher male suicide rates in rural and remote areas and reduced access may result in a reduced hospital admission rate for deliberate self-harm among males living in these areas.

Simultaneous examination of deliberate self-harm and suicide rates is also essential when analysing the geographic variation among females. This report found that female residents of remote areas have the highest hospital admission rates, despite an earlier finding of lower suicide rates.[24] In contrast, metropolitan females had lower admission rates than female residents of remote areas, but the highest suicide rate.[24] The incidence of deliberate self-harm may be similar in both areas, but other factors exist in the metropolitan area which increase the risk of females completing suicide.

When controlling for the effect of gender, metropolitan residents previously discharged for deliberate self-harm were more likely to repeat deliberate self-harm or complete suicide than residents of rural and remote areas.

8.6 Aboriginality

The rate among Aboriginal people admitted to hospital for deliberate self-harm was higher than among the overall State population and increased over the study period. Although Aboriginal youth have been identified as a group at risk from suicide, the highest rates of admission for deliberate self-harm were among Aboriginals aged 30 to 34 years. However, once discharged from their initial episode of deliberate self-harm, Aboriginals were less likely to commit suicide or repeat than non-Aboriginals. Similarly, among psychiatric patients, Aboriginals had a reduced risk of suicide than non-Aboriginals.[26] With no hospital services specifically designed for Aboriginal people, the Western Australian Aboriginal youth suicide prevention policy, implemented after the study period, was designed to complement Commonwealth programs. These initiatives aim to adapt existing strategies and develop specific prevention strategies appropriate for young Aboriginal people.[27,28]

8.7 Repeated hospitalisations

Although the younger age groups had higher admission rates there was an increased risk of repetition among patients aged 25 years and over.

Other studies have shown that people with a history of self-harm account for a significant proportion of consultations due to deliberate self-harm and tend to repeat within a short time. For example, a study of Perth youth attending emergency departments for injuries due to deliberate self-harm found that half the subjects had previously attempted suicide. Of these, almost half had done so within the previous two months and most within the preceding year.[3] Similarly a NSW study found that 32% of hospital patients admitted for self-poisoning were readmitted within 28 days.[29]

The majority of people hospitalised for treatment due to deliberate self-harm in the period 1981 to 1997 were neither readmitted nor had committed suicide by the end of 1997. However, people repeating deliberate self-harm contributed to a disproportionate amount of hospitalisation, as almost a third of all admissions for deliberate self-harm involved repeated attempts. Furthermore, people who repeat deliberate self-harm had a greater risk of committing suicide than people hospitalised only once. This evidence supports the establishment of programs that currently operate in metropolitan teaching hospitals and in some regional hospitals within Western Australia, that provide short-term support and appropriate referral to mental health services for longer-term follow-up and support.[30]

Linking mental health services to the care of patients admitted for deliberate self-harm is important. Mental disorder is a leading risk factor for suicidal behaviour and is associated with a significant proportion of suicides in Western Australia, with psychiatric patients having an increased risk of suicide.[26] The main psychiatric diagnoses among young people attempting suicide were adjustment disorders with depressed mood, major depressive disorder and personality disorder. Among cases with multiple attempts the most common psychiatric diagnoses were conduct or personality disorders.[15] However, many youth suicides occur in the context of alcohol or drug use.[7] Similarly, this report found a significant proportion of people of all ages hospitalised due to deliberate self-harm subsequently died from alcohol and drug dependence. These circumstances suggest that a history of alcohol and drug use is important in determining at-risk individuals.

In conclusion, this study provides a comprehensive review of risk factors and methods associated with hospital admission due to deliberate self-harm in Western Australia over the past 18 years. While the overall rates of hospitalisation due to deliberate self-harm have remained fairly constant during the study period, changes in the methods used, geographic variation and age-specific rates have been clearly documented.

It is encouraging to see that deliberate self-harm among teenagers has shown significant improvement, as preventing youth suicide has been a priority area for government intervention. The epidemiological evidence in this report provides useful data about a range of factors associated with deliberate self-harm that will assist policy makers in determining future suicide prevention strategies.

9 Appendices

Appendix Table 1 Numbers and age-standardised rates for deliberate self-harm admissions by gender and year

Western Australia, 1981 to 1998

	Males		Females	
Year	Numbers	ASR[1] per 100,000	Numbers	ASR[1] per 100,000
1981	731	109.3	1,226	191.5
1982	802	116.9	1,254	188.8
1983	853	121.8	1,408	207.4
1984	840	117.8	1,293	186.6
1985	816	111.4	1,301	183.7
1986	879	116.6	1,321	179.8
1987	847	109.9	1,212	161.8
1988	874	110.1	1,235	159.6
1989	878	108.1	1,237	155.9
1990	923	111.5	1,201	148.7
1991	895	107.2	1,235	151.5
1992	959	114.5	1,273	155.0
1993	997	118.4	1,284	155.3
1994	1,031	121.0	1,477	176.4
1995	1,111	128.5	1,613	189.6
1996	1,142	128.7	1,715	198.8
1997	1,094	121.1	1,637	186.4
1998	1,212	131.8	1,646	184.4

Note: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates

Appendix Table 6 Numbers and age-standardised rates of admissions for deliberate self-harm by area, gender and year

Western Australia, 1981 to 1998

Year	*Metropolitan*		*Rural*		*Remote*	
	Numbers	ASR[1] per 100,000	Numbers	ASR[1] per 100,000	Numbers	ASR[1] per 100,000
Males						
1981	577	121.1	87	69.3	61	92.2
1982	639	130.5	107	85.3	43	65.7
1983	674	134.2	102	80.3	63	87.4
1984	649	126.6	115	87.6	68	98.8
1985	633	119.5	90	70.6	74	102.1
1986	691	125.8	87	64.6	78	109.7
1987	662	117.6	92	67.7	84	117.2
1988	670	115.3	114	82.3	70	100.0
1989	669	111.5	122	87.9	63	90.7
1990	683	111.4	128	90.1	96	134.6
1991	648	104.1	147	105.5	79	127.8
1992	723	115.5	121	87.6	91	128.3
1993	715	113.2	164	117.1	101	141.5
1994	768	120.7	163	115.4	82	111.6
1995	847	130.6	152	105.0	93	134.5
1996	863	128.5	147	104.5	98	135.8
1997	824	120.6	155	107.8	97	125.8
1998	884	126.6	183	131.0	112	141.3
Change		=		▲		▲
Females						
1981	947	199.3	157	138.7	115	219.4
1982	996	200.7	169	148.4	88	170.6
1983	1,123	221.0	184	158.9	95	189.4
1984	1,015	195.2	164	140.4	108	203.9
1985	1,025	192.5	166	141.8	106	182.1
1986	1,059	189.8	167	139.4	91	164.7
1987	936	164.0	168	136.7	104	187.1
1988	964	163.6	172	136.3	91	158.3
1989	941	154.6	174	138.7	110	196.8
1990	917	147.7	163	129.7	114	194.4
1991	961	153.4	167	131.4	102	170.0
1992	1,008	159.5	150	116.3	105	174.9
1993	1,009	157.9	168	127.4	100	171.8
1994	1,116	172.5	211	158.9	138	230.5
1995	1,196	181.4	246	182.3	153	255.1
1996	1,258	186.8	307	235.4	137	225.6
1997	1,236	179.9	277	210.0	111	180.3
1998	1,275	181.9	241	185.6	112	177.8
Change		▼		▲		▲

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates

2 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively, and = indicates no change in rates over the time period

Appendix Table 7 Numbers and age-standardised rates of admissions for deliberate self-harm involving drugs by area, gender and year

Western Australia, 1981 to 1998

Year	*Metropolitan*		*Rural*		*Remote*	
	Numbers	ASR[1] per 100,000	Numbers	ASR[1] per 100,000	Numbers	ASR[1] per 100,000
Males						
1981	488	102.3	76	60.9	46	67.0
1982	530	108.5	91	72.7	36	52.2
1983	546	109.1	84	66.2	44	59.9
1984	526	102.5	93	70.6	46	66.1
1985	489	92.2	67	52.5	53	72.5
1986	534	97.0	71	52.4	64	88.6
1987	532	94.4	68	49.9	51	73.6
1988	500	85.5	78	56.6	48	71.1
1989	513	85.6	87	62.7	37	52.4
1990	511	83.3	90	63.6	63	90.9
1991	485	77.9	115	82.2	41	63.6
1992	524	83.6	83	60.3	51	76.9
1993	502	79.3	117	83.2	43	64.6
1994	571	89.7	106	75.3	31	42.7
1995	645	99.1	91	62.9	39	55.9
1996	620	92.2	99	69.3	40	58.0
1997	583	85.2	97	67.4	43	55.6
1998	655	93.7	108	76.4	37	48.9
Change		▼		▲		▼
Females						
1981	886	186.6	154	136.2	105	199.4
1982	925	186.3	159	139.4	79	149.2
1983	1,022	201.2	177	152.9	91	181.7
1984	936	180.2	158	135.1	99	185.9
1985	939	176.4	151	129.3	95	164.3
1986	978	175.3	158	132.0	82	150.3
1987	874	153.2	145	118.4	90	163.0
1988	886	150.4	157	124.2	74	130.8
1989	863	141.7	162	128.7	93	169.1
1990	833	134.2	149	118.1	98	169.8
1991	871	139.0	145	114.0	80	135.0
1992	913	144.4	138	106.8	83	139.5
1993	912	142.8	143	108.1	71	123.1
1994	983	151.8	174	130.2	105	176.0
1995	1,040	157.7	201	149.3	113	193.2
1996	1,106	164.2	255	194.1	78	135.6
1997	1,057	153.8	222	168.0	77	124.9
1998	1,074	153.1	185	143.5	66	104.4
Change		▼		▲		▼

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively

Appendix Table 8 Numbers and age-standardised rates of admissions for deliberate self-harm involving cutting/piercing by area, gender and year

Western Australia, 1981 to 1998

Year	*Metropolitan*		*Rural*		*Remote*	
	Numbers	ASR[1] per 100,000	Numbers	ASR[1] per 100,000	Numbers	ASR[1] per 100,000
Males						
1981	38	8.0	3	*	6	*
1982	59	11.4	9	*	4	*
1983	74	14.5	5	*	9	*
1984	63	12.1	6	*	9	*
1985	79	15.0	6	*	11	*
1986	83	15.1	7	*	8	*
1987	65	11.7	14	*	19	*
1988	84	14.6	14	*	11	*
1989	89	14.6	17	*	15	*
1990	78	12.8	16	*	16	*
1991	80	12.8	12	*	22	*
1992	78	12.5	19	*	24	*
1993	81	13.1	28	*	36	47.7
1994	101	16.0	21	*	33	44.9
1995	92	14.3	38	*	34	48.4
1996	98	14.8	26	*	42	54.8
1997	115	17.0	38	*	33	42.0
1998	119	17.2	39	*	47	57.6
Change		▲				
Females						
1981	28	5.7	1	*	4	*
1982	45	9.1	1	*	5	*
1983	46	8.8	4	*	1	*
1984	39	7.4	3	*	3	*
1985	43	7.9	6	*	7	*
1986	45	8.0	4	*	2	*
1987	44	7.6	16	*	6	*
1988	38	6.5	9	*	13	*
1989	38	6.3	9	*	10	*
1990	53	8.5	6	*	11	*
1991	55	8.8	15	*	17	*
1992	51	8.1	5	*	13	*
1993	48	7.5	20	*	19	*
1994	82	12.8	11	*	22	*
1995	77	11.7	25	*	27	*
1996	79	11.8	33	*	45	67.8
1997	123	18.1	35	*	24	*
1998	121	17.6	37	*	27	*
Change		▲				

Notes: 1 ASR = age-standardised rates, standardised using the Australian 1991 population estimates
2 The symbols ▼ and ▲ indicate statistically significant decreases or increases in rates respectively
* Number of admissions too low to calculate rates

Appendix Table 12 Numbers and age-standardised admission rates for deliberate self-harm using selected methods among the Aboriginal population

Western Australia, 1981 to 1998

Year	Drugs		Cutting/piercing		All attempts	
	Numbers	ASR[1] per 100,000	Numbers	ASR[1] per 100,000	Numbers	ASR[1] per 100,000
Males						
1981	17	*	4	*	25	*
1982	20	*	6	*	30	215.4
1983	30	203.5	9	*	50	298.5
1984	32	184.8	10	*	52	291.2
1985	20	*	11	*	41	244.4
1986	24	*	9	*	37	194.9
1987	36	211.5	20	*	65	359.2
1988	32	139.5	18	*	59	251.7
1989	29	*	16	*	59	289.5
1990	31	135.1	20	*	65	300.9
1991	36	186.3	23	*	69	330.0
1992	34	159.6	29	*	78	339.0
1993	53	244.8	43	182.0	114	505.5
1994	35	156.1	34	144.6	89	383.3
1995	37	151.2	32	155.4	88	389.1
1996	56	256.3	43	170.4	114	481.8
1997	31	146.5	35	146.3	94	400.0
1998	59	237.9	54	207.5	139	543.4
Females						
1981	94	644.2	4	*	100	679.3
1982	51	328.7	4	*	58	384.0
1983	67	374.5	10	*	79	436.3
1984	56	351.6	5	*	66	390.4
1985	60	341.2	11	*	75	428.4
1986	61	282.7	7	*	72	326.9
1987	57	286.5	7	*	66	334.6
1988	77	347.6	10	*	91	420.6
1989	96	430.1	14	*	116	510.4
1990	90	402.4	17	*	113	494.1
1991	85	364.9	17	*	108	461.5
1992	69	292.9	16	*	91	384.4
1993	61	260.8	24	*	90	381.6
1994	90	382.6	31	136.8	143	623.0
1995	95	407.2	26	*	131	540.1
1996	97	395.6	49	181.4	164	643.6
1997	73	279.7	30	106.5	115	440.6
1998	90	338.4	37	134.6	144	536.0

Notes: 1 Age-standardised rates, standardised using the Australian 1991 population estimates
* Number of admissions too low to calculate rates

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