



- Home
- About us
- Whats New
- Noticeboard
- Publications
- Monitor
- Directory
- Diary
- Search
- Contact us

Site last updated

11/11/2010

- [Purpose](#)
- [Data Issues](#)
- [Interpretation of this report](#)
- [References](#)
- [Overview](#)
- [ROAD transport](#)
- [Motor vehicle occupants](#)
- [Motor cyclists](#)
- [Pedal cyclists](#)
- [Pedestrians](#)
- [Poisoning](#)
- [FIRES Burns, SCALDS](#)
- [ACCIDENTAL Falls](#)
- [Self harm](#)
- [INTERPERSONAL Violence](#)

# Aboriginal Injury-related Hospitalisation 1991/92

Aboriginal and Torres Strait Islander Peoples Injury-Related Hospitalisations 1991/92

A Comparative Overview

Report prepared by

Australian Institute of Health and Welfare

National Injury Surveillance Unit

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June 1996

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Site last updated

11/11/2010



## Purpose

- [Structure of the report](#)

The injury experience of Aboriginal and Torres Strait Islander peoples is not well documented. The National Injury Surveillance Unit published an overview of Aboriginal injury-related deaths in the triennium 1990-1992 (Harrison & Moller, 1994). Occasionally, some State health authorities have released monographs that have included an analysis of broad patterns of injury hospitalisation (e.g. Sleet et al., 1991; Kirke et al., 1993). All of these report higher rates of injury among Aboriginal and Torres Strait Islander peoples compared with non-Aboriginals. However, relatively small numbers of cases have prevented these authors from undertaking more in-depth analyses of Aboriginal and Torres Strait Islander injury patterns.

The purpose of this report is to:

- provide a description of injury hospitalisation patterns among Aboriginal and Torres Strait Islander peoples across all States and Territories (with the exception of the Northern Territory) that is as sound as possible given the nature of available data;
- identify key injury issues in the Aboriginal and Torres Strait Islander peoples;
- draw comparisons between the injury experience of Aboriginal and Torres Strait Islander peoples and the non-Aboriginal population; and
- point out the limitations of existing data sources and how they might affect the interpretation of the injury problem among Aboriginal and Torres Strait Islander peoples.

The period covered in this report is the 1991/92 financial year. We have combined hospitalisations data from all Australian States and the Australian Capital Territory to obtain sufficient numbers for a more detailed level of analysis. This is not without its problems as little is known about how identification of Aboriginality varies from state to state. This and other data-related issues are further discussed later in the report.

While recognising the limitations of the available data, we thought it important to describe what can be reasonably known from the best available data. The results should be treated with caution. Many of the comparative findings are so striking that it seems reasonable to assume that while correction of errors in the data set might alter numerical values somewhat, the conclusions to be drawn from these results would not change significantly. On the other hand, where differences in rates and patterns of injury are less pronounced, the impact of measurement errors in the data set might account for the observed discrepancies. It was not possible to estimate the magnitude of measurement errors in the present data set. Accordingly, we have not calculated or presented confidence intervals around our findings of differences in rates (and rate ratios).

Aside from measurement errors in the data set, the observed number of hospitalisations in any arbitrarily chosen period of time will be subject to random variation. It is possible to estimate the magnitude of the "error" associated with random variation by assuming an appropriate probability distribution and deriving confidence intervals. If the observed numbers of hospitalisations are assumed to be generated by a simple Poisson process, approximate 95% Poisson confidence intervals can be calculated using the Poisson variability factors shown in Table 1.

For example, the transportation injury rate for Aboriginal and Torres Strait Islander males is 614 per 100,000 based on 661 cases. The Poisson variability factor is 0.08 (approximate interpolation from figures in Table 1). The lower bound is calculated as  $614 - (614 * 0.08) = 565$ . Similarly, the upper bound is calculated as  $614 + (614 * 0.08) = 663$ . Thus the approximate 95% Poisson confidence interval for this rate is 565 - 663 per 100,000.

**Table 1: Poisson variability factors for calculating approximate two-sided 95% confidence intervals for injury rates**

Number of cases (N)	Poisson variability factor (P)
4	0.98
5	0.89
6	0.81
7	0.74
8	0.70
9	0.65
10	0.62
20	0.44
30	0.36
40	0.31
50	0.28
100	0.20
200	0.14
500	0.09
1,000	0.06
2,000	0.04
5,000	0.03
10,000	0.02

Note: To use this table, select the number of cases (N) on which a rate (R) is based and look up the Poisson variability factor (P). The lower (L) and upper (U) bounds of an approximate 95% confidence interval are calculated as  $L = R - (R * P)$  and  $U = R + (R * P)$ .

In commenting on our results and assessing whether our findings could be justified, we considered the numbers of injuries, the consistency of injury patterns across age groups and causes, as well as existing knowledge of injury occurrence. This qualitative approach was considered to be appropriate given the nature of the data.

### Structure of the report

Firstly, we describe the purpose of this report and the important issues relating to the quality of the available data. This is followed by a comparative overview of injury in Aboriginal and Torres Strait Islander peoples and non-Aboriginal populations. From this, a number of specific injury causes are selected for more in-depth analysis. Criteria for selection included: contribution to injury rates across the age range; the existence of particular age-specific patterns that could be the target of preventive strategies; and causes where differentials between Aboriginal and Torres Strait Islander peoples and non-Aboriginals were particularly high.

For each specific caused that was analysed in detail, the following items are presented:

- a definition of cases;
- the number of cases, crude and age-adjusted rates of hospitalisation for Aboriginal and Torres Strait Islander peoples;
- the key injury risks for Aboriginal and Torres Strait Islander peoples;
- the number of cases, crude and age-adjusted rates of hospitalisation for non-Aboriginals;
- a comparison between the two populations.



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11/11/2010



## Data Issues

- [Identification of Aboriginal and Torres Strait Islander peoples in hospital collections](#)
- [Identification of the Aboriginal and Torres Strait Islander populations](#)
- [Coverage of States and Territories](#)
- [Differences in hospitalisation practices](#)
- [Age-adjustment](#)
- [ICD9 external cause code aggregations](#)

### Identification of Aboriginal and Torres Strait Islander peoples in hospital collections

Little is known about the overall reliability of the identification of Aboriginal and Torres Strait Islander peoples in hospital data collections. It is likely to vary from place to place and may vary from age to age: "Several validation studies have shown that Aboriginal and Torres Strait Islander peoples are often significantly under enumerated in health related data collections and that the extent of under enumeration varies between State and Territories, regions, even between different hospitals..." (Woodward & Bhatia, 1996).

The extent of under identification in hospital separation data in Victoria has recently been estimated: "For the first year of mandatory reporting of Aboriginality of hospital patients there was a significant increase in the number of Koori admissions. There were 2683 Koori admissions to public hospitals reported in 1992-93. This increased to 4212 Koori admissions in public hospitals for 1993-94"(Information on Koori Illness in the Community Koori Health Unit of the Department of Human Services Victoria. World Wide Web site address: <http://hna.ffh.vic.gov.au/phb/hdev/koori/kh4.html>). This represents a 57 percent increase which suggests probable substantial under identification in the 1991/92 Victorian data used in the present report. Even if other states do not experience such a large discrepancy, it is likely that the level of underestimation is high and therefore comparative rate ratios between Aboriginal and Torres Strait Islander peoples and non-Aboriginal people will underestimate the real difference in risk levels.

Identification may also vary from cause to cause. There is a large body of evidence to suggest that violence to females in the non-Aboriginal community is poorly identified (e.g. National Committee on Violence Against Women, 1992). This may be less so for Aboriginal and Torres Strait Islander females where both the patient and hospital staff may be more willing to record an incident as violent.

In addition, little is known about how appropriate the International Classification of Diseases (ICD) (World Health Organization, 1977) external causes codes are for coding injury occurrences among Aboriginal and Torres Strait Islander peoples. For example, it is not known how traditional punishment practices are coded. They could be classified as legal intervention in terms of traditional law; they may be coded as violence, especially if the hospital is not aware of the reason behind the injury; or they may be recorded as being accidental if this is the explanation given by the injured person.

In this paper, Aboriginal and Torres Strait Islander peoples were defined as all persons who had been definitely identified as such in the hospitalisation data set. All other persons including those whose Aboriginality was coded as unknown were included in the comparison non-Aboriginal population group. This is a conservative approach that may have included some Aboriginal and Torres Strait Islander cases in the comparison group which therefore may have underestimated some differences between the Aboriginal and Torres Strait Islander peoples and non-Aboriginals. It is not possible to separately identify Torres Strait Islander peoples nor to consider Aboriginal peoples with differing cultural affiliations. Consequently there is no consideration of variations in injury patterns within the Aboriginal and Torres Strait Islander populations.

### Identification of the Aboriginal and Torres Strait Islander populations

The best estimates of Aboriginal and Torres Strait Islander populations have been published by the Australian Bureau of Statistics (ABS). Furthermore, the ABS has studied the validity of the estimates of the Aboriginal and Torres Strait Islander populations (Benham & Howe, 1994). It appears that there has been a change in the underlying propensity of an individual to identify as an indigenous Australian. Nonetheless, it is uncertain whether the identification of the Aboriginal and Torres Strait Islander populations is complete.

In this report, 1991 Census counts of the Aboriginal and Torres Strait Islander populations were used as denominators for calculating rates of hospitalisation. The more accurate five-year age group estimates of Benham and Howe are higher than the 1991 Census counts across all age groups; the percentage by which the 1991 Census counts underestimate the more accurate estimates of Benham and Howe are shown in Table 2.

Because the rates of Aboriginal and Torres Strait Islander injury presented in this report are calculated using the 1991 Census population, they will be higher than the rates that would have been obtained if the Benham and Howe population estimates had been used. The degree of overestimation is proportional to the level of underestimation of the populations in any specific age and sex group. Differences in rates obtained using these two estimates of the Aboriginal and Torres Strait Islander populations are, in general, small in comparison to the differences observed between either of these rates and rates for the non-Aboriginal population. The non-Aboriginal population was calculated by subtraction of the Aboriginal and Torres Strait Islander population from the total 1991 population of Australia (excluding the Northern Territory).

Table 2: Percentages by which the 1991 Census counts of the Aboriginal and Torres Strait Islander population are less than the more accurate experimental estimates of Benham and Howe

Age group	Males	Females	Persons
0-4	4.5	4.2	4.3
5-9	4.5	4.2	4.4
10-14	3.3	3	3.2
15-19	8.1	6.3	7.2
20-24	13.6	5.2	9.5
25-29	14.3	5.8	10.1
30-34	10.1	3.6	6.8
35-39	11.2	3.9	7.5
40-44	4.9	2.5	3.7
45-49	4.2	5.2	4.7
50-54	3.9	1.8	2.8
55-59	4.3	6.1	5.2
60-64	5.3	2.7	3.9
65+	2.4	4	3.3
Total	7.4	4.4	5.9

### Coverage of States and Territories

Injury hospitalisation data from the Northern Territory were not available at the level of detail required. The Northern Territory has the highest proportion of Aboriginal people in its population of any State or Territory (Table 3). The effect of not having hospitalisation data from the Northern Territory is that the number of injury-related hospitalisations in Australia is underestimated and it is likely that the underestimation of Aboriginal and Torres Strait Islander peoples' cases is greater than that for the non-Aboriginal population.

Table 3: Aboriginal and Torres Strait Islander Census count, 30 June 1991

State or territory	Number of Aboriginal and Torres Strait Islander persons	Percentage of total state or territory population
New South Wales	75,020	1.3
Victoria	17,890	0.4
Queensland	74,214	2.5
South Australia	17,239	1.2
Western Australia	44,082	2.7
Tasmania	9,461	2.0
Northern Territory	43,273	26.1
Australian Capital Territory	1,616	0.6
Australia (includes other territories)	282,979	1.6

Source: Australian Bureau of Statistics, 1994

### Differences in hospitalisation practices

Hospitalisation data do not measure the number of injury incidents but provide a count of the number of hospital episodes that are injury-related. Different criteria for hospital admission in different hospitals will result in similar cases being admitted in one setting and not in another. Admission practices are highly policy sensitive (for example, they have been affected by the introduction of DRG's) and may change over time because of the policy climate rather than an underlying change in injury incidence, making time series of injury data difficult to interpret. These differences may be systematic across states, making between state comparisons difficult and impacting on the Australian aggregate.

The geographical distribution of the Aboriginal and Torres Strait Islander peoples and non-Aboriginal population is very different. It is likely that practices relating to the hospitalisation of Aboriginal and Torres Strait Islander peoples and non-Aboriginals differ because of this. For example, remote dwelling Aboriginal and Torres Strait Islander peoples are less likely to have local access to an inpatient hospital and therefore may be less likely to be admitted for injuries of moderate severity than a person living in a less remote area. This is not certain, however, because if the Aboriginal and Torres Strait Islander peoples are transported to a hospital a long distance from where they live, they may be more likely to be admitted to that hospital than a person with an identical condition who lives locally.

### Age-adjustment

Age-adjusted rates have been calculated in addition to crude rates to control for the effect of differences in the proportions of people of different ages (and different injury risks) in the populations that are compared. Direct age standardisation was used, taking the 1991 population of Australia, excluding the Northern Territory, as the standard.

### ICD9 external cause code aggregations

The injury categories presented in this report are based on standard aggregations of the ICD9 external cause (E-code) classification. The data set is comprised of all cases where at least one E-code was reported. The E-code equivalents for the causes examined in detail are presented in the Definition Box at the top of each section. Further information is available from the National Injury Surveillance Unit.



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## Interpretation of this report

- [Using the data](#)
- [Improving the data](#)

The information presented in this report represents the best available estimate of injury-related hospitalisation among Aboriginal and Torres Strait Islander peoples and non-Aboriginal people. The vagaries of the data may well mean that some issues which are important are not clearly identified in this report, while the apparent importance of some highlighted issues may prove to have been inflated by the cumulative effects of data validity problems. It is important that this be taken into consideration when interpreting the information. Nonetheless, our opinion is that the information contained in this report can be put to good use and it would be unwise to withhold these results due to the underlying data definitional problems.

To summarise the limitations of the existing data, it is likely that the results presented:

- generally underestimate the rate of injury-related hospitalisation among Aboriginal and Torres Strait Islander peoples; significant underestimation is likely for some specific causes of injury, such as violence for example;
- generally underestimate the rate ratios of Aboriginal and Torres Strait Islander injuries to those of non-Aboriginal people; some important exceptions may occur for some specific causes of injury such as violence; and
- reflect cultural biases due to the nature of coding systems used.

### Using the data

The data presented in this report cannot be used as base-lines for evaluation or for tasks that require accurate quantification. They are, however, sufficient to:

- form a basis for discussions about the importance of the injury issue for Aboriginal and Torres Strait Islander peoples;
- guide the selection of priorities and development of initial policies for injury prevention; and
- permit consideration of how the data could be improved.

### Improving the data

The major purpose of this report is to indicate what is known about injury occurrence among Aboriginal and Torres Strait Islander peoples based on existing data sources. It is clear that Aboriginal and Torres Strait Islander people experience high rates of injury from a number of causes and across all age groups. The available data show the significance of the problem and highlight the need for a problem of this size and complexity to be adequately monitored. Reviewers of earlier drafts of this report specifically asked that the matter of improvement of data be raised. There is a need to:

- develop consistent and valid practices for identifying Aboriginal and Torres Strait Islander peoples in hospital collections;
- establish accurate estimates of Aboriginal and Torres Strait Islander populations by smaller geographic areas;
- use classification systems that permit culturally appropriate reporting of injury among Aboriginal and Torres Strait Islander peoples.



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## Overview

- [Injury-related hospitalisation of Aboriginal and Torres Strait Islander peoples](#)
- [Key risks](#)
- [Injury-related hospitalisation of non-Aboriginals](#)
- [Comparative patterns of injury](#)

### Injury-related hospitalisation of Aboriginal and Torres Strait Islander peoples

There was a total of 10,386 injury-related hospitalisations among Aboriginal and Torres Strait Islander peoples in Australia, excluding the Northern Territory, in 1991/92. The distribution of these cases according to the major causes of injury is presented in Table 4. (Note that the use of the term "injury" in this report applies to both unintentional and intentional events, but excludes medical misadventure.) For each sex, the percentage that each of the major causes of injury represents of the total age-adjusted rate of hospitalisation is shown in Figure 1.

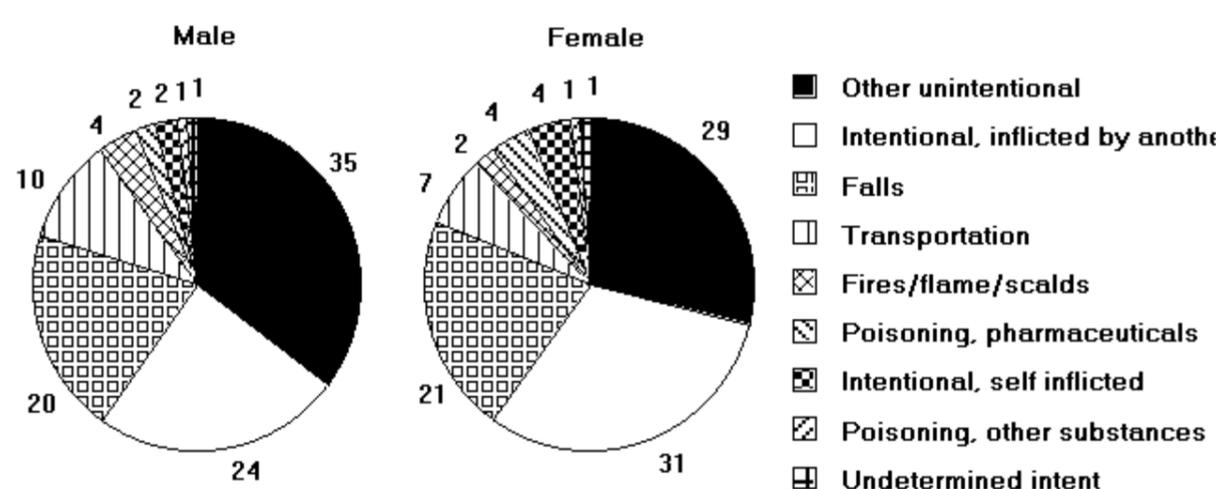


Figure 1: Percentage contribution of specific causes of injury to total sex-specific age-adjusted rate of injury-related hospitalisation among Aboriginal and Torres Strait Islander peoples, Australia (except NT), 1991/92.

### Key risks

The most common specifically identified causes of injury-related hospitalisation for Aboriginal and Torres Strait Islander peoples are: intentional injury inflicted by another person (interpersonal violence), falls, and transport-related injuries. Other less commonly identified causes include unintentional poisoning by pharmaceuticals, injuries from fires, other burns and scalds, and self-harm. It is important to note that a very large proportion of the hospitalisations (33%) were attributed to other unintentional causes, which may in part reflect the inherent limitations of the ICD9 classification system in correctly identifying the causes of injury among Aboriginal and Torres Strait Islander peoples.

Males accounted for 57 percent of the cases. Male rates of hospitalisation were higher than those of females except for drowning and submersion, unintentional poisoning by pharmaceuticals, and self-harm.

Table 4: Overview of injury-related hospitalisations among Aboriginal and Torres Strait Islander peoples and non-Aboriginals populations, Australia (except NT) 1991/92

Cause of Injury <sup>+</sup>	Aboriginal and Torres Strait Islander peoples		Non-Aboriginals		Ratio of age-adjusted rates: A&TSI peoples to non-Aboriginals <sup>++</sup>	Excess number of A&TSI hospitalisations <sup>*</sup>
	Number of cases	Age-adjusted rate (per 100,000)	Number of cases	Age-adjusted rate (per 100,000)		
<b>Male</b>						
Transportation	661	614	30,170	356	1.7	221
Drowning and submersion	7	4	481	6	0.7	-3
Pharmaceutical poisoning	159	119	5,766	68	1.7	67
Non-pharmaceutical poisoning	89	53	2,232	26	2.0	52
Falls	1,013	1,160	42,643	518	2.2	448
Fires, burns, scalds	234	218	3,588	42	5.1	172
Other unintentional	2,132	2,075	69,863	824	2.5	1,169
Self harm	159	146	5,451	64	2.3	92
Interpersonal violence	1,402	1,433	11,146	131	10.9	1,250
Undetermined intent	70	70	742	9	8.0	60
<b>Total</b>	<b>5,926</b>	<b>5,891</b>	<b>172,082</b>	<b>2,046</b>	<b>2.9</b>	<b>3,529</b>
<b>Female</b>						
Transportation	329	284	15,499	183	1.6	106
Drowning and submersion	8	4	198	2	1.9	4
Pharmaceutical	223	182	7,292	87	2.1	110

poisoning							
Non-pharmaceutical poisoning	52	36	1,428	17		2.1	27
Falls	736	916	49,973	548		1.7	333
Fires, burns, scalds	128	104	1,854	22		4.7	95
Other unintentional	1,264	1,247	27,022	318		3.9	898
Self harm	213	186	6,731	80		2.3	121
Interpersonal violence	1,478	1,353	2,463	29		**	1,443
Undetermined intent	31	29	416	5		5.9	26
Total	4,460	4,341	112,876	1,292		3.4	3,162
<b>Persons</b>							
Transportation	988	443	45,669	271		1.6	322
Drowning and submersion	15	4	679	4		1.0	0
Pharmaceutical poisoning	382	152	13,058	77		2.0	178
Non-pharmaceutical poisoning	141	44	3,660	22		2.0	78
Falls	1,749	1,036	92,616	547		1.9	776
Fires, burns, scalds	362	158	5,442	32		4.9	266
Other unintentional	3,396	1,650	96,885	574		2.9	2,049
Self harm	372	166	12,182	72		2.3	213
Interpersonal violence	2,880	1,388	13,609	81		17.2	2,689
Undetermined intent	101	49	1,158	7		7.1	86
Total	10,386	5,091	284,958	1,686		3.0	6,657

<sup>+</sup> Cause of injury is based on standard aggregations of the ICD9 External Cause (E-code) classification. See Definition Box in subsequent sections of the report for details of E-code ranges.

<sup>++</sup> Rate ratio is calculated by dividing the age-adjusted rate of hospitalisation of the Aboriginal and Torres Strait Islander peoples by the age-adjusted rate of hospitalisation of the non-Aboriginal population. Age-adjustment of rates was by the direct method of standardisation, taking the Australian population in 1991 (excluding the Northern Territory population) as the reference.

\* Excess hospitalisations is the difference between the observed number of hospitalisations and the expected number if the Aboriginal and Torres Strait Islander peoples experienced the hospitalisation rates observed in the non-Aboriginal population. The sum of male and female excess hospitalisations may not equal the persons total due to the effect of rounding.

\*\* Note: Interpersonal violence in non-Aboriginal women is known to be under-reported. Comparison of rates between Aboriginal and Torres Strait Islander and non-Aboriginal women should be treated with great caution. The rate ratio in this cell is 46.0 but this may be significantly inflated due to the artifactually low non-Aboriginal rate.

### Injury-related hospitalisation of non-Aboriginals

There was a total of 284,958 injury-related hospitalisations among non-Aboriginal people in Australia, excluding the Northern Territory, in 1991/92. The distribution of these cases according to the major causes of injury is presented in Table 4. The most common causes of injury-related hospitalisation among non-Aboriginals are: falls and transport-related injuries. As was the case with the Aboriginal and Torres Strait Islander population, a large proportion of cases (34%) were attributed to other unintentional causes.

Males accounted for 60 percent of the cases. Male rates of hospitalisation were higher than those of females except for unintentional poisoning by pharmaceuticals, falls, and self-harm.

### Comparative patterns of injury

The age distributions of Aboriginal and Torres Strait Islander peoples and non-Aboriginal populations are markedly different. Comparisons are, therefore, made using age-adjusted rates. The major observations are:

- overall, the Aboriginal and Torres Strait Islander peoples' rate of injury-related hospitalisation is three times higher than that of non-Aboriginals;
- Aboriginal and Torres Strait Islander peoples' hospitalisation rates are higher than the non-Aboriginal rate for each major cause of injury except drowning among males;
- the Aboriginal and Torres Strait Islander peoples' rate of hospitalisation for interpersonal violence was 17 times higher than the non-Aboriginal rate--although the reported relative risk for females of 46 should be treated with caution (see last footnote to Table 4);
- if the rates of injury-related hospitalisation experienced by Aboriginal and Torres Strait Islander peoples could be reduced to those experienced by non-Aboriginals, there would be 6,657 fewer hospitalisations per year among Aboriginal and Torres Strait Islander peoples.

The following sections of the report examine specific causes of injury in greater detail.



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- Diary
- Search
- Contact us
- Site last updated  
11/11/2010



## ROAD transport

- [Summary of road transport injury hospitalisations among Aboriginal and Torres Strait Islander peoples](#)

### Summary of road transport injury hospitalisations among Aboriginal and Torres Strait Islander peoples

**Table 5: Summary of road transport injury hospitalisations among Aboriginal and Torres Strait Islander peoples and non-Aboriginals, Australia (except NT), 1991/92.**

Mode of transport	Aboriginal and Torres Strait Islander peoples	Non-Aboriginals	Ratio of age-adjusted rates: A&TSI peoples to non-Aboriginals
	Age-adjusted rate (per 100,000)	Age-adjusted rate (per 100,000)	
Motor vehicle driver	40	53	0.7
Motor vehicle passenger	77	40	1.9
Motor cyclist	26	44	0.6
Pedal cyclist	33	31	1.1
Pedestrian	69	25	2.7

A comparison of the relative contribution of the different modes of transport to injury hospitalisations in Aboriginal and Torres Strait Islander peoples and non-Aboriginal populations is presented in Figure 2.

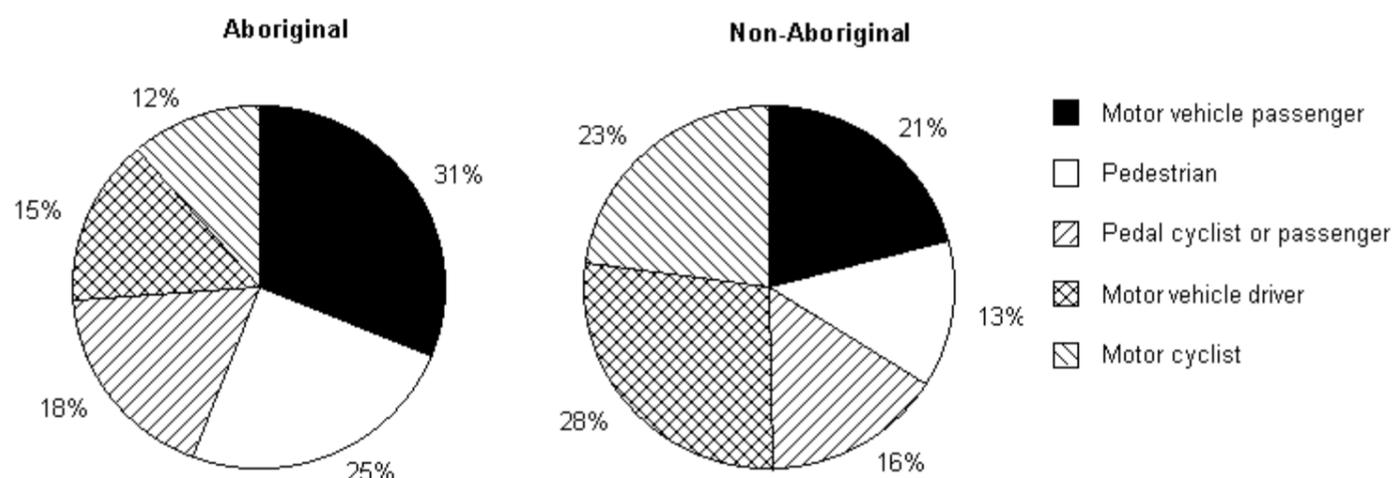


Figure 2: Contribution of modes of transport to injury hospitalisations in Aboriginal and Torres Strait Islander peoples and non-Aboriginal populations, Australia (except NT), 1991/92.

When compared with non-Aboriginals, motor vehicle occupants from Aboriginal and Torres Strait Islander communities are more likely to be injured and hospitalised in crashes as passengers and less likely as drivers. The rate of hospitalisation for injuries sustained as a pedestrian in Aboriginal and Torres Strait Islander peoples is more than two and a half times that of non-Aboriginals. Motorcycling injuries requiring hospitalisation in Aboriginal and Torres Strait Islander populations account for 12 percent of all road transport injury hospitalisations, which is about half of the corresponding proportion in non-Aboriginals. It is likely that the different patterns of road transport hospitalisations in Aboriginal and Torres Strait Islander peoples and non-Aboriginals arise from different exposures to risk of injury which include factors such as the physical road environment, cultural norms, usage of different modes of transport, and attitudes and behaviours to road safety.



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## Motor vehicle occupants

- [Overview of Aboriginal and Torres Strait Islander peoples cases](#)
- [Key risks](#)
- [Overview of non-Aboriginal cases](#)
- [Comparative patterns of injury](#)

### Definition of motor vehicle occupants

Motor vehicle occupants are assigned ICD9 External Causes codes in the range E810-E825 /0,.1. These codes include motor vehicle (other than motorcycle) crashes on public and non-public roads where the injured person was a passenger or driver.

### Overview of Aboriginal and Torres Strait Islander peoples cases

Table 6: Summary indicators of motor vehicle occupant hospitalisations in Aboriginal and Torres Strait Islander peoples, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Drivers</b>			
Number of cases	51	35	86
Crude rate (per 100,000)	46	31	38
Age-adjusted rate (per 100,000)	47	33	40
<b>Passengers</b>			
Number of cases	116	68	184
Crude rate (per 100,000)	104	60	82
Age-adjusted rate (per 100,000)	91	63	77
<b>All occupants</b>			
Number of cases	167	103	270
Crude rate (per 100,000)	149	91	120
Age-adjusted rate (per 100,000)	138	96	117

While Aboriginal and Torres Strait Islander children of ages 0-14 years were more often injured as passengers than as drivers in motor vehicles, it is of concern that approximately eight percent of the motor vehicle occupant cases in this age group were drivers. In adults, more passengers than drivers are hospitalised from injuries sustained in motor vehicles (Figure 3).

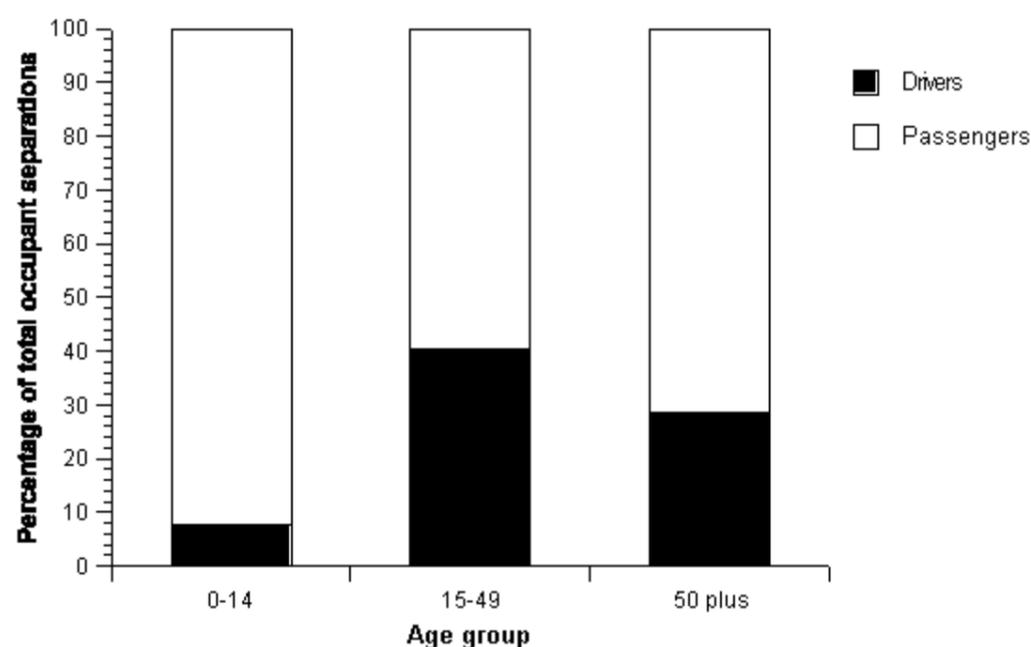


Figure 3: Percentage of driver and passenger motor vehicle crash injury hospitalisations in Aboriginal and Torres Strait Islander populations, Australia (except NT), 1991/92.

### Key risks

- Passenger hospitalisations outnumber driver hospitalisations by a factor of two.
- Amongst Aboriginal and Torres Strait Islander peoples, those aged 15 to 29 have the highest rates of hospitalisation. This age group accounts for 44 per cent of motor vehicle occupant injury-related hospitalisations.

### Overview of non-Aboriginal cases

Table 7: Summary indicators of motor vehicle occupant hospitalisations in non-Aboriginal populations, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Drivers</b>			
Number of cases	5,885	3,166	9,051
Crude rate (per 100,000)	70	37	54
Age-adjusted rate (per 100,000)	70	37	53
<b>Passengers</b>			
Number of cases	3,224	3,587	6,811
Crude rate (per 100,000)	38	42	40

Age-adjusted rate (per 100,000)	38	42	40
<b>All occupants</b>			
Number of cases	9,109	6,753	15,862
Crude rate (per 100,000)	108	80	94
Age-adjusted rate (per 100,000)	108	79	94

Amongst non-Aboriginal children aged 0-14 years there were relatively few cases of hospitalisation of drivers of motor vehicles (four percent of motor vehicle occupant cases in this age group). Drivers predominated over passengers amongst adult hospitalisations (Figure 4).

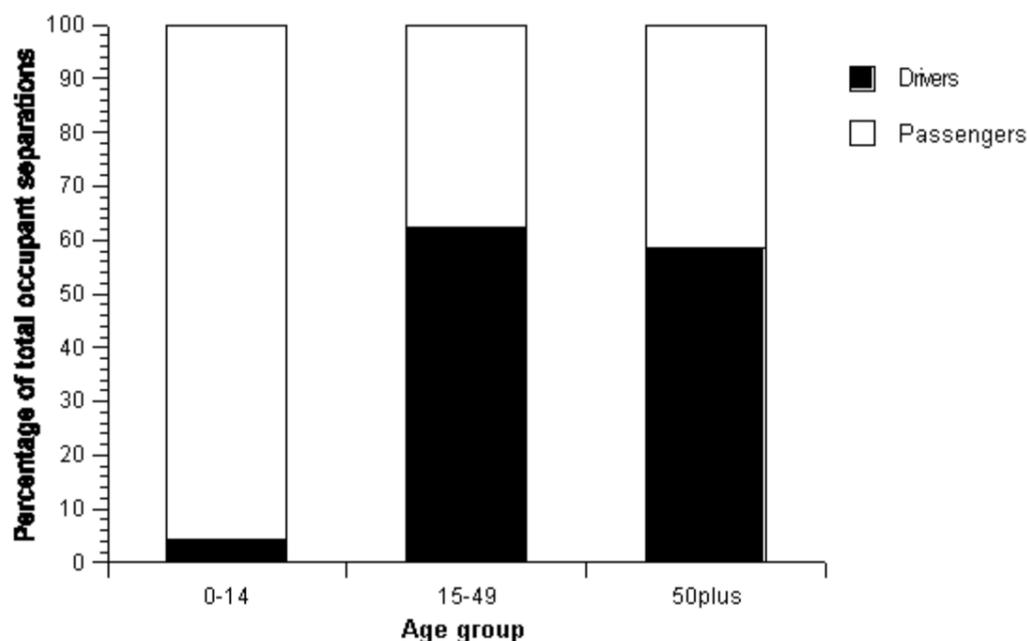


Figure 4: Percentage of driver and passenger motor vehicle crash injury hospitalisations in non-Aboriginal populations, Australia (except NT), 1991/92.

**Comparative patterns of injury**

- Age-adjusted rates of injury-related hospitalisation (hospitalisations per 100,000 population) among Aboriginal and Torres Strait Islander motor vehicle drivers (40) were less than those in the non-Aboriginal populations (53).
- For Aboriginal and Torres Strait Islander passengers, the rate of hospitalisation is higher than the rate for non-Aboriginal passengers across all age groups.
- Age-adjusted rates of Aboriginal and Torres Strait Islander motor vehicle passengers (77) were about twice those of the non-Aboriginal population (40).
- For both Aboriginal and Torres Strait Islander peoples, and non-Aboriginals, the highest rates of motor vehicle occupant hospitalisations occur at ages 15 to 29.
- In the case of passengers, Aboriginal and Torres Strait Islander peoples' rates are about three times those of non-Aboriginals over the ages from 25 to 39.
- Role of the injured person: Aboriginal and Torres Strait Islander peoples were more likely than non-Aboriginals to be injured as passengers ( ). The proportion of Aboriginal and Torres Strait Islander peoples injured as passengers in motor vehicle crashes was about double that for non-Aboriginals from the age of 20 years and above. This may be due to exposure factors such as higher passenger loading in vehicles transporting Aboriginal and Torres Strait Islander peoples, particularly for those living in rural and remote areas.

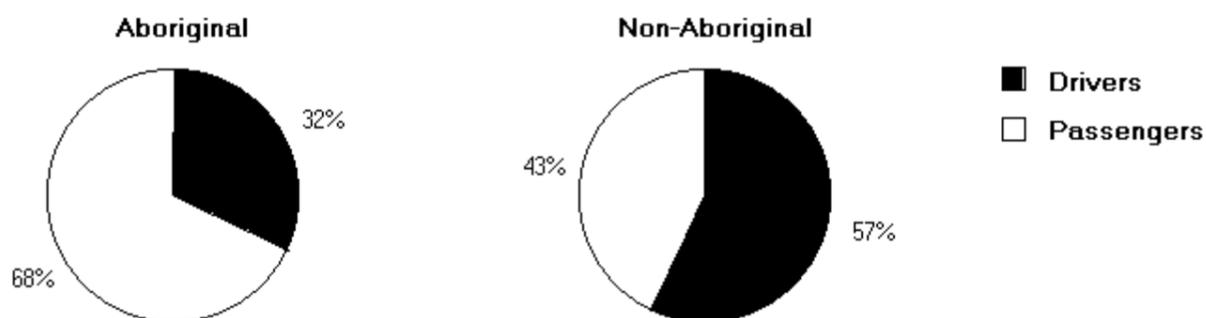


Figure 5: Motor vehicle occupant hospitalisations in Aboriginal and Torres Strait Islander peoples and non-Aboriginal populations, Australia (except NT), 1991/92



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## Motor cyclists

- [Overview of Aboriginal and Torres Strait Islander peoples cases](#)
- [Key risks](#)
- [Overview of non-Aboriginal cases](#)
- [Comparative patterns of injury](#)

### Definition of motor cyclists

Motor cyclists are assigned ICD9 External Causes codes in the range E810-E825 /.2, .3. These codes include motor cycle crashes on public and non-public roads where the injured person was a passenger or driver.

### Overview of Aboriginal and Torres Strait Islander peoples cases

Table 8: Summary indicators of motor cyclist injury-related hospitalisations in Aboriginal and Torres Strait Islander peoples, Australia (except NT), 1991/92

Summary indicator	Males	Females	Persons
<b>Motor cyclists</b>			
Number of cases	58	10	68
Crude rate (per 100,000)	52	9	30
Age-adjusted rate (per 100,000)	45	8	26

The broad age distribution of Aboriginal and Torres Strait Islander motor cyclists injured in crashes and admitted to hospital is presented in Figure 6.

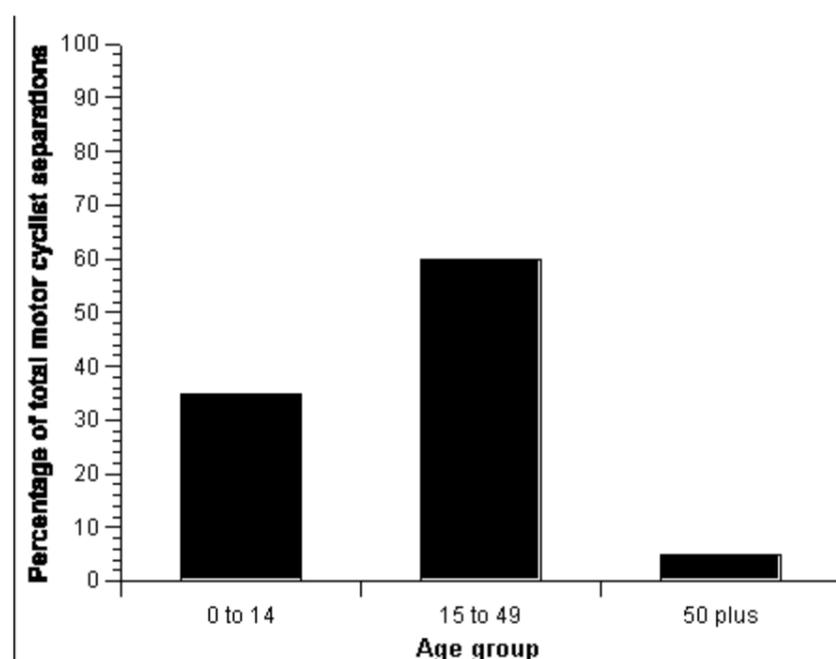


Figure 6: Broad age distribution of motor cyclist injury-related hospitalisations in Aboriginal and Torres Strait Islander peoples, Australia (except NT), 1991/92.

### Key risks

- Amongst Aboriginal and Torres Strait Islander peoples, those aged 10 to 24 years have the highest rates of motor cycle injury-related hospitalisations. This age group accounts for 57 per cent of such hospitalisations.
- The rate of hospitalisation for motor cycle injuries peaks at ages 15 to 19 (61 per 100,000).
- Males account for eighty-five percent of Aboriginal and Torres Strait Islander motor cyclist injury-related hospitalisations.

### Overview of non-Aboriginal cases

Table 9: Summary indicators of motor cyclist injury-related hospitalisations in non-Aboriginal populations, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Motor cyclists</b>			
Number of cases	6,768	684	7,452
Crude rate (per 100,000)	80	8	44
Age-adjusted rate (per 100,000)	79	8	44

The broad age distribution of non-Aboriginal motor cyclists injured in crashes and admitted to hospital is presented in Figure 7.

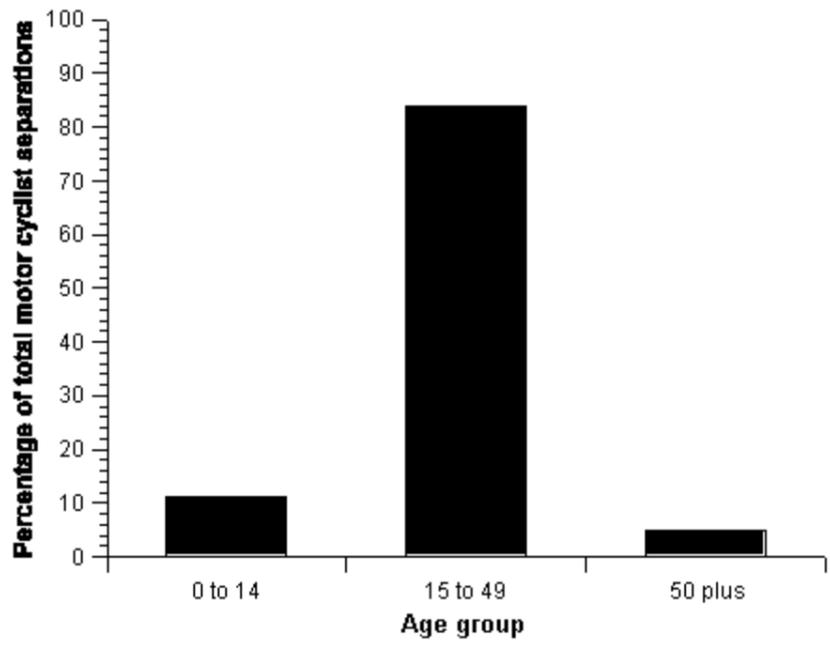


Figure 7: Broad age distribution of motor cyclist injury-related hospitalisations in non-Aboriginal populations, Australia (except NT), 1991/92.

**Comparative patterns of injury**

Overall age-adjusted rates (hospitalisations per 100,000 population) of Aboriginal and Torres Strait Islander motor cyclists (26) were less than half those of the non-Aboriginal population (44).

For most age groups, Aboriginal and Torres Strait Islander peoples rates are lower than those of non-Aboriginals (Figure 8).

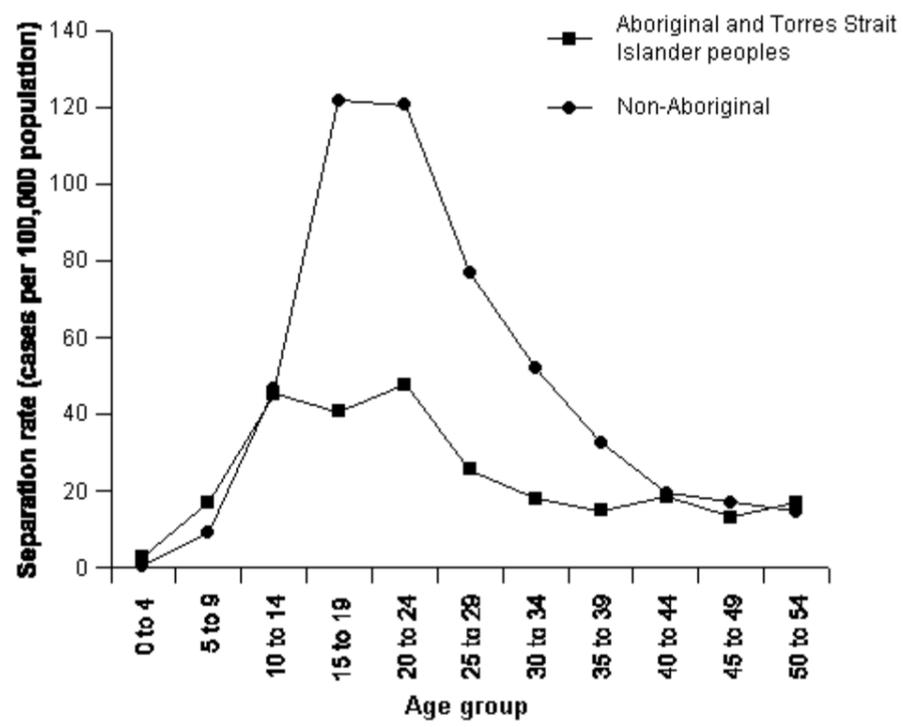


Figure 8: Rate of motor cyclist injury-related hospitalisations in Aboriginal and Torres Strait Islander peoples and non-Aboriginal populations, by age, Australia (except NT), 1991/92.



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## Pedal cyclists

- [Overview of Aboriginal and Torres Strait Islander peoples cases](#)
- [Key risks](#)
- [Overview of non-Aboriginal cases](#)
- [Comparative patterns of injury](#)

### Definition of pedal cyclists

Pedal cyclists are assigned ICD9 External Causes codes in the range E800-E807 /.3, E810-E825 /.6 and E826-E829 /.1. These codes include any road transport vehicle operated solely by pedals that is involved in crashes on public and non-public roads (including rail crashes) where the injured person was a rider on the pedal cycle.

### Overview of Aboriginal and Torres Strait Islander peoples cases

Table 10: Summary indicators of pedal cyclist injury-related hospitalisations in Aboriginal and Torres Strait Islander peoples, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Pedal cyclists</b>			
Number of cases	72	35	107
Crude rate (per 100,000)	64	31	47
Age-adjusted rate (per 100,000)	44	21	33

The broad age distribution of Aboriginal and Torres Strait Islander pedal cyclists injured in crashes and admitted to hospital is presented in Figure 9.

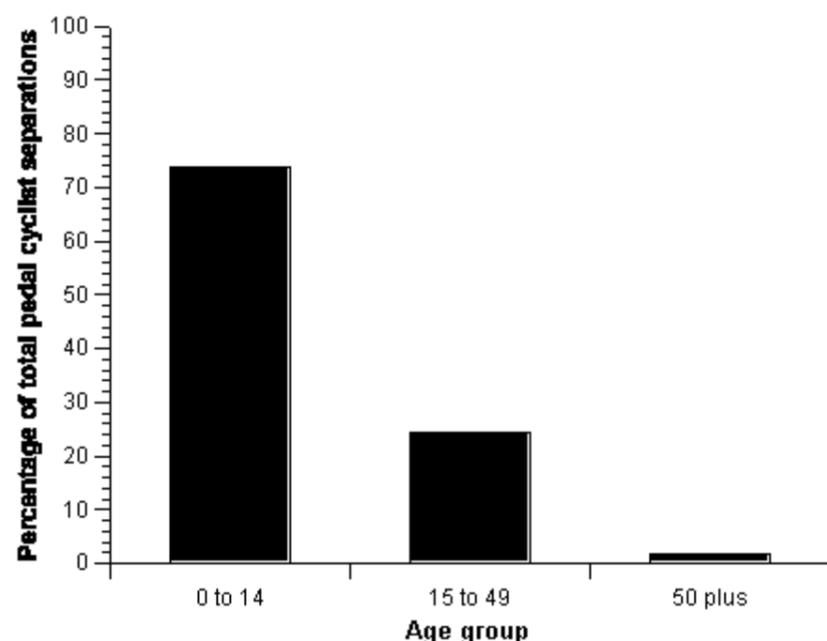


Figure 9: Broad age distribution of pedal cyclist injury-related hospitalisations in Aboriginal and Torres Strait Islander peoples, Australia (except NT), 1991/92.

### Key risks

- Aboriginal and Torres Strait Islander pedal cyclists aged 5 to 9 have the highest rates of injury-related hospitalisation (135 per 100,000).
- Males are more likely to be injured than females across all ages, and account for 67 per cent of all pedal cycle injury-related hospitalisations.

### Overview of non-Aboriginal cases

Table 11: Summary indicators of pedal cyclist injury-related hospitalisations in non-Aboriginal populations, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Pedal cyclists</b>			
Number of cases	4,018	1,160	5,178
Crude rate (per 100,000)	48	14	31
Age-adjusted rate (per 100,000)	47	14	31

The broad age distribution of non-Aboriginal pedal cyclists injured in crashes and admitted to hospital is presented in Figure 10.

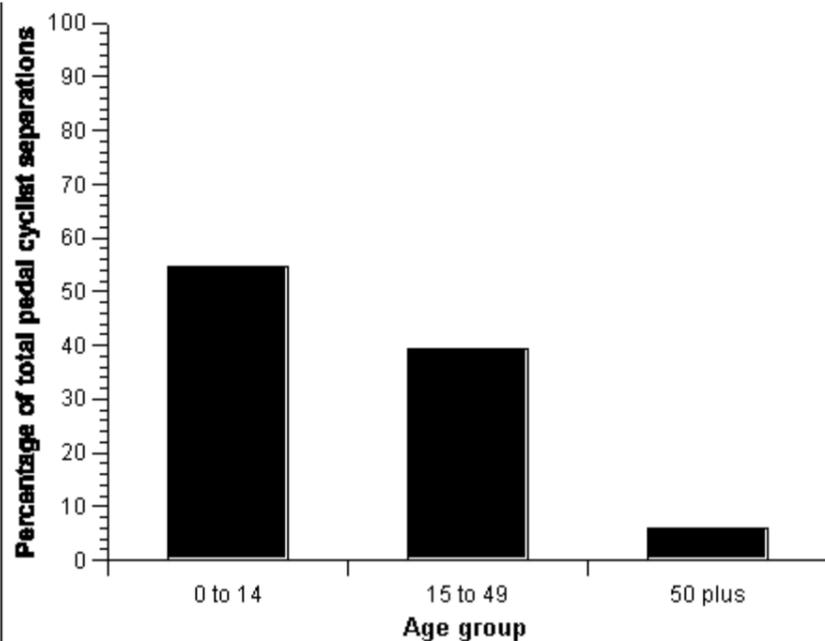


Figure 10: Broad age distribution of pedal cyclist injury-related hospitalisations in non-Aboriginal populations, Australia (except NT), 1991/92.

**Comparative patterns of injury**

Age-adjusted rates (hospitalisations per 100,000 population) of Aboriginal and Torres Strait Islander pedal cyclists (33) were about equal to those of the non-Aboriginal population (31).

Children and young adults from both Aboriginal and Torres Strait Islander communities and non-Aboriginal populations had rates of hospitalisation which were quite similar except that Aboriginal and Torres Strait Islander peoples' rates peaked at around 5 years younger than non-Aboriginals (Figure 11).

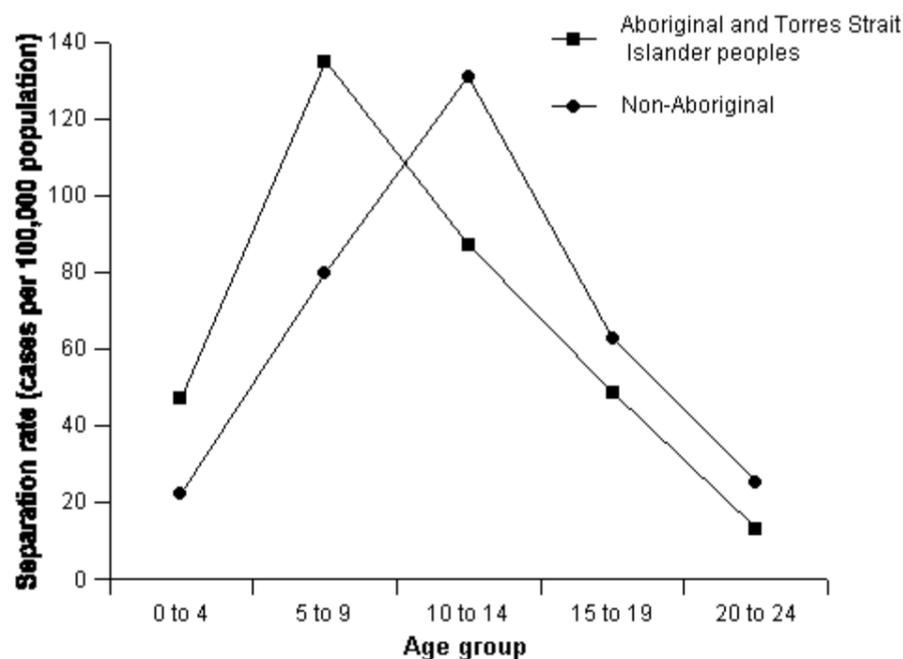


Figure 11: Rates of pedal cyclist injury-related hospitalisations in Aboriginal and Torres Strait Islander peoples and non-Aboriginal populations, by age, Australia (except NT), 1991/92.



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## Pedestrians

- [Overview of Aboriginal and Torres Strait Islander peoples cases](#)
- [Key risks](#)
- [Overview of non-Aboriginal cases](#)
- [Comparative patterns of injury](#)

### Definition of pedestrians

Pedestrians are assigned ICD9 External Causes codes E800-E807 /./2, E810-E825 /./7, and E826-E829 /./0. These codes include persons involved in crashes on public and non-public roads (including rail crashes) who were on foot and not at the time of the crash riding in or on a motor vehicle, motor cycle, or pedal cycle.

### Overview of Aboriginal and Torres Strait Islander peoples cases

Table 12: Summary indicators of pedestrian injury-related hospitalisations in Aboriginal and Torres Strait Islander peoples, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Pedestrians</b>			
Number of cases	104	40	144
Crude rate (per 100,000)	93	35	64
Age-adjusted rate (per 100,000)	115	28	69

The broad age distribution of Aboriginal and Torres Strait Islander pedestrians injured and admitted to hospital is presented in Figure 12.

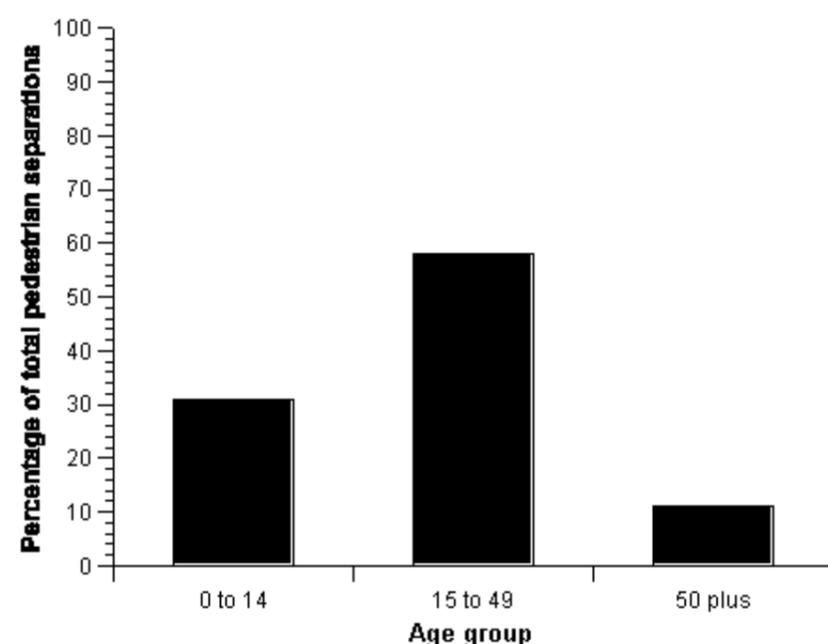


Figure 12: Broad age distribution of pedestrian injury-related hospitalisations in Aboriginal and Torres Strait Islander peoples, Australia (except NT), 1991/92.

### Key risks

- Children, aged 0 to 14, account for 31 percent of all Aboriginal and Torres Strait Islander pedestrian hospitalisations.
- Males account for nearly three-quarters of all Aboriginal and Torres Strait Islander pedestrian hospitalisations.

### Overview of non-Aboriginal cases

Table 13: Summary indicators of pedestrian injury-related hospitalisations in non-Aboriginal populations, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Pedestrians</b>			
Number of cases	2,650	1,595	4,245
Crude rate (per 100,000)	31	19	25
Age-adjusted rate (per 100,000)	32	18	25

The broad age distribution of non-Aboriginal pedestrians injured and admitted to hospital is presented in Figure 13.

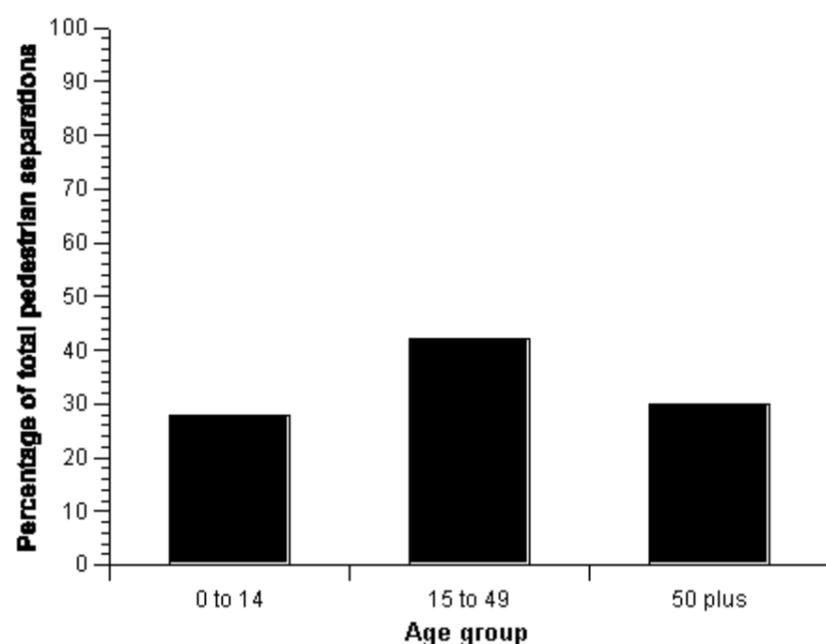


Figure 13: Broad age distribution of pedestrian injury-related hospitalisations in non-Aboriginal populations, Australia (except NT), 1991/92.

**Comparative patterns of injury**

When Aboriginal and Torres Strait Islander peoples are compared to non-Aboriginal populations, Aboriginal and Torres Strait Islander pedestrians have a higher hospitalisation rate at all ages except 10 to 14.

Compared with non-Aboriginal pedestrians, the hospitalisation rate in Aboriginal and Torres Strait Islander pedestrians was twice as high at ages 0 to 9, increased four-fold at ages 20 to 24, and almost 9 times higher at ages 40 to 44.

Pedestrians aged 65 and above accounted for just 2.8 percent of all Aboriginal and Torres Strait Islander pedestrian hospitalisations compared with 18.9 percent of all non-Aboriginal pedestrian hospitalisations.

Overall age-adjusted rates (hospitalisations per 100,000 population) of Aboriginal and Torres Strait Islander pedestrians (69) were around three times higher than those of the non-Aboriginal population (25).



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## Poisoning

- [Overview of Aboriginal and Torres Strait Islander peoples cases](#)
- [Key risks](#)
- [Overview of non-Aboriginal cases](#)
- [Comparative patterns of injury](#)
- [Summary of Aboriginal and Torres Strait Islander poisoning hospitalisations](#)

### Definition of poisoning

Poisoning hospitalisations are divided into two subsets of ICD9 External Causes codes, E850-E858 (poisoning by pharmaceuticals) and E-codes 860-E869 (poisoning by other substances). Figures presented in this section are based only on unintentional cases.

### Overview of Aboriginal and Torres Strait Islander peoples cases

Table 14: Summary indicators of unintentional poisoning hospitalisations in Aboriginal and Torres Strait Islander peoples, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Pharmaceutical poisoning</b>			
Number of cases	159	223	382
Crude rate (per 100,000)	142	196	169
Age-adjusted rate (per 100,000)	119	182	152
<b>Non-pharmaceutical poisoning</b>			
Number of cases	89	52	141
Crude rate (per 100,000)	80	46	62
Age-adjusted rate (per 100,000)	53	36	44
<b>Total unintentional poisoning</b>			
Number of cases	248	275	523
Crude rate (per 100,000)	222	242	232
Age-adjusted rate (per 100,000)	172	218	196

The proportion of Aboriginal and Torres Strait Islander hospitalisations as a result of poisoning by pharmaceuticals and non-pharmaceuticals in children and adults is presented in Figure 14.

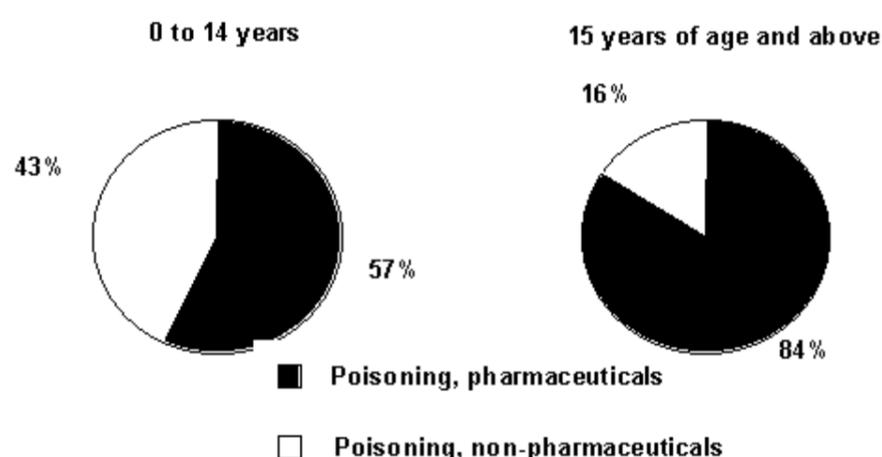


Figure 14: Proportion of pharmaceutical and non-pharmaceutical poisoning hospitalisations in Aboriginal and Torres Strait Islander peoples, Australia (except NT), 1991/92.

### Key risks

- Amongst Aboriginal and Torres Strait Islander children, those aged 0 to 4 have the highest rates of hospitalisation due to poisoning by pharmaceuticals (271 per 100,000) and non-pharmaceuticals (206 per 100,000).
- Tranquillisers and petroleum products are common agents of poisoning in Aboriginal and Torres Strait Islander children aged 0 to 4.
- Gender-specific rates of pharmaceutical poisoning hospitalisations had similar patterns, but female rates were noticeably higher than male rates over the ages 15 to 44.
- For Aboriginal and Torres Strait Islander adults, the rate of hospitalisation from poisoning by pharmaceuticals is highest at ages 20 to 34 in females (326 per 100,000), and at ages 20 to 39 in males (186 per 100,000).
- The main agents causing poisoning in adults are tranquillisers and non-opiate analgesics/antipyretics.

### Overview of non-Aboriginal cases

Table 15: Summary indicators of unintentional poisoning hospitalisations in non-Aboriginal populations, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Pharmaceutical poisoning</b>			
Number of cases	5,766	7,292	13,058
Crude rate (per 100,000)	68	86	77
Age-adjusted rate (per 100,000)	68	87	77
<b>Non-pharmaceutical poisoning</b>			
Number of cases	2,232	1,428	3,660
Crude rate (per 100,000)	26	17	22
Age-adjusted rate (per 100,000)	26	17	22

Total unintentional poisoning			
Number of cases	7,998	8,720	16,718
Crude rate (per 100,000)	95	103	99
Age-adjusted rate (per 100,000)	95	104	99

The proportion of non-Aboriginal hospitalisations as a result of poisoning by pharmaceuticals and non-pharmaceuticals in children and adults is presented in Figure 15.

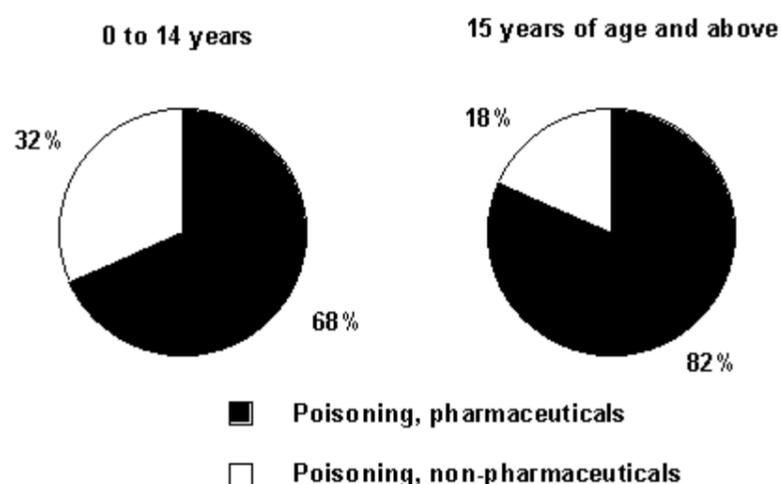


Figure 15: Proportion of pharmaceutical and non-pharmaceutical poisoning hospitalisations in non-Aboriginal populations, Australia (except NT), 1991/92.

### Comparative patterns of injury

When compared to non-Aboriginal populations, the rates of hospitalisation from poisoning by pharmaceuticals and non-pharmaceuticals in Aboriginal and Torres Strait Islander peoples are higher across most age groups (Figure 16 and Figure 17).

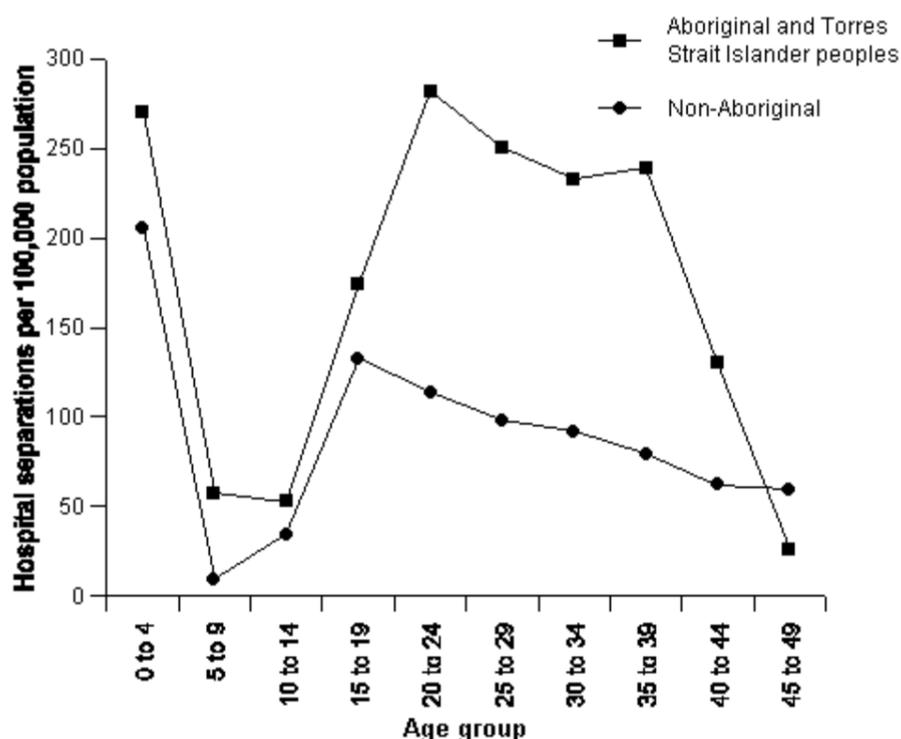


Figure 16: Rate of pharmaceutical poisoning hospitalisations in Aboriginal and Torres Strait Islander peoples and non-Aboriginal populations, by age, Australia (except NT), 1991/92.

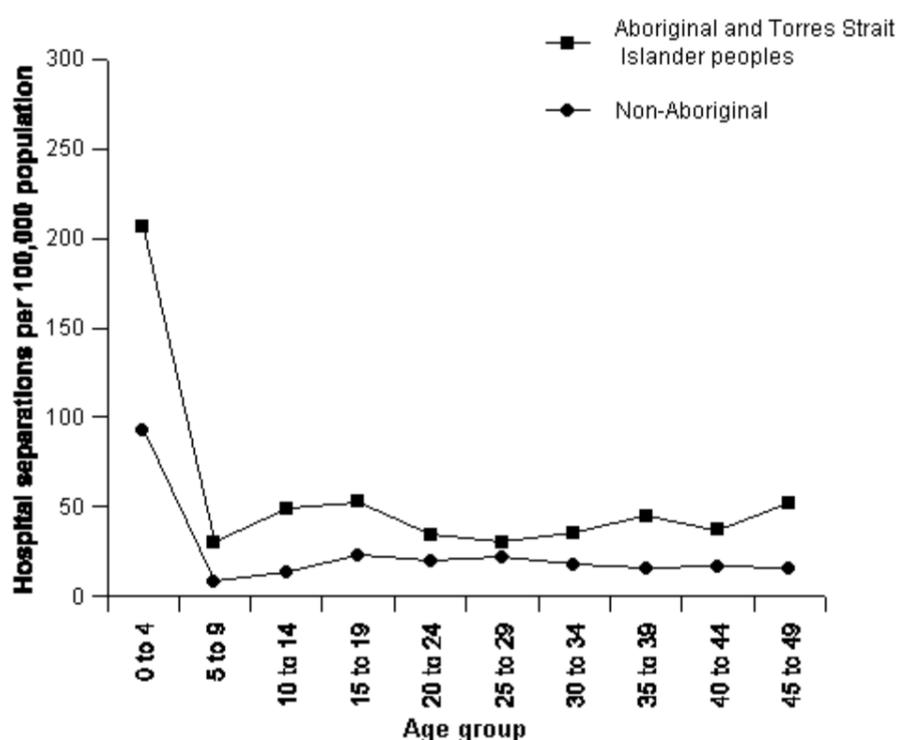


Figure 17: Rate of non-pharmaceutical poisoning hospitalisations in Aboriginal and Torres Strait Islander peoples and non-Aboriginal populations, by age, Australia (except NT), 1991/92.

Age-adjusted rates (hospitalisations per 100,000 population) of Aboriginal and Torres Strait Islander peoples pharmaceutical poisoning (152) were twice those of the non-Aboriginal population (77).

Age-adjusted rates (hospitalisations per 100,000 population) of Aboriginal and Torres Strait Islander peoples non-pharmaceutical poisoning (44) were twice those of the non-Aboriginal population (22).

## Summary of Aboriginal and Torres Strait Islander poisoning hospitalisations

Aboriginal and Torres Strait Islander peoples have a two-fold higher rate of hospitalisation from poisoning by pharmaceuticals and non-pharmaceuticals than non-Aboriginal populations. Aboriginal and Torres Strait Islander children aged 0 to 4 are at high risk of hospitalisation due to poisoning injury from both groups of substances.

Rates of poisoning by pharmaceuticals are high in Aboriginal and Torres Strait Islander adults over a broad age range of 15 to 44 years. Over these ages, female rates are higher than male rates.

Aboriginal and Torres Strait Islander rates of hospitalisation for poisoning injury by non-pharmaceuticals are noticeably higher than non-Aboriginal rates across most age groups; the highest hospitalisation rate occurred at ages 0 to 4.



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## FIRES Burns, SCALDS

- [Overview of Aboriginal and Torres Strait Islander peoples cases](#)
- [Key risks](#)
- [Overview of non-Aboriginal cases](#)
- [Comparative patterns of injury](#)

### Definition of fires, burns, scalds

Fires, burns and scald hospitalisations are divided into two subsets of ICD9 External Causes codes. The first subset is assigned E-codes as follows: E890 (House-fires), E893 (Clothing ignition), and E891, E892, E894-E899 (Other/unspecified thermal). For the purposes of this report, this subset will be referred to as fire burns. The second subset is assigned E-codes E924 /0, .8-.9 (Hot substance or object, steam) and will be referred to as scalds.

### Overview of Aboriginal and Torres Strait Islander peoples cases

Table 16: Summary indicators of fire burns and scald hospitalisations in Aboriginal and Torres Strait Islander populations, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Fire burns</b>			
Number of cases	130	69	199
Crude rate (per 100,000)	116	61	88
Age-adjusted rate (per 100,000)	150	65	105
<b>Scalds</b>			
Number of cases	104	59	163
Crude rate (per 100,000)	93	52	72
Age-adjusted rate (per 100,000)	68	38	53
<b>Total</b>			
Number of cases	234	128	362
Crude rate (per 100,000)	209	113	160
Age-adjusted rate (per 100,000)	218	104	158

The proportion of Aboriginal and Torres Strait Islander hospitalisations as a result of burns from fires and scalds for two age groups is presented in Figure 18.

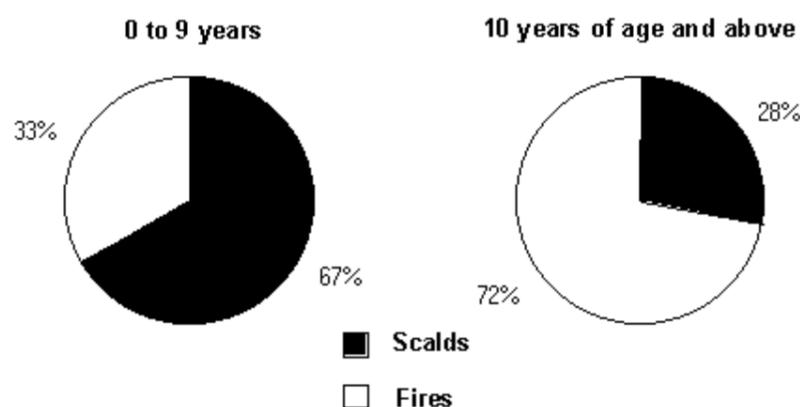


Figure 18: Proportion of fire burns and scald injury hospitalisations in Aboriginal and Torres Strait Islander peoples, by age, Australia (except NT), 1991/92.

### Key risks

- Aboriginal and Torres Strait Islander children aged 0 to 4 have the highest rate of hospitalisation for scalds (288 per 100,000) and account for 60 percent of all Aboriginal and Torres Strait Islander scald-related hospitalisations.
- Males are hospitalised by scalds at nearly twice the rate of females, and account for 64 percent of all Aboriginal and Torres Strait Islander scalds-related hospitalisations.
- Similarly for fire burns, males are more than twice as likely as females to be admitted to hospital and account for 65 percent of all such hospitalisations.
- Elderly Aboriginal and Torres Strait Islanders (over 60 years of age) appear to have the highest rates of hospitalisation from fire burns (170 per 100,000).

### Overview of non-Aboriginal cases

Table 17: Summary indicators of fire burns and scald hospitalisations in non-Aboriginal populations, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Fire burns</b>			
Number of cases	1,619	479	2,098
Crude rate (per 100,000)	19	6	12
Age-adjusted rate (per 100,000)	19	6	12
<b>Scalds</b>			
Number of cases	1,969	1,375	3,344
Crude rate (per 100,000)	23	16	20
Age-adjusted rate (per 100,000)	23	16	20
<b>Total</b>			
Number of cases	3,588	1,854	5,442
Crude rate (per 100,000)	43	22	32
Age-adjusted rate (per 100,000)	42	22	32

The proportion of non-Aboriginal hospitalisations as a result of burns from fires and scalds for two age groups is presented in Figure 19.

**Comparative patterns of injury**

When non-Aboriginal populations are compared to Aboriginal and Torres Strait Islander populations, Aboriginal and Torres Strait Islanders have a greater risk of being injured and admitted for burns from fires and scalds at all ages.

Compared with non-Aboriginals, the risk of hospitalisation for Aboriginal and Torres Strait Islanders aged 0 to 4 is about seven times greater for burns from fires and more than twice as great for burns from scalds.

For burns from scalds, the relative risk of Aboriginal and Torres Strait Islander peoples being admitted to hospital was about five times that of non-Aboriginals over the ages 25 to 44 (Figure 20).

For burns from fires, the relative risk of Aboriginal and Torres Strait Islander peoples being admitted to hospital increased steadily from age 15 and was around eight times that of non-Aboriginals at ages 30 to 39 (Figure 20).

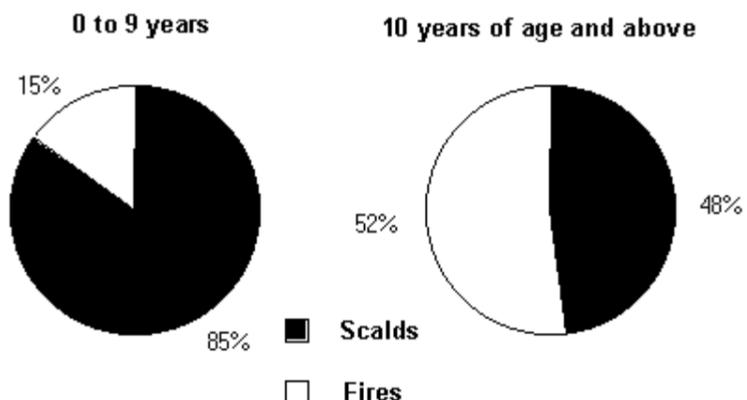


Figure 19: Proportion of fire burns and scald injury hospitalisations in non-Aboriginal populations, by age, Australia (except NT), 1991/92.

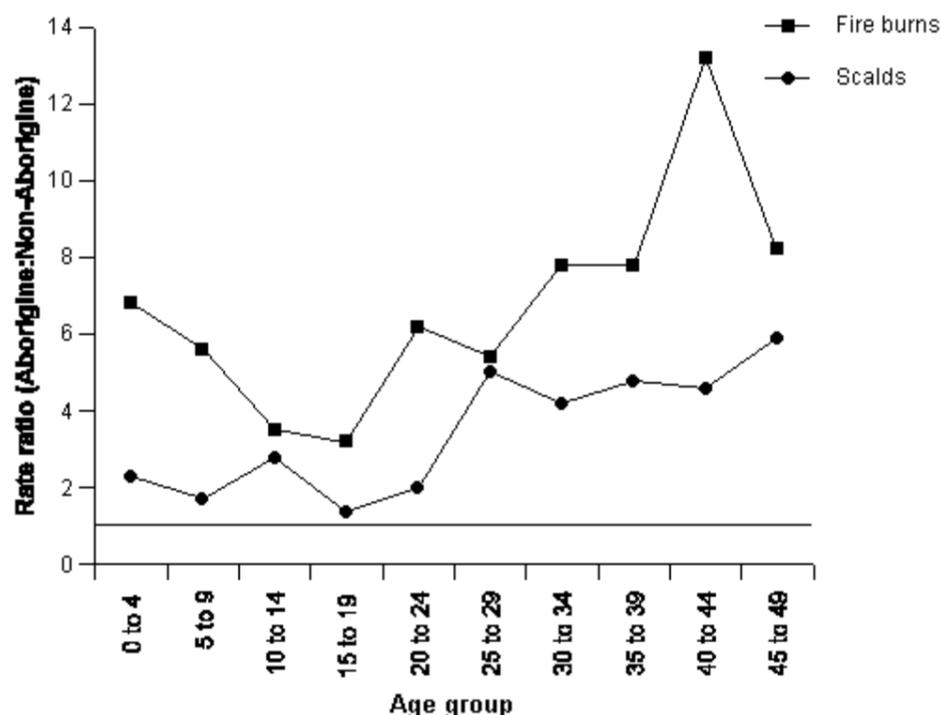


Figure 20: Ratio of injury hospitalisation rates for burns from fires and scalds in Aboriginal and Torres Strait Islander peoples to non-Aboriginal populations, by age, Australia (except NT), 1991/92.

Age-adjusted rates (hospitalisations per 100,000 population) of Aboriginal and Torres Strait Islander hospitalisations as a result of burns from fires (105) were about eight and-a-half times higher than those of the non-Aboriginal population (12).

Age-adjusted rates (hospitalisations per 100,000 population) of Aboriginal and Torres Strait Islander hospitalisations as a result of burns from scalds (53) were more than two and-a-half times higher than those of the non-Aboriginal population (20).

The nature of fire burns and scald injury hospitalisations in Aboriginal and Torres Strait Islander peoples and non-Aboriginal populations is presented in Figure 21. Fire burns, particularly from 'other thermal burns', are the major category of burn injury (49 percent of cases) resulting in hospital admission for Aboriginal and Torres Strait Islander peoples. This differs from the non-Aboriginal population which has proportionally fewer hospitalisations for 'other thermal burns'(33 percent of cases). Scald related hospitalisations are more common in non-Aboriginal populations. Burns from clothing ignition and house-fires are relatively uncommon causes of hospital admission in both populations.

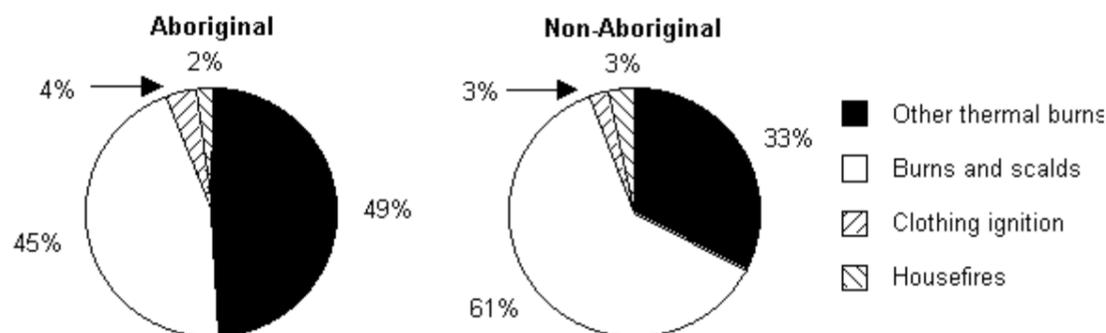


Figure 21: Nature of fire burns and scald injury hospitalisations in Aboriginal and Torres Strait Islander peoples and non-Aboriginal populations, Australia (except NT), 1991/92



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## ACCIDENTAL Falls

- [Overview of Aboriginal and Torres Strait Islander peoples cases](#)
- [Key risks](#)
- [Overview of non-Aboriginal cases](#)
- [Comparative patterns of injury](#)
- [Summary of Aboriginal and Torres Strait Islander fall injury hospitalisations](#)

### Definition of accidental falls

Accidental fall hospitalisations are divided into four subsets of ICD9 External Causes Codes. The first subset is assigned E-codes E880, E881, E882, E884 /0, and E884 /1-.2, .9. These E-codes include fall on or from stairs or steps, fall on or from ladders or scaffolding, fall from or out of building or other structure, fall from playground equipment, and other fall from one level to another (fall from cliff, from chair or bed, other fall from one level to another). For the purpose of this report they will be collectively referred to as 'Different level falls'. The second subset is assigned E-codes E885 and E886 /0. These E-codes include fall on same level from slipping, tripping, or stumbling, and fall on same level from collision, pushing, or shoving, by or with another person (in sports). These E-codes will be referred to as 'Same level falls'. The third subset is assigned E-code E887 and includes fracture, cause unspecified. It will be referred to as 'Fall fractures'. The fourth subset is assigned E-codes E883, E884 /3-.8, E886 /9 and E888 and includes fall into hole or other opening in surface, other fall from one level to another, fall on same level from collision, pushing, or shoving, by or with another person, and other and unspecified fall. These E-codes will be referred to as 'Other/unspecified falls'. Note: Additional codes are used in NSW, TAS, and ACT which have the effect of increasing the number of 'Other/unspecified falls' and reducing the number of 'Different level' falls. Further information is available from NISU.

### Overview of Aboriginal and Torres Strait Islander peoples cases

Table 18: Summary indicators of accidental fall hospitalisations in Aboriginal and Torres Strait Islander peoples, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Different level falls</b>			
Number of cases	255	166	421
Crude rate (per 100,000)	228	146	187
Age-adjusted rate (per 100,000)	209	135	171
<b>Same level falls</b>			
Number of cases	138	81	219
Crude rate (per 100,000)	123	71	97
Age-adjusted rate (per 100,000)	145	108	127
<b>Fall fractures</b>			
Number of cases	253	187	440
Crude rate (per 100,000)	226	164	195
Age-adjusted rate (per 100,000)	291	229	260
<b>Other/unspecified falls</b>			
Number of cases	367	302	669
Crude rate (per 100,000)	328	266	297
Age-adjusted rate (per 100,000)	516	442	479
<b>Total falls</b>			
Number of cases	1,013	736	1,749
Crude rate (per 100,000)	906	647	775
Age-adjusted rate (per 100,000)	1,160	916	1,036

The proportion of Aboriginal and Torres Strait Islander hospitalisations as a result of falls for two broad age groups is presented in Figure 22.

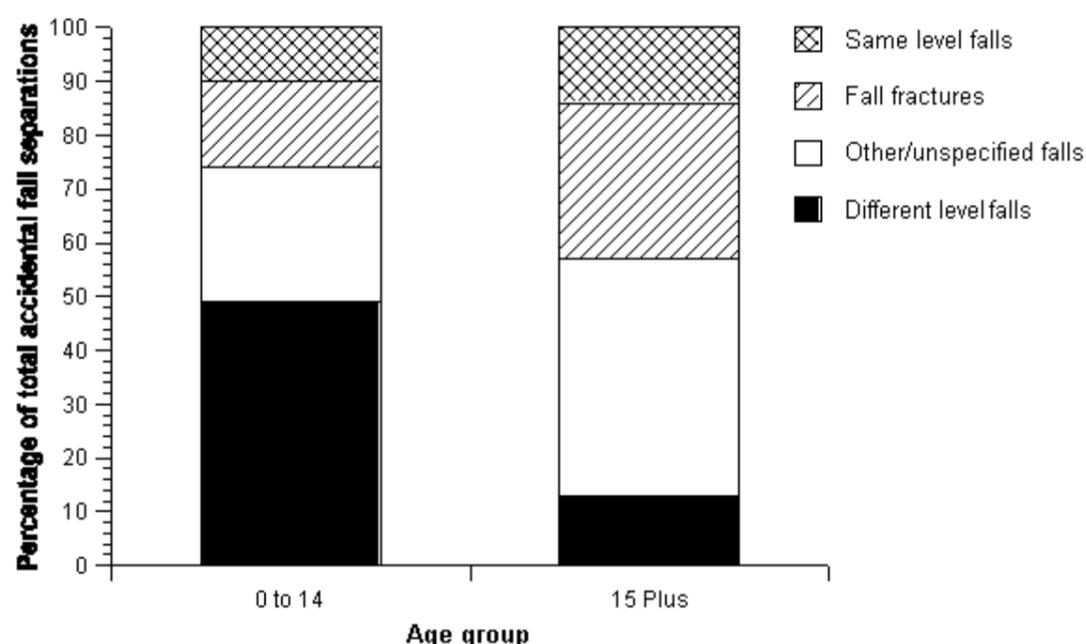


Figure 22: Percentage of fall injury hospitalisations in Aboriginal and Torres Strait Islander populations, by age, Australia (except NT), 1991/92.

### Key risks

- Amongst Aboriginal and Torres Strait Islander peoples, the highest rates of hospitalisation as a result of falls occur in persons aged 50 years and older.

- Male rates are higher than female rates throughout most of childhood and adulthood; it is only in the 65 plus age group that female rates exceed those of males.
- Aboriginal and Torres Strait Islander children aged 0 to 14 are about five times more likely to be hospitalised for injuries resulting from different level falls (291 per 100,000) than for injuries from same level falls (60 per 100,000).
- Of Aboriginal and Torres Strait Islander peoples aged 0 to 14, males have a higher rate of hospitalisation due to falls from different levels (336 per 100,000) than females (243 per 100,000).

**Overview of non-Aboriginal cases**

Table 19: Summary indicators of accidental fall hospitalisations in non-Aboriginal populations, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Different level falls</b>			
Number of cases	14,831	10,660	25,491
Crude rate (per 100,000)	176	126	151
Age-adjusted rate (per 100,000)	177	122	151
<b>Same level falls</b>			
Number of cases	9,904	16,074	25,978
Crude rate (per 100,000)	118	190	154
Age-adjusted rate (per 100,000)	122	174	153
<b>Fall fractures</b>			
Number of cases	6,005	4,912	10,917
Crude rate (per 100,000)	71	58	65
Age-adjusted rate (per 100,000)	71	55	65
<b>Other/unspecified falls</b>			
Number of cases	11,901	18,329	30,230
Crude rate (per 100,000)	141	216	179
Age-adjusted rate (per 100,000)	146	196	178
<b>Total falls</b>			
Number of cases	42,641	49,975	92,616
Crude rate (per 100,000)	507	589.6	548
Age-adjusted rate (per 100,000)	517	547	547

The proportion of non-Aboriginal hospitalisations as a result of falls for two broad age groups is presented in Figure 23.

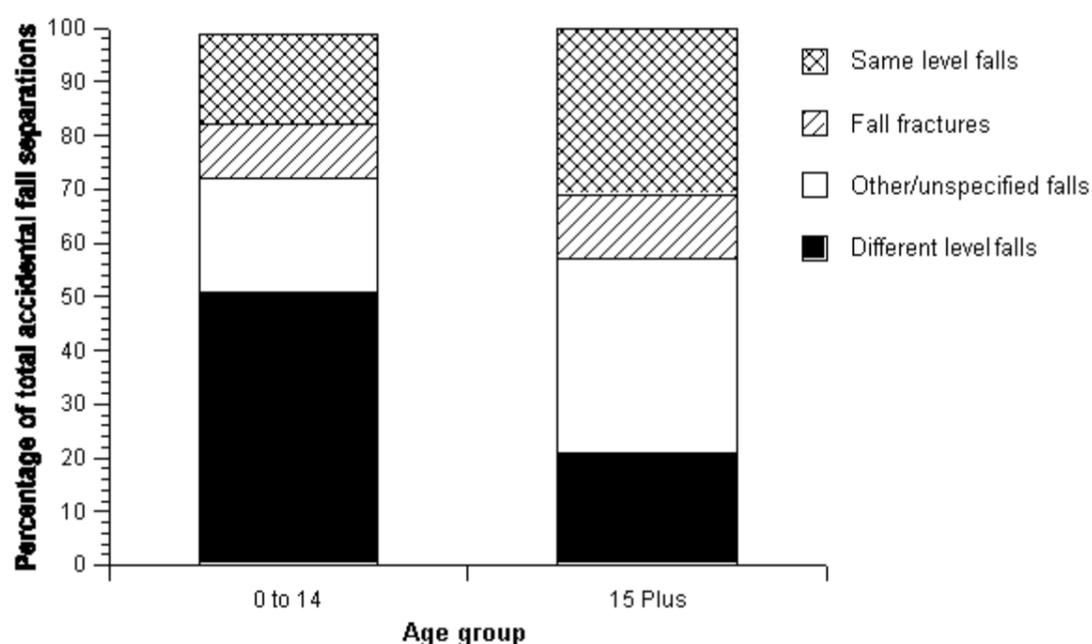


Figure 23: Percentage of fall injury hospitalisations in non-Aboriginal populations, by age, Australia (except NT), 1991/92.

**Comparative patterns of injury**

Aboriginal and Torres Strait Islanders over the age of 15 have nearly a three-fold greater risk of fall injury-related hospitalisation than non-Aboriginals (Figure 24).

The onset of the rapid increase in fall injury-related hospitalisation in older people appears to occur earlier among Aboriginal and Torres Strait Islander peoples.

Aboriginal and Torres Strait Islander children at ages 0 to 4 have two-and-half times the rate of admission to hospital for falls involving fractures (65 per 100,000) than non-Aboriginal children of the same age (25 per 100,000; see Figure 25).

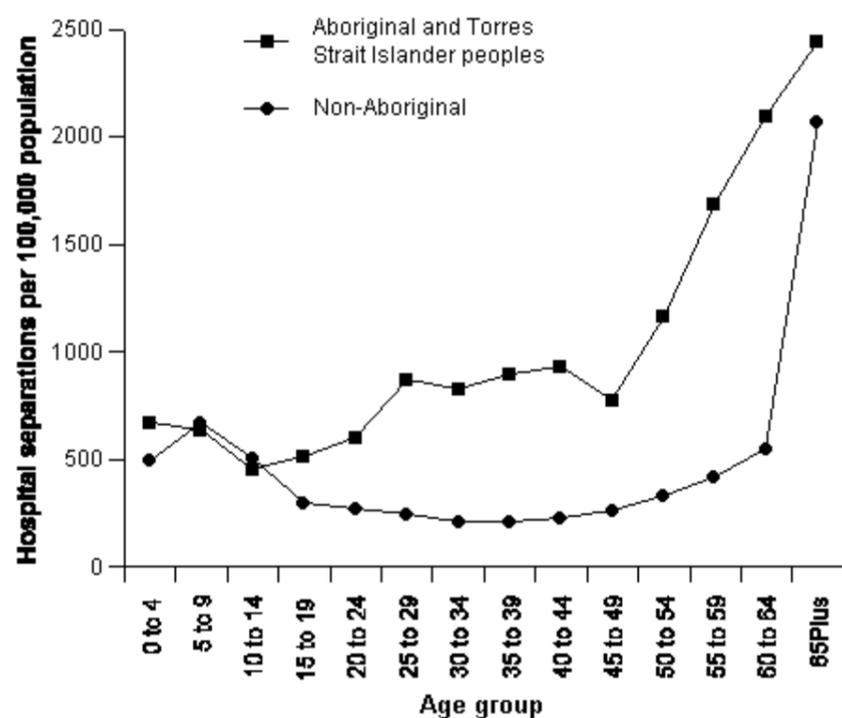


Figure 24: Rate of accidental fall hospitalisations in Aboriginal and Torres Strait Islander peoples and non-Aboriginal populations, by age, Australia (except NT), 1991/92.

For falls from different levels and falls from the same level, the hospitalisation rate of Aboriginal and Torres Strait Islander peoples over the ages 25 to 44 was about twice that of non-Aboriginals.

Compared with non-Aboriginals, Aboriginal and Torres Strait Islander peoples' risk of hospitalisation from falls leading to fractures is higher at all ages and increases with age to reach a peak over ages 35 to 60 of about eight and-a-half times the risk for non-Aboriginals.

The age-adjusted rate (hospitalisations per 100,000 population) of Aboriginal and Torres Strait Islander peoples' hospitalisation for falls from different levels (171) was 13 per cent higher than that of the non-Aboriginal population (151).

The age-adjusted rate (hospitalisations per 100,000 population) of Aboriginal and Torres Strait Islander peoples' hospitalisation for falls from the same level (127) was 20 percent lower than that of the non-Aboriginal population (153).

The age-adjusted rate (hospitalisations per 100,000 population) of Aboriginal and Torres Strait Islander peoples' hospitalisation for fall related fractures (260) was four times that of the non-Aboriginal population (64).

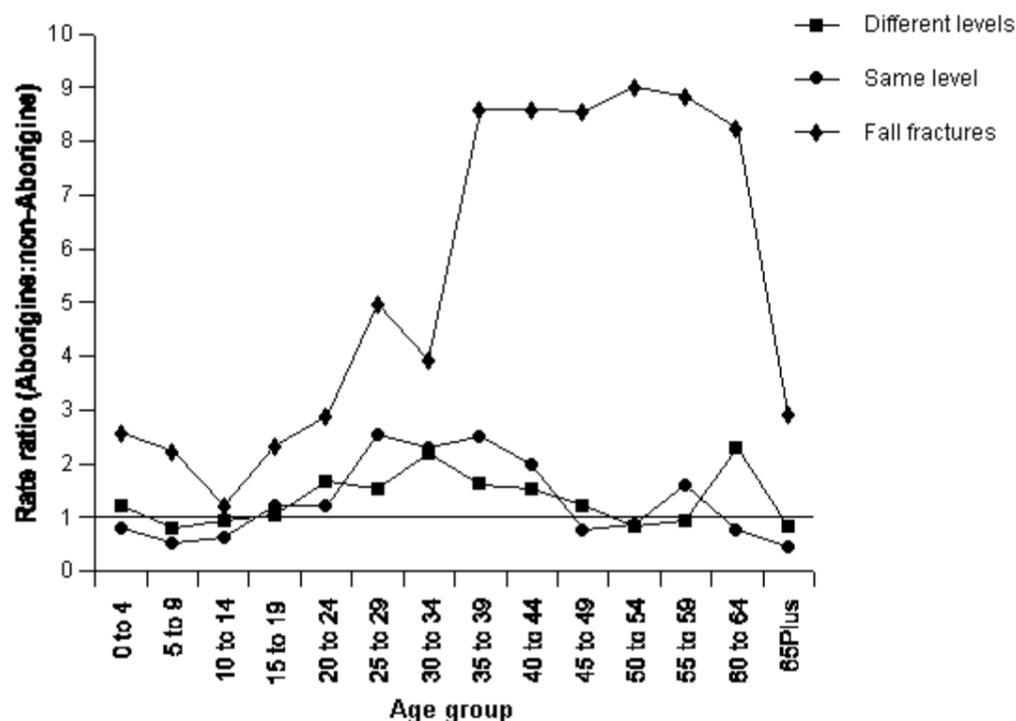


Figure 25: Ratio of Aboriginal and Torres Strait Islander peoples' rate of fall injury-related hospitalisations to that of non-Aboriginal populations, by age, Australia (except NT), 1991/92.

### Summary of Aboriginal and Torres Strait Islander fall injury hospitalisations

Aboriginal and Torres Strait Islander peoples have higher rates of fall injury-related hospitalisation than non-Aboriginal populations across most age groups. Aboriginal and Torres Strait Islander children aged less than 10 are more likely to be hospitalised due to fractures as a result of falling than non-Aboriginal children of the same age. The risk of fall related fractures remains particularly high after the age of 35 in Aboriginal and Torres Strait Islander peoples. In elderly populations, the rate of hospitalisation from falls increases quite sharply--in Aboriginal and Torres Strait Islander peoples, this increase occurs earlier than in non-Aboriginal populations.



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## Self harm

- [Overview of Aboriginal and Torres Strait Islander peoples cases](#)
- [Key risks](#)
- [Overview of non-Aboriginal cases](#)
- [Comparative patterns of injury](#)

### Definition of self harm

Self harm injury hospitalisations include injuries in suicide and attempted suicide, and self-inflicted injuries specified as intentional. These are divided into six subsets of ICD9 External Causes Codes. These subsets are assigned the following E-codes: E-code 950 (attempted suicide and self-inflicted poisoning by solid or liquid substances), E952 /.0 (attempted suicide and self-inflicted poisoning by motor vehicle exhaust gas), E953 /.0 (attempted suicide and self-inflicted injury by hanging), E955 /.0-.4 (attempted suicide and self-inflicted injury by firearms), E956 (attempted suicide and self-inflicted injury by cutting and piercing instrument) and E951, E952 /.1-.9, E953 /.1-.9, E954, E955 /.5-.9, E957-E959 (attempted suicide and self-inflicted injury by other/unspecified means). Criteria for assigning injuries to self harm categories vary from state to state and therefore the figures presented here should be considered as only an approximation of the level of self harm hospitalisation.

### Overview of Aboriginal and Torres Strait Islander peoples cases

Table 20: Summary indicators of self harm hospitalisations in Aboriginal and Torres Strait Islander peoples, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Poisoning injuries, (solids/liquids)</b>			
Number of cases	62	166	228
Crude rate (per 100,000)	55	146	101
Age-adjusted rate (per 100,000)	61	147	105
<b>Cutting/piercing injuries</b>			
Number of cases	68	39	107
Crude rate (per 100,000)	61	34	47
Age-adjusted rate (per 100,000)	60	33	46
<b>Total self harm injuries</b>			
Number of cases	159	213	372
Crude rate (per 100,000)	142	187	165
Age-adjusted rate (per 100,000)	146	186	166

The principal methods of self harm leading to hospitalisation of Aboriginal and Torres Strait Islander peoples are presented in Figure 26.

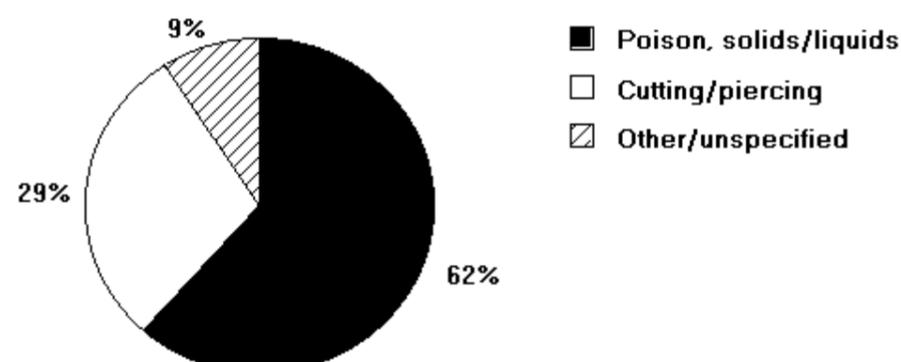


Figure 26: Principal methods of self harm leading to hospitalisation in Aboriginal and Torres Strait Islander peoples, Australia (except NT), 1991/92.

### Key risks

- Amongst Aboriginal and Torres Strait Islander peoples, those aged 15 to 39 have the highest rates of hospitalisation from self-inflicted injuries.
- The majority of cases of self-inflicted injury hospitalisation are females, accounting for 57 percent of cases.
- Aboriginal and Torres Strait Islander adults aged 15 to 44 have relatively high rates of self-inflicted injury hospitalisation from poison ingestion (191 per 100,000) and from cutting or piercing injuries (95 per 100,000).
- Aboriginal and Torres Strait Islander males are twice as likely to be hospitalised as a result of self-inflicted cutting or piercing injuries (60 per 100,000) than females (33 per 100,000).
- Aboriginal and Torres Strait Islander females aged between 15 and 44 are two and a-half times more likely to harm themselves by ingesting poison (271 per 100,000) than are Aboriginal and Torres Strait Islander males of the same age (106 per 100,000).

### Overview of non-Aboriginal cases

Table 21: Summary indicators of self harm hospitalisations in non-Aboriginal populations, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Poisoning injuries, (solids/liquids)</b>			
Number of cases	4,033	6,030	10,063
Crude rate (per 100,000)	48	71	60
Age-adjusted rate (per 100,000)	48	72	60
<b>Cutting/piercing injuries</b>			
Number of cases	729	459	1,188
Crude rate (per 100,000)	9	5	7
Age-adjusted rate (per 100,000)	9	5	7
<b>Total self harm injuries</b>			

Number of cases	5,451	6,731	12,182
Crude rate (per 100,000)	65	79	72
Age-adjusted rate (per 100,000)	64	80	72

The principal methods of self harm leading to hospitalisation of non-Aboriginals are presented in Figure 27.

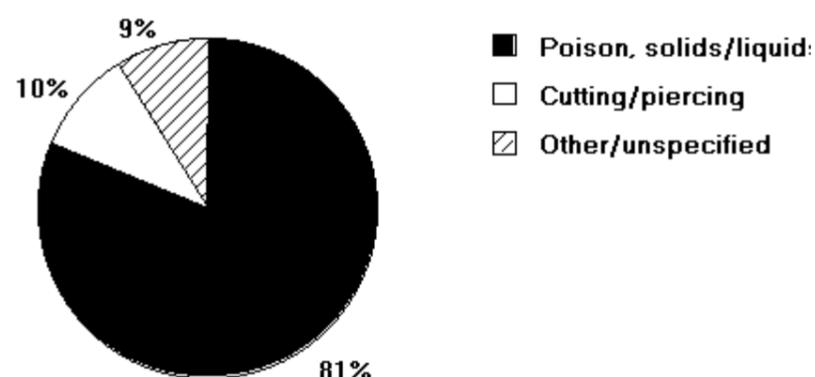


Figure 27: Principal methods of self harm leading to hospitalisation in non-Aboriginal populations, Australia (except NT), 1991/92.

**Comparative patterns of injury**

Aboriginal and Torres Strait Islander adults have at least a two-fold greater rate of self-inflicted injury hospitalisation than non-Aboriginal populations across most adult age groups (Figure 28).

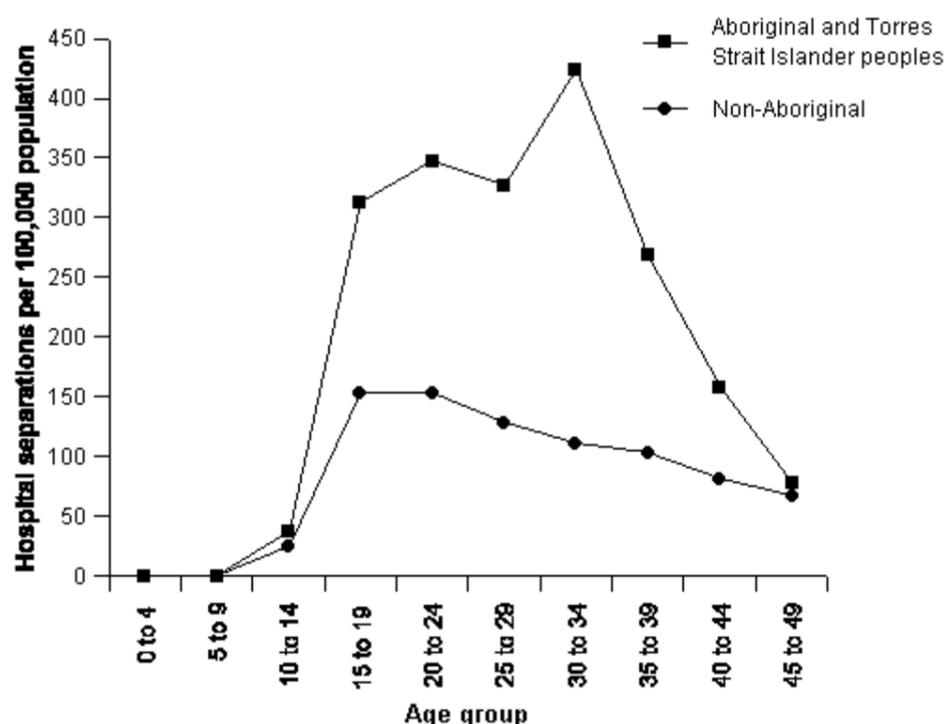


Figure 28: Rate of self harm injury hospitalisation in Aboriginal and Torres Strait Islander peoples and non-Aboriginal populations, by age, Australia (except NT), 1991/92.

The proportion of self harm injuries inflicted by cutting and piercing in Aboriginal and Torres Strait Islander peoples (29 percent of cases) is about three times that in non-Aboriginals (10 percent of cases).

The overall age-adjusted rate (hospitalisations per 100,000 population) of hospitalisation as a result of self-inflicted cutting and piercing in Aboriginal and Torres Strait Islander peoples (46) was about six times the rate of the non-Aboriginal population (7).

Over the ages 15 to 44, the hospitalisation rate from cutting or piercing self-inflicted injuries in Aboriginal and Torres Strait Islander peoples was about seven to eight times that of non-Aboriginals.

In Aboriginal and Torres Strait Islander peoples, ingestion of poison as a means of causing self harm is less common (62 percent of cases) than in the non-Aboriginal population (81 percent of cases).

The age-adjusted rate (hospitalisations per 100,000 population) of hospitalisation as a result of self-inflicted poison ingestion in Aboriginal and Torres Strait Islander peoples (105) was almost twice the rate in the non-Aboriginal population (60).

Other methods of self harm resulting in hospitalisation (such as by firearms or hanging) were uncommon in both populations. This is because suicide attempts using these methods are more likely to lead to death rather than hospitalisation. Over the period 1990-92, suicide by hanging or by firearm accounted for 93 percent of all suicide deaths in Aboriginal and Torres Strait Islander peoples, more than double the corresponding percentage in the case of non-Aboriginal suicide deaths (Harrison and Moller, 1994).



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## INTERPERSONAL Violence

- [Overview of Aboriginal and Torres Strait Islander peoples cases](#)
- [Key risks](#)
- [Overview of non-Aboriginal cases](#)
- [Comparative patterns of injury](#)

### Definition of interpersonal violence

Interpersonal violence injury hospitalisations are divided into three subsets of ICD9 External Causes Codes. These subsets are assigned the following E-codes: E-code 960 /0 (Unarmed fight or brawl), E966 (Assault by cutting and piercing instrument), and E960 /1-.9, E961-E964, E965 /0-.9, E968-E978, and E990-E999 (Other/unspecified means including legal intervention and effects of war). Note: the level of interpersonal violence experienced by non-Aboriginal women is known to be under-reported--comparison of rates between Aboriginal and Torres Strait Islander and non-Aboriginal women should be treated with great caution.

### Overview of Aboriginal and Torres Strait Islander peoples cases

Table 22: Summary indicators of interpersonal violence injury-related hospitalisations in Aboriginal and Torres Strait Islander peoples, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Unarmed fight or brawl</b>			
Number of cases	707	467	1,174
Crude rate (per 100,000)	632	411	520
Age-adjusted rate (per 100,000)	713	424	562
<b>Assault by cutting and piercing instruments</b>			
Number of cases	189	93	282
Crude rate (per 100,000)	169	82	125
Age-adjusted rate (per 100,000)	192	81	134
<b>Other/unspecified means</b>			
Number of cases	506	918	1,424
Crude rate (per 100,000)	452	807	631
Age-adjusted rate (per 100,000)	528	848	693
<b>Total</b>			
Number of cases	1,402	1,478	2,880
Crude rate (per 100,000)	1,254	1,300	1,277
Age-adjusted rate (per 100,000)	1,433	1,353	1,388

The types of interpersonal violence resulting in hospitalisation of Aboriginal and Torres Strait Islander peoples are presented in Figure 29.

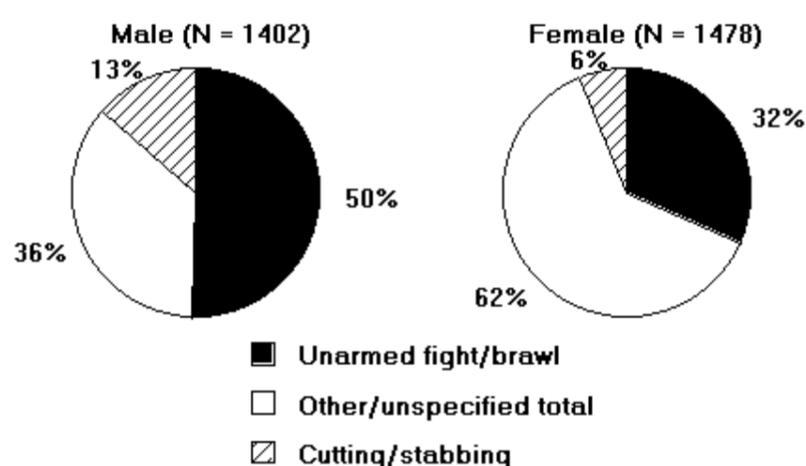


Figure 29: Types of interpersonal violence injury hospitalisations in Aboriginal and Torres Strait Islander peoples, by sex, Australia (except NT), 1991/92.

### Key risks

- Amongst Aboriginal and Torres Strait Islander peoples, those aged 15 to 49 have the highest rates of interpersonal violence injury-related hospitalisation.
- Overall rates of interpersonal violence injury-related hospitalisation are similar for males (1,433 per 100,000) and females (1,353 per 100,000).
- Of those Aboriginal and Torres Strait Islanders aged 15 to 49, males have a higher rate of hospitalisation from unarmed fights or brawls (1,167 per 100,000) than females (758 per 100,000).
- Similarly, of those Aboriginal and Torres Strait Islanders aged 15 to 49, males have a two-fold increased rate of hospitalisation from assault by cutting and piercing instruments (308 per 100,000) than females (154 per 100,000).
- The highest rates of injury from unarmed fights or brawls (1,655 per 100,000) and assault by cutting and piercing instruments (426 per 100,000) occur in Aboriginal and Torres Strait Islander males aged 20 to 24, and 35 to 39, respectively.
- For females, the highest rates of injury from unarmed fights or brawls (1,103 per 100,000) and assault by cutting and piercing instruments (227 per 100,000) occur in those aged 25 to 29.

### Overview of non-Aboriginal cases

Table 23: Summary indicators of interpersonal violence injury-related hospitalisations in non-Aboriginal populations, Australia (except NT), 1991/92.

Summary indicator	Males	Females	Persons
<b>Unarmed fight or brawl</b>			
Number of cases	7,432	1,379	8,811

Crude rate (per 100,000)	88	16	52
Age-adjusted rate (per 100,000)	87	16	52
<b>Assault by cutting and piercing instruments</b>			
Number of cases	873	146	1,019
Crude rate (per 100,000)	10	2	6
Age-adjusted rate (per 100,000)	10	2	6
<b>Other/unspecified means</b>			
Number of cases	2,839	938	3,777
Crude rate (per 100,000)	34	11	22
Age-adjusted rate (per 100,000)	33	11	22
<b>Total</b>			
Number of cases	11,144	2,463	13,607
Crude rate (per 100,000)	132	29	80
Age-adjusted rate (per 100,000)	131	29	81

The types of interpersonal violence resulting in hospitalisation of non-Aboriginals are presented in Figure 30.

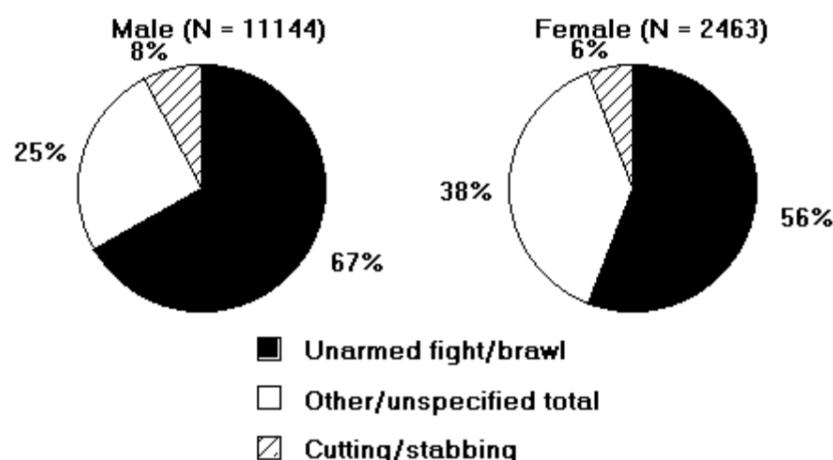


Figure 30: Types of interpersonal violence injury-related hospitalisations in non-Aboriginal populations, by sex, Australia (except NT), 1991/92.

**Comparative patterns of injury**

Aboriginal and Torres Strait Islander peoples have a much higher rate of hospitalisation from interpersonal violence injuries than non-Aboriginal populations at all ages (Figure 31).

The age-adjusted rate (hospitalisations per 100,000 population) of Aboriginal and Torres Strait Islander peoples' injury from interpersonal violence (1,388) was 17 times higher than that of the non-Aboriginal population (81).

The age-adjusted rate (hospitalisations per 100,000 population) of Aboriginal and Torres Strait Islander peoples' injury from unarmed fights or brawls (562) was 11 times higher than that of the non-Aboriginal population (52).

The age-adjusted rate (hospitalisations per 100,000 population) of Aboriginal and Torres Strait Islander peoples' injury from assault by cutting and piercing instruments (134) was 22 times higher than that of the non-Aboriginal population (6).

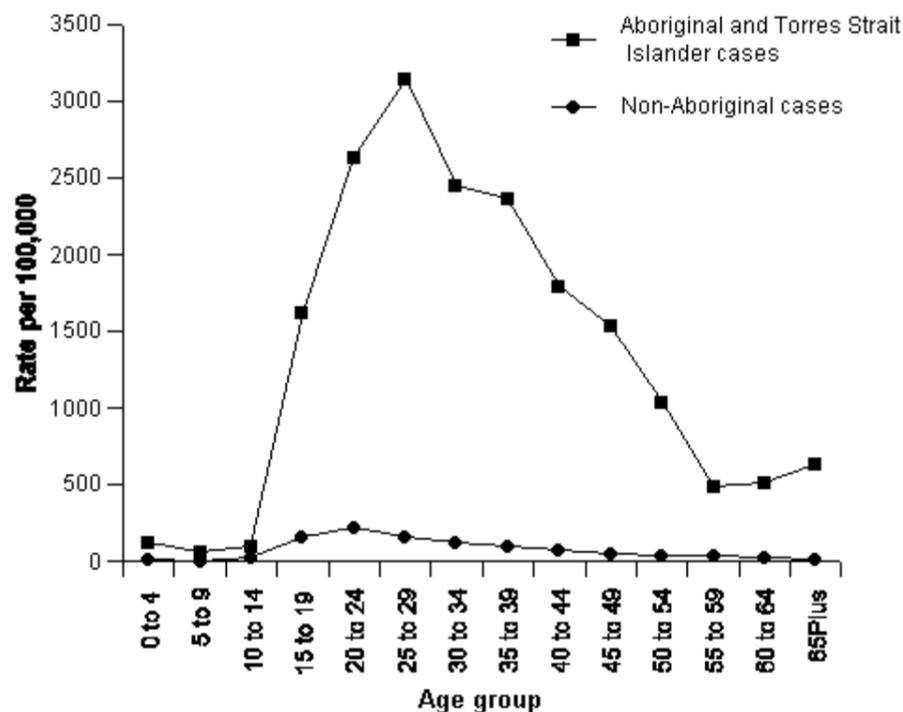


Figure 31: Interpersonal violence hospitalisation rates for Aboriginal and Torres Strait Islander peoples and non-Aboriginal populations, by age, Australia (except NT), 1991/92.

The Aboriginal and Torres Strait Islander female age-adjusted rate (hospitalisations per 100,000 population) for unarmed fights or brawl injuries was 26 times higher than that of non-Aboriginal females (424:16); in the case of assault by cutting and piercing instruments, Aboriginal and Torres Strait Islander females had a hospitalisation rate that was 40 times higher than non-Aboriginal females (81:2) .

The Aboriginal and Torres Strait Islander male age-adjusted rate (hospitalisations per 100,000 population) for unarmed fights or brawl injuries was eight times higher than that of non-Aboriginal males (713:87); in the case of assault by cutting and piercing instruments, Aboriginal and Torres Strait Islander males had a hospitalisation rate that was 48 times higher than non-Aboriginal males (192:10).

Comparison of interpersonal violence rates between Aboriginal and Torres Strait Islander and non-Aboriginal women should be treated with great caution as reporting biases may be present; for example, interpersonal violence in non-Aboriginal women is known to be under-reported.

Note that the "other and unspecified" means of interpersonal injury category was not discussed in any detail in this report because of its general nature. For Aboriginal and Torres Strait Islander peoples, about 49 percent of the interpersonal violence related hospitalisations were coded to this category; this was about twice the proportion for non-Aboriginal interpersonal violence related hospitalisations.



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