

Chapter 2

Injury prevention and control indicators — current status

The *First Report on National Health Priority Areas 1996* (AIHW & DHFS 1997) documented progress against a subset of 18 NHPA injury indicators. This chapter contains an updated summary of the statistics and trends for each of these injury indicators. In addition, information is now available for persistent spinal cord injury from traumatic causes, and for the death rate of people living in rural and remote areas compared with the general population. Data for the remaining 14 NHPA indicators are not currently available (see Appendices 1 and 2).

2.1 Indicator levels and trends

Definitions

Injury *indicators* are a means of measuring change in health outcomes in the injury area. The National Health Information Management Group Working Party has defined a 'health outcome indicator' as:

...a statistic or other unit of information which reflects, directly or indirectly, the effect of an intervention, facility, service or system on the health of its target population, or the health of an individual.

(AIHW & DHFS 1997)

The majority of NHPA injury indicators are based on *mortality* or *hospital separation* statistics. A hospital separation '... occurs when a patient leaves the care of an acute hospital. This includes discharge, transfer or death' (AIHW & DHFS 1997).

Targets have been set for many indicators. 'Targets state, for a given population, the amount of change which could reasonably be expected within a given time' (DHS 1994). The targets used in this report were those published in the *Better Health Outcomes for Australians* report and were based on 'trends data and estimates of achievable gain over and above those being ... realised' at the time of publication of the report (DHS 1994).

Priorities and targets were set by a working group with wide experience in injury prevention. The choice of priorities was influenced by the frequency and severity of injury, the possibility of effective intervention, and the degree of contribution that could be made by the health sector. Broadly, the targets for injury were of three types: those relating to specific external causes (eg transport-related); those relating to specific risk groups (eg Indigenous peoples); and those relating to trauma management or rehabilitation (eg access to optimal care).

Injury prevention and control indicators — current status

Trends

Targets, and progress towards targets for those indicators for which data were available in 1997, are summarised in Table 2.1, followed by a brief summary of injury indicator trends. More detailed information concerning each of the indicators, including data for previous years, is contained in Appendix 1. Appendix 2 outlines the statistical methods used to determine the trends in this report. Indicator numbers correspond to those published in the *First Report on National Health Priority Areas 1996* (AIHW & DHFS 1997).

Table 2.1 includes death rates for 1996 and hospital separation data for the financial year 1995/96. Conclusions concerning trends over time are confined to mortality data, as hospital statistics do not at present provide a valid indication of changes in injury rates. These issues are discussed in Appendix 2, together with suggestions for revising and improving the indicators and targets. Trend data are not provided for the two indicators that are reported here for the first time.

Table 2.1 Assessment of the status of injury targets as at November 1997

Number	Indicator	Year 2000 target	Progress towards targets	Comments
1.1	Death rate for injury and poisoning in the total population	33.6 deaths per 100,000 population	✓	1996 death rate of 40.1 per 100,000 population. Given the long-term downward trend in death rates the target is likely to be achieved.
1.2	Hospital separation rate for injury and poisoning in the total population	Set at 20% below the 1991–92 rate	?	1995–96 hospital separation rate of 2,078 per 100,000 population. Hospital separation targets need to be reviewed (refer to Appendix 2).
2.1	Death rate ratio comparing the injury status of Indigenous and non-Indigenous populations	2.8:1 males 3.2:1 females	✗ ✗	1993–95 death rate ratio of 3.4:1 for males and 3.9:1 for females.
2.2	Death rate ratio comparing the injury status of males and females	2.1:1	✗	1996 male:female death rate ratio was 3.0:1. This ratio has slightly increased with no underlying trend observed.
2.4	Death rate ratio comparing the injury status among people living in rural and remote areas and the general population	No target set	NA	1991–95 death rate ratios range from 0.89:1 for males and 0.94:1 for females in 'capital cities' to 1.9:1 for males and 1.96:1 for females in 'other remote areas'.

Table 2.1 Continued

Indicator levels and trends

Table 2.1 Assessment of the status of injury targets as at November 1997 (cont)

Number	Indicator	Year 2000 target	Progress towards targets	Comments
3.1	Death rate for road transport-related injury in the total population	10.7 deaths per 100,000 population	✓	1996 death rate of 10.8 per 100,000 population. Trend analysis suggests that the NHPA target is likely to be achieved, though the decline has slowed lately.
3.2	Death rate for road transport-related injury among males aged 15–24 years	23.6 deaths per 100,000 males aged 15–24 years	✓	1996 death rate of 32.2 per 100,000 males aged 15–24 years. The long-term trend suggests that the target is likely to be achieved, though the decline has slowed lately.
3.3	Hospital separation rate for road transport-related injury in the total population	Set at 25% below the 1990 rate	?	1995–96 hospital separation rate of 253 per 100,000 population. Hospital separation targets need to be reviewed (refer to Appendix 2).
3.4	Hospital separation rate for road transport-related injury in males aged 15–24 years	Set at 25% below the 1990 rate	?	1995–96 rate of 665 hospital separations per 100,000 population. Hospital separation targets need to be reviewed (refer to Appendix 2).
5.1	Death rate due to falls among people aged 65 years and over	35.4 deaths per 100,000 aged 65 years and over	✓	1995 death rate of 35.9 per 100,000 persons. The trend indicates that the target is likely to be achieved.
5.2	Hospital separation rate due to falls among people aged 65 years and over.	Targets have been set to reduce by 10% the rate among males and by 20% the rate among females from the 1991–92 baseline	?	1995–96 hospital separation rate was 886 per 100,000 males and 1,456 per 100,000 females aged 65–74 years. Rate was 3,059 per 100,000 males and 5,871 per 100,000 females aged 75 years and over. Hospital separation targets need to be reviewed (refer to Appendix 2).
5.5	Hospital separation rate for falls among children aged 0–4 and 5–9 years	A 10% reduction rate has been set for children	?	1995–96 hospital separation rate of 578 per 100,000 aged 0–4 years and 777 per 100,000 aged 5–9 years. Hospital separation targets need to be reviewed (refer to Appendix 2).

Table 2.1 Continued

Injury prevention and control indicators — current status

Table 2.1 Assessment of the status of injury targets as at November 1997 (cont)

Number	Indicator	Year 2000 target	Progress towards targets	Comments
7.1	Death rate for homicide among people aged 20–39 years	Status quo males	?	No underlying trend is evident among males.
		Status quo females (1992 baseline)	✓	1996 death rate of 1.4 per 100,000 females is 2/3 of the Year 2000 target.
7.2	Death rate for homicide among children aged 0–9 years	0.5 deaths per 100,000 children aged 0–9 years	x	A slight upward trend. The rate was unusually low in the baseline year.
9.1	Death rate for injury resulting from fire, burns or scalds among people aged 55 years and over	1.2 deaths per 100,000 persons aged 55 years and over (1992 baseline)	✓	The rate of decline (2.8% annually) will, if maintained, help meet the target.
9.2	Hospital separation rate for injury resulting from fire, burns and scalds among children aged 0–4 years.	20% reduction on 1991–92 baseline rates	?	1995–96 hospital separation rate of 122 per 100,000 population. Hospital separation targets need to be reviewed (refer to Appendix 2).
10.1	Hospital separation rate due to poisoning among children aged 0–4 years	20% reduction on 1991–92 baseline rates	?	1995–96 hospital separation rate of 301 per 100,000 population. Hospital separation targets need to be reviewed (refer to Appendix 2).
11.1	Death rate for drowning among children aged 0–4 years and in the total population	3.0 deaths per 100,000 children aged 0–4 years (1992 baseline)	?	Declining trends observed both among children aged 0–4 years and the total population.
		No target set for the total population	↓	
11.2	Hospital separation rate for near drowning among children aged 0–4 years	30% reduction on 1991–92 baseline rates	?	1995–96 hospital separation rate of 25.1 per 100,000 population. Hospital separation targets need to be reviewed (refer to Appendix 2).
14	Incidence rate for persisting spinal cord injury from traumatic causes	No target set	NA	Incidence of 1.34 per 100,000 in 1995–96.

Key: ✓ target met or likely to be met
 ↓ target not set, but a decreasing trend
 NA not applicable
 x target not likely to be met
 ? not possible to determine whether target is likely to be met, or insufficient data to determine the trend

Notes:

- 1 Death data are provided by the ABS by calendar year, while hospital statistics are reported by financial year.
- 2 Statistics for indicators of hospital separation do not at present provide a valid indication of trends over time in injury occurrence. Because of this, the Year 2000 target values for these indicators are stated in terms of per cent reduction from a specified baseline year, not as absolute values.
- 3 Age-adjusted estimates of the occurrence of hospitalised injury in 1995–96 are provided. This is the year for which the best data are available, and the values provide a good indication of relative rates for different external causes of injury. Note that it is not valid to compare these values with previously reported estimates for these indicators.
- 4 These indicators are a priority subset of the indicators listed in the *Better Health Outcomes for Australians* report (DHFS 1994).

Summary of trends for individual indicators

Total injury deaths (Indicators 1.1 and 2.2)

- There has been a 4.5 per cent reduction from the 1992 baseline of 42 injury deaths per 100,000 population, despite a rise in 1994. Overall, the age-adjusted injury death rate has fallen by almost one-fifth since 1986. If the overall downward trend is maintained, the Year 2000 target of 33.6 injury deaths per 100,000 should be achieved. However, it may not be achieved if the plateau seen in recent years persists.
- Both male and female injury death rates declined in the period 1986–96. Between 1993 and 1995, the ratio of male to female death rates fell from 2.9:1 to 2.6:1. However, in 1996 the rate ratio increased to 3.0:1, an increase of 15.4 per cent over the 1992 baseline.

Death rate ratio for Indigenous and non-Indigenous populations (Indicator 2.1)

- The 1993–95 death rate ratio for Indigenous compared with non-Indigenous populations remained high. The death rate for Indigenous males was 3.4 times that for their non-Indigenous counterparts. Similarly, the death rate for Indigenous females was 3.9 times that of non-Indigenous females. Although there has been a small decrease in the ratio, on current indications the Year 2000 targets of death rate ratio of 2.8:1 for males and 3.2:1 for females may not be reached.

Death rate ratios for rural and remote areas (Indicator 2.4)

- Information on the death rate ratio for those living in rural and remote populations compared with the general population for the period 1991–95 has now become available.
- The death rate ratio increases with increasing remoteness and decreasing population size. For example, the death rate ratio in the most remote (low population, isolated) areas is almost twice that for the general population (1.96 times for females; 1.9 times for males).

Road transport-related deaths (Indicators 3.1 and 3.2)

- There has been a general downward trend in road transport-related deaths. The 1995 rate of 11.5 deaths per 100,000 and the 1996 rate of 10.8 deaths per 100,000 population indicate that the NHPA target of 10.7 deaths per 100,000 will be met well ahead of the Year 2000.
- Road transport-related accidents accounted for 28 per cent (n=2,058) of all injury-related deaths in 1995, with high rates noted for males aged 15–24 years and 75 years and over.
- Males in the 15–24 years age range accounted for 22 per cent (n=449) of all road deaths in 1995 at a rate of 32.2 deaths per 100,000. Although the 1995 rate was slightly higher than that for 1994, there has been a general downward trend since 1986. If the overall downward trend continues, the Year 2000 target of 23.6 deaths per 100,000 males aged 15–24 years is likely to be achieved. However, the data suggest a levelling off in road fatality rates for young males, which may have an impact on progress towards the target.

Injury prevention and control indicators — current status

Deaths due to falls among the elderly (Indicator 5.1)

- The majority of deaths attributed to a fall occur in old age. In 1995, 94 per cent of deaths due to falls among females and 70 per cent of deaths due to falls among males occurred among those aged 65 years or more.
- Deaths due to falls among Australians aged 65 years and over have declined by one-fifth over the past decade. However, a levelling off in death rates has been noted of late.

Death rate from homicide (Indicators 7.1 and 7.2)

- The target for death rate from homicide for males and females aged 20–39 years is to maintain the rate at the 1992 level of 2.4 per 100,000 females and 3.4 per 100,000 males. The rate for 20–39 year old females has been below the Year 2000 target for the past several years. Due to the nature of the data, a trend line could not be fitted for the homicide rate among males in the 20–39 year age group. Overall, there was a slight upward trend in homicide among 0–9 year olds between 1986 and 1995, despite consecutive declines in 1994 and 1995.

Death rate from fire, burns and scalds in people aged 55 years and over (Indicator 9.1)

- The Year 2000 target to reduce mortality from burns in persons aged 55 or more years was set at 50 per cent of the 1992 baseline rate of 2.4 deaths per 100,000. The current rate of approximately 1.3 deaths represents a reduction of 44 per cent and it appears that the target will be achieved.
- A total of 133 fire, burns and scalds deaths were registered in 1995, 8 per cent fewer than in 1994. The rates were highest for males and females in old age with 49 deaths (37 per cent) in 1995 at age 55 years or more. Fire, burns and scalds accounted for approximately 3 per cent of all deaths in this age group.
- Male rates were slightly higher than female rates in most age groups. The male age-adjusted rate was about 1.5 times the equivalent female rate.

Death rate from drowning in early childhood (Indicator 11.1)

- Drowning is the principal cause of death among Australian children under five years of age, accounting for 36 per cent of all injury deaths in this age group. There was a rise in drowning deaths in 1995 but based on long-term trends, the Year 2000 target is likely to be achieved.

Spinal cord injury (Indicator 14)

- Following the establishment of the Australian Spinal Cord Injury Register, which contains a record of people admitted to specialist spinal units in Australia, it is now possible to report initial data for this NHPA indicator. At this stage, no goal or target has been set for reduction in the incidence of spinal cord injury.
- It is not practical to measure the incidence of spinal cord injuries resulting in death. Nor is it possible to reliably predict in all cases the extent of permanent disability immediately after a spinal injury. Therefore, the 'incidence of persisting spinal cord injury from traumatic causes' (defined as cases in whom neurological deficit is present at the time of discharge) was considered the most appropriate indicator for spinal cord injury.
- The incidence of new cases of persisting spinal cord injury in Australia was 1.34 cases per 100,000 population in 1995–96 (O'Connor & Cripps 1997).

Hospital separations

- While trends in hospital separations are not reported here, the 1995–96 hospital separation data provide an insight into the relative frequencies of non-fatal external causes of injury and are therefore included in Table 2.1 and discussed in Section 2.2.

Progress towards targets

There has been progress towards targets (and decreasing death rates) for the following indicators:

- the total population;
- road transport;
- falls in older people;
- fire, burns and scalds in older people;
- homicide among females aged 20–39 years; and
- drowning in early childhood.

On current indications, targets may not be met by the Year 2000 for:

- the ratio of male to female deaths;
- the death rate from homicide among young children; and
- the death rate ratio for Indigenous and non-Indigenous populations.

2.2 Other important statistics and trends

There are several important issues that are not directly assessed by the injury NHPA indicators. This section provides further statistical information on injury in children and young males, and presents data on suicide in Australia as it relates to injury.

Childhood injuries

Since the early 1980s, there has been a clear downward trend in the total number of child injury deaths in all age groups. Overall, there was a 51 per cent decline in the number of deaths among children younger than 15, from 700 in 1979 to 376 in 1995. Children aged 5–9 years showed the greatest reduction. The rate of decline in injury mortality was greater for children than for people over 15 years of age.

The reduction in the overall child injury death rate has been attributed to decreases in mortality from motor vehicle accidents (including those resulting in child motor vehicle occupant deaths, child pedal cycle deaths, and child pedestrian deaths) and from drowning.

Hospitalisation rates for the period 1991–92 to 1995–96 highlight the diversity of causes of childhood injury. However, falls are the leading cause of hospitalisation for all age groups. Injuries due to falls among 0–5 year olds most frequently occur in the home whereas injuries from falls in 5–9 year olds are more commonly associated with playground equipment.

Injury prevention and control indicators — current status

Numbers of cases of burns and poisoning are particularly high in the 0–5 year age group, whereas injuries sustained from pedal cycling or motor vehicle passenger accidents are significant in the 5–14 year age group. Sports-related strikes by an object or person are common in the 10–14 year age group.

In 1995, 21 of the total of 133 fire, burns and scalds deaths in the general population were among children aged 0–4 years. All but one of these deaths occurred in house fires and one-third of those who died due to a house fire were children younger than 15 years of age (n=32).

Injury among young males

The burden of injury on young males in Australia is substantial. Each year over 1,600 young males aged 15–29 years die, and more than 60,000 are hospitalised, as a result of injuries. In 1995, 70 per cent of all deaths among males 15–29 years of age were due to injuries. Young deaths also accounted for 48 per cent of YPLL as a result of injury among males.

The single largest cause of injury-related fatalities, emergency department presentations and hospital admissions among young males aged 15–29 years is transport-related accidents. Young males of this age group accounted for almost 50 per cent of all male transport-related hospital separations.

Injury is very much a male phenomenon in the 15–29 year age group. Compared with females, males in this age bracket experience more than four times the death rate and nearly three times the hospitalisation and emergency department presentation rate.

Injury rates in young males are highest in remote areas, high in rural areas and lowest in urban areas. These reflect largely the transport-related and farm occupation-related rates of injury mortality and morbidity in rural areas. Young Indigenous males in all age groups (especially 15–34 years) have markedly higher mortality and hospital separation rates than their non-Indigenous counterparts. Differences in injury patterns between Indigenous and non-Indigenous peoples should be interpreted cautiously, as Indigenous status is ascertained inconsistently in hospital separation data (Moller 1996a).

In April 1995, the NHMRC established a working party to examine unintentional injury in young males aged 15–29 years. This action was taken in response to the identification of injury as a NHPA together with the observation that young males show a much higher rate of injury than any other group with the exception of the frail aged. The report of the Working Party, *Unintentional Injury in Young Males 15–29 Years*, was released in 1997 (NHMRC 1997a). The major findings of this report are discussed in Chapter 4.

Youth suicide

Suicide is the second most common cause of death in the 15–24 year age group. In 1995, 434 deaths among young Australians aged between 15 and 24 years were attributed to suicide. This is equivalent to 16 deaths per 100,000 young people aged 15–24 years and 32 per cent (n=434) of all injury deaths for this age group. For every youth suicide, there are 10 hospitalisations due to intentional self injury. Hospitalisations due to self harm are more sharply concentrated at early adult ages than are suicide deaths.

Other important statistics and trends

The rate of suicide in Australia among males aged 15–24 years trebled between 1960 and 1990. Between 1990 and 1995, the male suicide rate for this age group fluctuated and may have declined slightly. However, the rate remains high at 25 suicides per 100,000. No parallel increase has been observed for young females, the rates for 15–24 year old women varying between four and six suicides per 100,000 in the period 1979–95.

Although the suicide rate among young males was almost four times the female rate in 1995, the hospital admission rate due to intentional self harm among females was 1.5 times higher than that for males.

Methods used for completed suicide differ from those resulting in hospitalisation for self harm. Suicide deaths are typically caused by hanging, shooting and poisoning with vehicle exhaust, whereas for both males and females, drug overdose is associated with the majority of hospitalisations for self harm. The fact that more males choose more lethal means of suicide does much to account for the predominance among males of fatal cases of self harm.

The suicide rate for 15–24 year old males is markedly higher than the rate at other ages except the elderly. By contrast, rates for females aged 15–24 are similar to those observed at other ages. The suicide rate among Indigenous young males is higher than that among non-Indigenous young males.

The rate for suicide by hanging has increased five-fold since 1979. In comparison, the rate for suicide by shooting decreased by approximately 50 per cent in the same period. Suicides by 'other and unspecified' methods (such as jumping in front of a moving vehicle or jumping from a height) are increasing.

In 1995, youth suicide rates did not differ greatly between States and Territories. However, suicide rates are higher for young males who normally reside in non-urban areas than for urban residents. Suicide rates are elevated for rural males in general, but the pattern is more pronounced for young males. In rural areas, firearm suicides are common. In the three years between 1990 and 1992, the number of firearm suicides in rural areas (n=120) was almost the same as that in urban locations (n=121), despite the large difference in the size of the population base for the two areas.

Strategies to address suicide will be reported in detail in the NHPA report on mental health due to be submitted to Health Ministers in 1998.

