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



## Injury Mortality Australia 1 9 9 6

Stan Bordeaux

- [All injury deaths, Australia 1996](#)
- [Major types of injury deaths](#)
- [Data issues](#)



### Communications

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## All injury deaths, Australia 1996

### Key indicators of all injury related deaths, Australia 1996

Indicator	Males	Females	Persons
Cases	5434	2123	7557
Percent of all injury deaths	8.2%	3.9%	5.9%
Crude rate/100,000 pop	59.66	23.07	41.27
Age adjusted rate/100,000 pop	61.17	20.55	40.52
Change in age adj. rate since 1995	4.1%	-9.1%	0.4%
Average years lost before age 75 yrs	33	39	34

### Overview

Of the 128,711 deaths from all causes registered in 1996, 7,557 (6%) were the result of an external cause or poisoning, comprising 5,434 males and 2,123 females. There was an increase of less than 1% in the age-adjusted death rate from all external causes from 40.3 deaths per 100,000 in 1995 to 40.5 in 1996. The age-standardised rate fell for females by 9% while the rate for males rose by 4% over 1995.

Injury and poisoning was the fifth leading cause of death in 1996 behind malignant neoplasms, ischaemic heart disease, cerebrovascular disease and chronic obstructive pulmonary diseases. Injury is the leading cause of death for persons aged 1-44 years. It accounted for 47% of all deaths in this age group in 1996. The impact of injury at young ages is reflected in the average of 32 years of potential life lost (YPLL) before age 75 years due to each injury or poisoning death compared with 9 YPLL for cancer and 5 YPLL for ischaemic heart disease.



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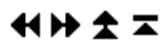
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## Major types of injury deaths

- [Age and sex distribution](#)
- [Causes and intent](#)
- [Trends in death rates](#)
- [State and territory differences](#)



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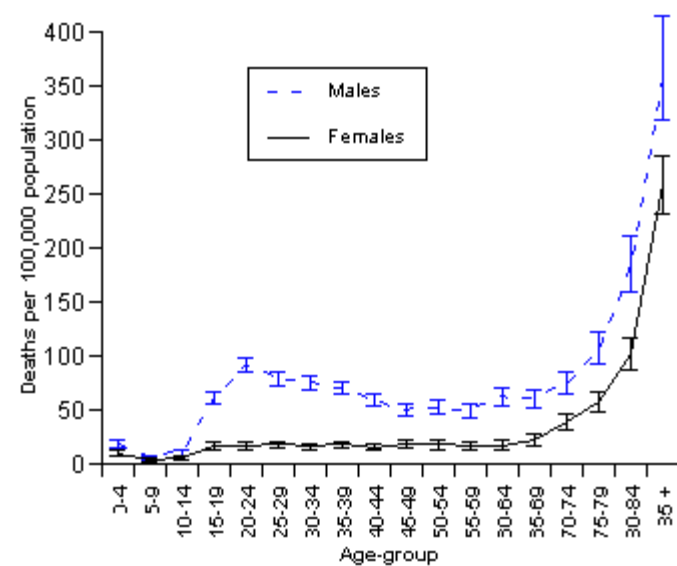
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## Age and sex distribution

- Male injury death rates were much higher than female rates for all age groups, with an average male to female death rate ratio of almost 3 to 1. Males aged between 20 and 34 years had injury death rates around 4 to 5 times the death rate for females in the same age range.
- Injury rates were highest for old age (75 plus years), with falls (n=789), transport (n=205) and suicide (n=139) accounting for the largest number of deaths for persons aged 75 or more years.

Figure 1.: Age-specific deaths rates of injury deaths from all causes, by sex, Australia 1996.



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## Causes and intent

- Transport related injuries (30%), poisoning (18%) and falls (16%) were the three leading causes of injury deaths in Australia in 1996, accounting for 64% of all injury deaths.
- Transport related deaths were almost all unintentional (n=2,208), with only 0.5% being categorised as suicide (n=10). In contrast, only 26% of deaths due to poisoning were classed as unintentional (n=349) and 67% being classed as suicide (n=908).
- 6% of all firearm deaths were classified as unintentional (n=30), with the majority (73%) being the result of suicide (n=382) and a further 20% were classified as homicides (n=104).

Figure 2: Leading causes of injury deaths by intent, Australia 1996

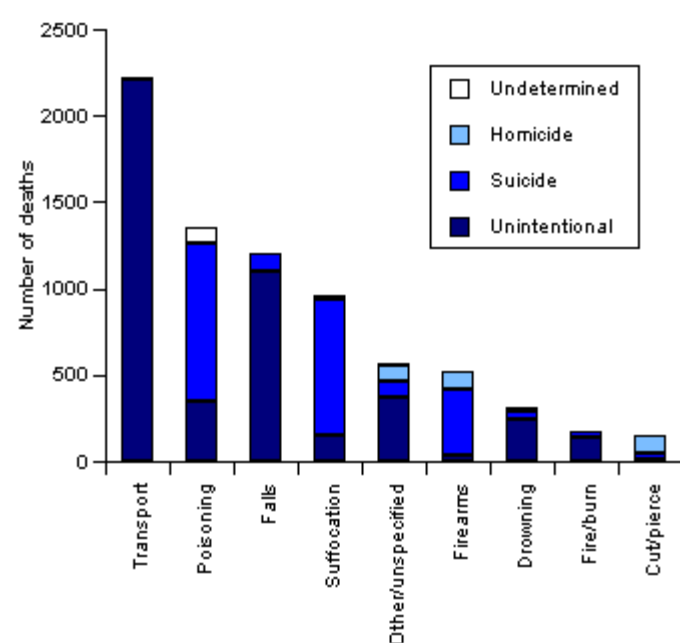


Table 1: Number of injury deaths by intent, Australia 1996

	Unintentional	Suicide	Homicide	Undetermined	Total
<b>Transport</b>	2208	10	0	0	2218
<b>Poisoning</b>	349	908	6	92	1355
<b>Falls</b>	1102	99	0	7	1208
<b>Suffocation</b>	148	792	17	1	958
<b>Other/unspecified</b>	370	92	95	14	571
<b>Firearms</b>	30	382	104	5	521
<b>Drowning</b>	247	47	1	15	310
<b>Fire/burn</b>	142	26	3	4	175
<b>Cut/pierce</b>	15	37	100	1	153
<b>Total</b>	4596	2393	326	139	7469

Note: Deaths due to 'Medical misadventure' and 'Adverse effects' (n=88) are not included in the table.



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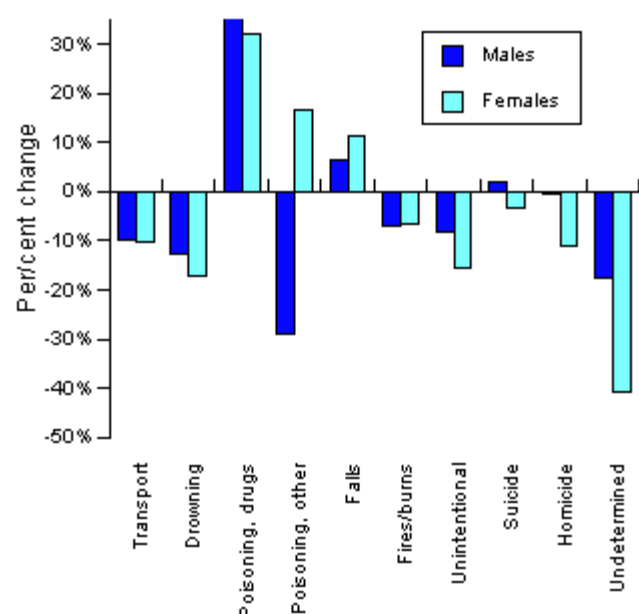
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## Trends in death rates

Figure 3: Average annual percent change in injury deaths rates for major injury groups, Australia 1991/93-1994/96



- Injury death rates fell by 36% (males -33%; females -43%) in the period 1979 to 1993. From 1993 to 1996 there the general downward trend levelled off, with a slight rise in the male rate.
- Overall, the age-adjusted injury death rate rose by less than 1% from 1995 to 1996.
- Male injury death rates rose 4% from 59 deaths per 100,000 in 1995 to 61 injury deaths per 100,000 in 1996. Much of this rise can be attributed to increases in the number of deaths due to fire and flames (up 21%), falls (9%), poisoning from drugs and medicaments and other substances (9%), homicide (6%) and suicide (2%). Unintentional deaths and undetermined causes were also up 14% and 11% respectively. Transport related deaths (down 1%) and drowning deaths (down 2%), were the only two major categories which recorded a fall in death rates from 1995 to 1996.

Figure 4(a): Trends in major injury death rates for Males, Australia 1979-96

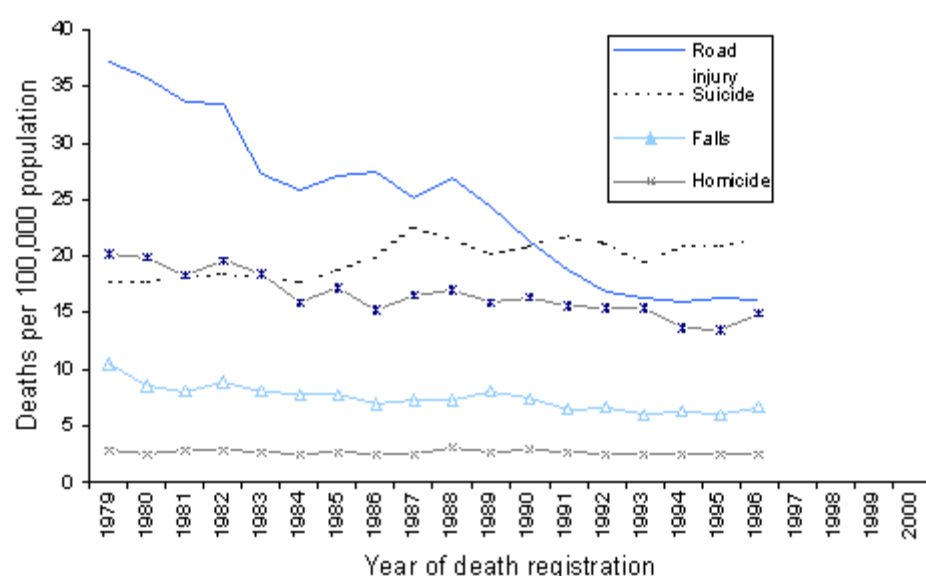
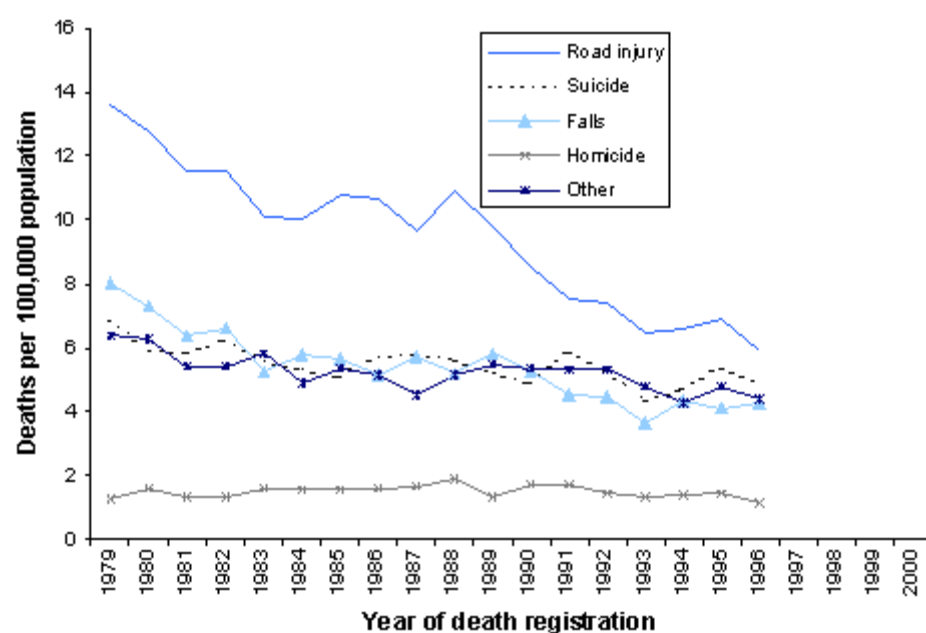
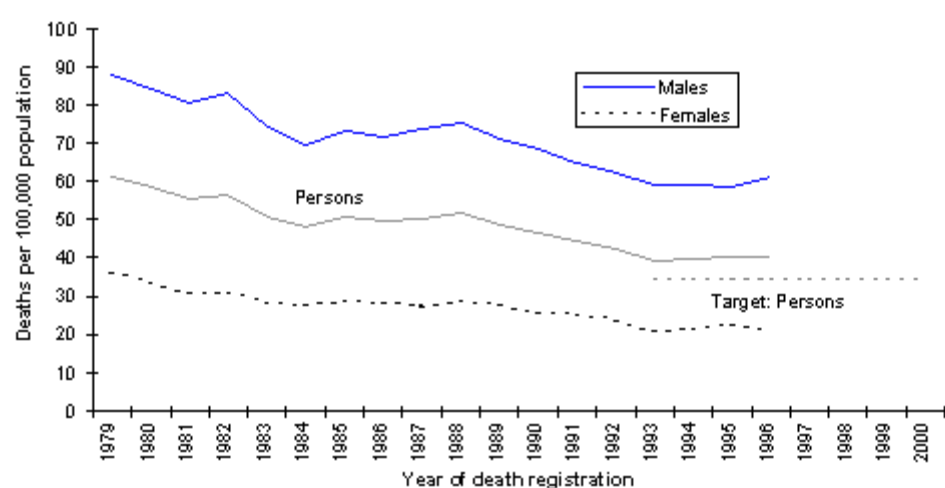


Figure 4(b): Trends in major injury death rates for Females, Australia 1979-96



- In contrast to the rise in rates for males, there was an overall reduction in the rate of all injury deaths for females, down 9% from 23 deaths per 100,000 in 1995 to 21 deaths per 100,000 in 1996. Falls in homicide (-21%), fires and flames (-20%), transport related deaths (-17%) and drowning (-15%) all contributed to the overall fall in female death rates.
- Figures 4(a) and 4(b) show the trends in the major types of injury deaths. The large fall in deaths due to road transport related deaths for males during the 1970's and 1980's has been offset by the rise in the male suicide rate.

Figure 5: Age-adjusted rates of injury deaths from all causes, by sex, Australia 1979-1996



- The dashed line in figure 5 reflects the 20% reduction from the 1992 baseline that is the year 2000 target in the National Health Priority Areas report (NHPA)<sup>(1)</sup>.
- Table 2 shows the number and rate per 100,000 population for each of the major injury types registered in 1996. Suicide (n=2,393) and transport related deaths (n=2,197) were the major contributors to the overall injury death rate in 1996 accounting for 61% of the 7,557 registered external deaths. A further 15% (n=1,102) were accounted for by falls, the majority (n=917) of which were falls by people aged 65 or more years.

Table 2: Major types of injury deaths by age group, persons, Australia 1996 (number and rates per 100,000 population)

		Age groups (years)									
		0-4	5-9	10-14	15-24	25-34	35-54	55-64	65-74	75 plus	total
Transportation	Cases	60	41	66	602	401	507	161	154	205	2197
	Rate	4.63	3.14	5.05	22.50	14.01	9.90	10.47	11.89	22.58	12.10
Drowning	Cases	59	11	5	37	28	58	17	20	12	247
	Rate	4.55	0.84	0.38	1.38	0.98	1.13	1.11	1.54	1.32	1.36
Poisoning, pharmaceuticals	Cases	2	1	1	47	102	118	7	8	11	297
	Rate	*	*	*	1.76	3.56	2.30	0.46	0.62	1.21	1.62
Poisoning, other substances	Cases	0	0	2	12	12	14	3	6	3	52
	Rate	*	*	*	0.45	0.42	0.27	*	0.46	*	0.28
Falls	Cases	2	2	4	17	33	76	51	128	789	1102
	Rate	*	*	0.31	0.64	1.15	1.48	3.32	9.88	86.92	5.30
Fires/flame/scalds	Cases	19	4	0	10	18	33	10	17	31	142
	Rate	1.46	0.31	*	0.37	0.63	0.64	0.65	1.31	3.42	0.75
Other unintentional	Cases	39	9	16	74	76	154	64	64	78	574
	Rate	3.01	0.69	1.22	2.77	2.65	3.01	4.16	4.94	8.59	3.09
Intentional self harm	Cases	0	0	14	407	561	877	221	174	139	2393
	Rate	*	*	1.07	15.21	19.60	17.13	14.37	13.43	15.31	12.98
Intentional, inflicted by another	Cases	16	6	3	54	92	100	24	22	9	326
	Rate	1.23	0.46	*	2.02	3.21	1.95	1.56	1.70	0.99	1.80
Undetermined intent	Cases	3	0	1	28	50	42	5	8	2	139
	Rate	*	*	*	1.05	1.75	0.82	0.33	0.62	*	0.77
Medical misadventure, complications, etc	Cases	1	0	0	5	5	15	10	27	25	88
	Rate	*	*	*	0.19	0.17	0.29	0.65	2.08	2.75	0.46
All causes	Cases	201	74	112	1293	1378	1994	573	628	1304	7557
	Rate	15.50	5.67	8.56	48.32	48.14	38.95	37.26	48.48	143.65	40.52

Note: Shaded cells represent age-specific and age-adjusted rates per 100,000 population

Rates based on counts of 3 or less have large standard errors and are replaced with '\*\*'

References

1. Australian Institute of Health and Welfare and Commonwealth Department of Health and Family Services 1997. *First report on National Health Priority Areas, 1996.*



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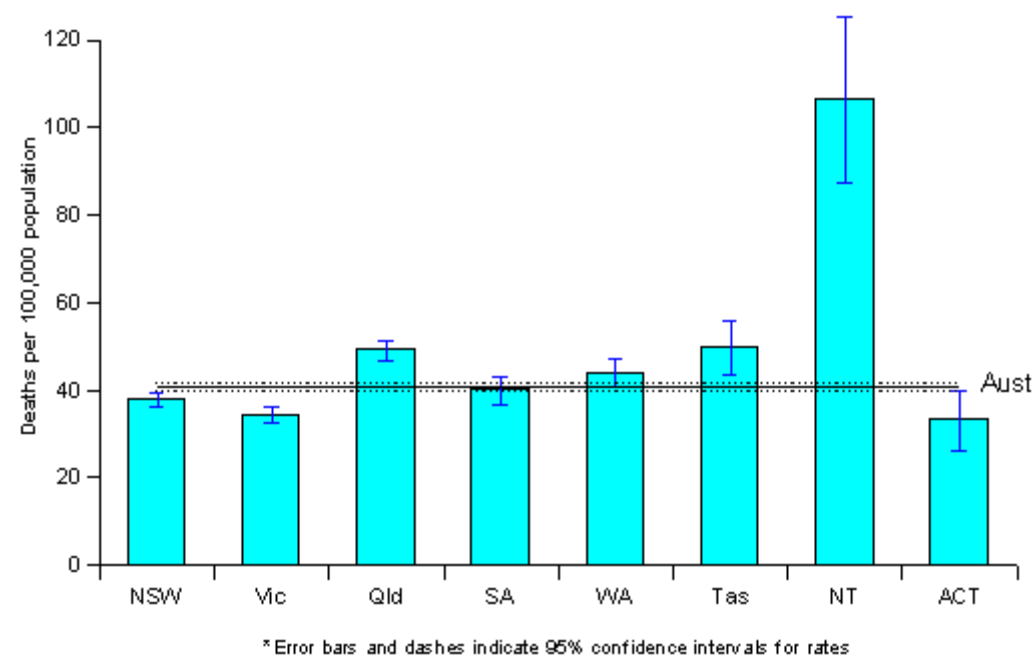
## State and territory differences

- Table 3 shows state and territory differences for all injury deaths.
- The Northern Territory age-adjusted injury related death rate of 106 deaths per 100,000 was over two and half times the 1996 national average and 12% higher than the rate recorded in 1995. Rises in the number of suicides and transport related accidents were the main contributors to this increase.
- Queensland and Tasmania also recorded rates higher than the national average.
- Victoria, which has regularly recorded lower than average rates since the mid 1980's, continued this trend in 1996 and was the only state to record rates significantly lower than the national average.

**Table 3: Injury deaths from all causes, by sex and state and territory, Australia 1996.**

	Males		Females		Persons	
	Number	Age-adj. rate	Number	Age-adj. rate	Number	Age-adj. rate
<b>NSW</b>	1736	57.69	654	18.87	2390	37.77
<b>VIC</b>	1136	51.25	476	17.92	1612	34.27 <sup>a</sup>
<b>QLD</b>	1191	73.36	451	24.97	1642	49.08 <sup>a</sup>
<b>SA</b>	454	62.06	175	19.39	629	39.99
<b>WA</b>	556	57.69	222	23.12	778	43.82
<b>TAS</b>	161	71.52	79	29.85	240	49.68 <sup>a</sup>
<b>NT</b>	133	151.93	38	55.79	171	106.33 <sup>a</sup>
<b>ACT</b>	67	49.48	28	19.16	95	33.09
<b>AUST</b>	<b>5434</b>	<b>61.17</b>	<b>2123</b>	<b>20.55</b>	<b>7557</b>	<b>40.52</b>

Deaths per 100,00 age &amp; sex specific population

<sup>a</sup> These rates differ significantly from the Australian rate (95% confidence intervals assuming Poisson distribution).**Figure 6: Age-adjusted rates\* of injury deaths from all causes, by state and territory of registration, Australia 1996**

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## Data issues

### 1. Data sources

Deaths data are from the Australian Bureau of Statistics (ABS) mortality unit record data collection, 1979-96. Population data were obtained from the ABS.

### 2. Case definition

The cause of each death registered in Australia is classified by the ABS according to the International Classification of Diseases (ICD). The 9th revision (ICD9) has been used for death registrations beginning in 1979 (4). All deaths given an ICD9 "External Cause" code by the ABS are included in this Bulletin.

Data are presented according to the year in which deaths were registered. Nine percent of deaths registered in 1996 occurred in an earlier year. A similar proportion of deaths which occurred in 1996 will not have been registered until after 1997. Information on these cases is not yet available. State-specific data are presented on the basis of the state or territory in which death was registered. This is normally the one in which death occurred.

### 3. Age adjustment

Most all-ages rates have been adjusted to overcome the effect of differences in the proportions of people of different ages (and different injury risks) in the populations that are compared. Direct standardisation was employed, taking the Australian population in 1991 as the standard.

### 4. Confidence intervals

All (or nearly all) deaths are registered, so sampling errors do not apply to these data. However, the time periods used to group the cases (ie. calendar years) are arbitrary. Use of another period (eg. July to June) would result in different rates. Where case numbers are small, the effect of chance variation on rates can be large. Confidence intervals (95%, based on a Poisson assumption about the number of cases in a time period) have been placed around rates as a guide to the size of this variation. Chance variation alone would be expected to lead to a rate outside the interval only once out of 20 occasions. An extreme rate in a single period of enumeration should not be ignored simply because of a wide confidence interval - a time series may show such a rate to be part of a more significant pattern.

### 5. Time series

Time trends have been presented for the period 1979 to 1996. This is the period during which Australian deaths data have been classified according to the 9th revision of the International Classification of Diseases (ICD9).

### 6. Cause code aggregations

NISU statistical publications make use of standard aggregations of the ICD9 external cause (E-code) classification. The E-code equivalents of most groups presented in this Bulletin are noted in the text.

### 7. Data reliability

The chief question concerns the reliability of information about type of injury death. This depends principally on the information available in coroner's records, and on the reliability of the application of ICD9 E-codes, generally based on that information. Little empirical information is available. There is considerable potential for factors to do with information recording or coding to affect data in different ways for different states and territories. Hence, apparent differences between jurisdictions should be interpreted with caution. Beginning with 1993 registrations, coding has been centralised at the Brisbane office of the ABS.



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