



No. 269

Firearm Related Deaths in Australia, 1991–2001

Jenny Mouzos and Catherine Rushforth

An examination of firearm related deaths in Australia between 1991 and 2001 found a 47 per cent decrease in numbers, with a fall in the number of suicides accounting for the largest part of that decrease. Nine out of 10 firearm related deaths involved males. Compared to firearm related suicides and accidents where less than 10 per cent involved the death of a female, a higher proportion of homicides involved a female victim (33%). Persons under the age of 15 years were least likely to die as a result of a firearm related injury. Males and females who suffered a fatal firearms injury tended to follow a similar age distribution, with persons aged between 24 and 34 years accounting for the largest number of firearm related deaths. There appears to be a shift in age related risk between 1991 and 2001. In 1991, males aged between 15 and 24 years had the highest risk of firearm related fatal injury (rate of 9.5 per 100 000), whereas in 2001 males aged 65 years and older had the highest risk (rate of 4.9 per 100 000). The majority of firearm related deaths were committed with a hunting rifle, although there has been an increase in the use of handguns.

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This paper examines the use of firearms to inflict fatal injury in Australia between 1991 and 2001. It focuses on the five main types of fatal firearm injury: suicide, homicide, accidents, legal intervention—that is, deaths as a result of law enforcement officers performing their duties (ABS 1997), and those deaths classified as undetermined by the coroner (that is, cases in which it was unclear whether the injury was purposely or accidentally inflicted).

Of the 128 544 deaths registered in Australia in 2001, 7876 deaths were caused by accidents, poisonings and violence (referred to as 'external causes'). The leading external cause of death in 2001 was accidents (transport, falls, and drowning/submersion) accounting for 61 per cent of all incidents. Firearms as a 'cause of death' only represent a small fraction of all external causes of death in Australia (4.2% or 333 deaths in 2001). While firearms account for a small proportion of externally caused deaths, there is much focus on controlling the use of firearms in criminal activities—particularly on whether or not their use has increased or decreased since the introduction of firearms controls in 1997. Briefly, these controls banned self loading rifles and both self loading and pump action shotguns; saw the establishment of nationwide firearms registration; and introduced stringent limitations to the ownership of firearms, primarily minimum age restrictions and satisfactory fitness and reason for ownership of firearms (Mouzos 1999). The main focus of this report is the identification of shifts in trends and patterns over the 11 year period between 1991 and 2001.

Data Source

The main data source analysed in the production of this report is the Australian Bureau of Statistics (ABS) *Underlying Cause of Death* unit record data supplied to the Australian Institute of Criminology (AIC) for the period 1991 to 2001. The registration of deaths is the responsibility of the individual state and territory Registrars of

AUSTRALIAN INSTITUTE
OF CRIMINOLOGY

t r e n d s

&

i s s u e s

in crime and criminal justice

November 2003

ISSN 0817-8542

ISBN 0 642 53821 2



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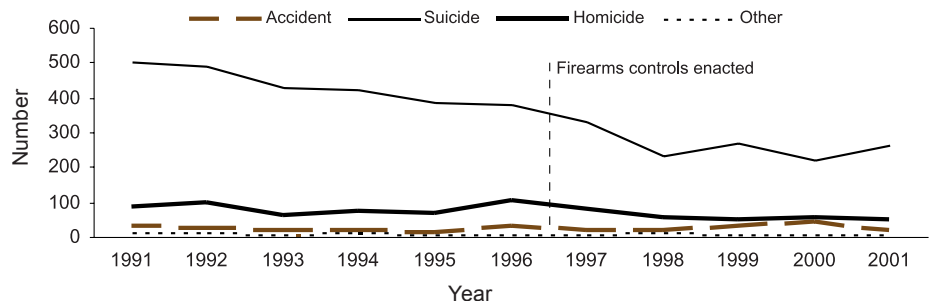
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Births, Deaths and Marriages. Information relating to the cause of death supplied by either a medical practitioner or by a Coroner is included as part of the registration. Such information is then provided to the ABS for subsequent coding. The data used in this report have been coded by the ABS in accordance with the tenth revision of the International Classification of Diseases (ICD-10), which has been adopted for Australian use in the case of deaths. It should be noted that the figures contained in this report differ slightly from figures previously published by the ABS or the AIC (Mouzos 2000) (see methodological note at the end of the report).

Trends in Firearm Related Deaths: Number and Rates

In total there were 5083 registered deaths attributable to firearms in Australia between 1991 and 2001. Suicides committed with firearms accounted for the majority of these deaths (77%), followed by firearms homicide (15%), firearms accidents (5%), firearms deaths resulting from legal intervention and undetermined deaths (2%). Over the 11 year period the number and rate of firearm related deaths has decreased (Figure 1 and Table 1). In comparison, there has been little change in the trend for deaths caused by sharp instruments. In 1991 there were 629 firearm related deaths in Australia compared to 333 in 2001. This represents a 47 per cent decrease in firearms deaths between 1991 and 2001. The incidence of both firearms suicides and firearms homicides almost halved over the 11 year period. While the number of firearms homicides has continued to decline, with 2001 recording the lowest number of firearms homicides during this period (n =47), the number of firearms suicides declined consistently from 1991 to 1998, but has since fluctuated. The number of firearm related accidents also fluctuated over the same period, from 29 firearms accidents in 1991 to 18 in 2001, but ranging between 15 and 45 over this time. While the numbers are quite small, the year 2000 recorded the highest number of firearms accidents (45 accidents) during the 11 year period.

Figure 1: Number of firearms deaths by type of death



Other includes legal intervention and underdetermined deaths.

Source: Australian Institute of Criminology adapted from Australian Bureau of Statistics Underlying Cause of Death 1991-2001 [computer file]

Table 1: Number of firearm related deaths

	Accident	Suicide	Homicide	Other (a)	Total
1991	29	505	84	11	629
1992	24	488	96	14	622
1993	18	431	64	9	522
1994	20	420	76	13	529
1995	15	388	67	9	479
1996	30	382	104	5	521
1997	19	330	79	9	437
1998	21	234	57	15	327
1999	28	269	50	6	353
2000	45	222	57	7	331
2001	18	261	47	7	333

(a) Other includes legal intervention and underdetermined deaths.

Source: Australian Institute of Criminology adapted from Australian Bureau of Statistics Underlying Cause of Death 1991-2001 [computer file]

The firearm related death rate for males, females and all persons (regardless of gender) in Australia has similarly decreased over the 11 year period (Table 2). In 1991 the firearm related death rate was 3.6 per 100 000 persons, 6.6 per 100 000 males and 0.7 per 100 000 females. In 2001 the firearm related death rate decreased to 1.7 per 100 000 persons, 3.1 per 100 000 males and 0.4 per 100 000 females.

Gender Variation

Males have consistently outnumbered females as victims of firearms misuse (Figure 2). Nine out of 10 firearm related deaths involved males, and this gender distribution has remained static over the 11 year period. There is, however, gender variation based on the type of firearm related death.

For example, compared to all other firearm related deaths, only five per cent of firearm related suicides involved a female, whereas 33 per cent of firearm related homicides involved a female victim. This is a slightly lower proportion compared to the overall gender distribution of all homicide victims in Australia (37% females and 63% males, Mouzos, 2003a.)

Age Variation

There is also variation in the age of those who die in firearm related incidents. Persons under the age of 15 years are least likely to be involved in fatal injury resulting from the misuse of a firearm (Table 3). In terms of absolute numbers, males and females aged between 24 and 34 years accounted for the largest

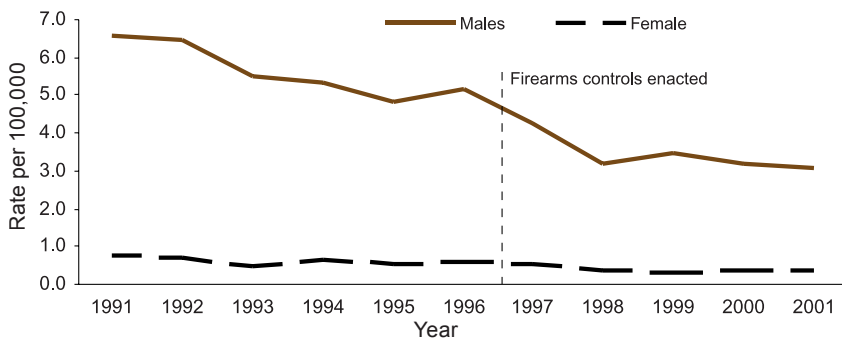
Table 2: Firearm related deaths: rate per 100 000 population

Year	Accident			Suicide			Homicide			All Firearms Deaths ^(a)		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
1991	0.32	0.01	0.17	5.59	0.27	2.92	0.53	0.44	0.49	6.57	0.73	3.64
1992	0.26	0.01	0.14	5.30	0.30	2.79	0.71	0.39	0.55	6.44	0.69	3.56
1993	0.18	0.02	0.10	4.71	0.19	2.44	0.48	0.25	0.36	5.47	0.46	2.95
1994	0.17	0.06	0.11	4.50	0.22	2.35	0.54	0.31	0.43	5.33	0.61	2.96
1995	0.17	0.00	0.08	4.06	0.25	2.15	0.51	0.23	0.37	4.80	0.52	2.65
1996	0.32	0.01	0.16	4.03	0.16	2.09	0.74	0.40	0.57	5.14	0.58	2.85
1997	0.20	0.01	0.10	3.35	0.23	1.78	0.58	0.28	0.43	4.22	0.52	2.36
1998	0.20	0.02	0.11	2.33	0.18	1.25	0.46	0.15	0.30	3.14	0.36	1.75
1999	0.27	0.03	0.15	2.72	0.14	1.42	0.41	0.12	0.26	3.46	0.28	1.86
2000	0.42	0.05	0.23	2.22	0.10	1.16	0.43	0.17	0.30	3.13	0.33	1.73
2001	0.17	0.02	0.09	2.50	0.20	1.34	0.34	0.14	0.24	3.07	0.37	1.71

(a) Includes legal intervention and undetermined firearms deaths.

Source: Australian Institute of Criminology adapted from Australian Bureau of Statistics *Underlying Cause of Death 1991-2001* [computer file]

Figure 2: Firearm related death rates per 100 000 gender specific population



Source: Australian Institute of Criminology adapted from Australian Bureau of Statistics *Underlying Cause of Death 1991-2001* [computer file]

Table 3: Number of firearm related deaths by gender and age, 1991–2001

Age	Accident		Suicide		Homicide		Legal Intervention		Undetermined		All Firearms Deaths	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
0–14	10	4	15	2	6	19	0	0	0	0	31	25
15–24	58	5	669	53	92	37	11	0	11	0	841	95
25–34	44	5	678	47	152	67	25	1	12	2	911	122
35–44	47	4	584	37	128	51	9	2	8	2	776	96
45–54	27	3	589	34	84	47	6	0	6	0	712	84
55–64	37	2	463	20	34	17	2	0	3	0	539	39
65+	21	0	727	12	24	23	0	0	4	1	776	36
All ages	244	23	3725	205	520	261	53	3	44	5	4586	497

Source: Australian Institute of Criminology adapted from Australian Bureau of Statistics *Underlying Cause of Death 1991-2001* [computer file]

number of firearm related deaths in Australia during the 11 year period (Table 3). Males and females who suffered fatal firearms injury tended to follow a similar age distribution pattern. Suicide was the exception.

Males aged 65 years or older accounted for the largest number of persons who suicided using a firearm in Australia between 1991 and 2001. This finding is not unexpected given that much

suicide research has shown elderly males experience a heightened risk of suicide, although the rate of suicide appears to be declining (De Leo et al. 2001). The firearm related suicide rate for males aged 65 years and older in 1991 was 8.0 per 100 000 males compared to 4.9 in 2001. Although the suicide rate for females was relatively low overall, those aged 15 to 24 years had the highest risk of firearm related suicide (0.5 per 100 000 females in 2001). While the overall risk of fatal firearm related injury declined between 1991 and 2001 for males, for females and overall there appears to be a shift in age related risk over the period. For example, in 1991 males aged between 15 and 24 years had the highest risk of firearm related fatal injury (rate of 9.5 per 100 000 males) whereas in 2001 males aged 65 or older had the highest risk of firearm related fatal injury (rate of 4.9 per 100 000 males; Figure 3), although the difference in risk between the other age groups was relatively small (range of 2.7 to 4.9).

Trends in Type of Firearm Used

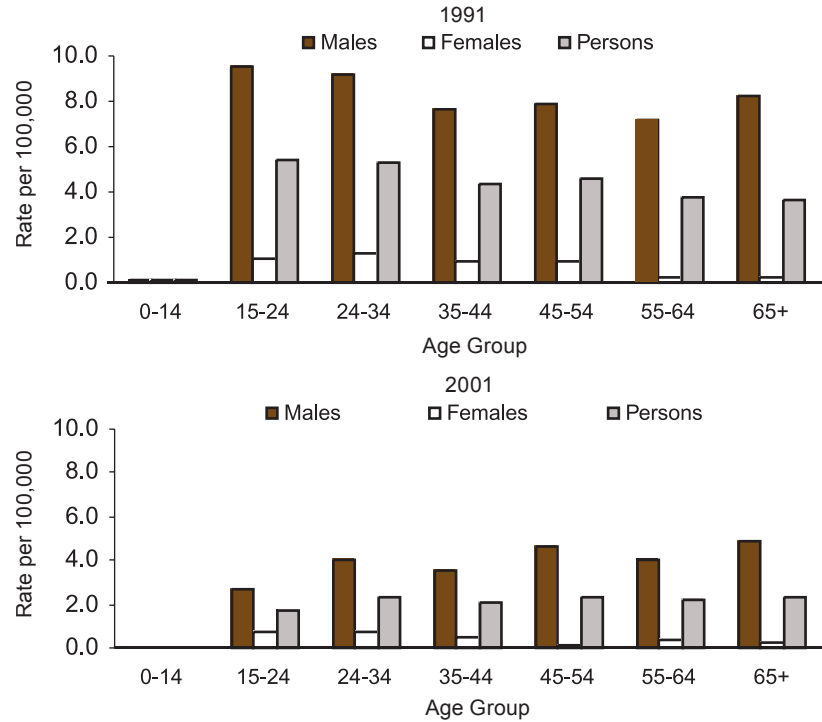
Information on the type of firearm used in each death is classified by the following types: handgun, shotgun, hunting rifle, military firearm, and other firearm. Of the 5083 firearm related deaths registered in Australia between 1991 and 2001 information was available on the type of firearm used in 72 per cent of deaths (3642 deaths) (Table 4).

As previously indicated, the use of firearms to inflict fatal injury declined over the period examined. This decline is most conspicuous in the case of non-handgun firearms (Figure 4), illustrated by a comparing two time periods: 1991–1995 and 1997–2001 (the year 1996 was excluded because of the Port Arthur homicides in which 35 people were killed in an incident involving one offender who used military style firearms, leading to subsequent firearm reforms). The mean number of handgun related deaths between 1991 and 1995 was 28 and the mean number of other firearm related deaths was 371. Between 1997 and 2001 the mean number of handgun related deaths was 39 and the mean number of other firearm related deaths was 210. A comparison between the two time periods reveals that while other firearm related deaths decreased by 43 per cent, handgun related deaths increased by 36 per cent (although care should be exercised when comparing these proportionate changes due to the relatively small number of handgun deaths that occur in Australia each year).

The type of firearm used varied somewhat with the type of death (Figure 5). Based on information where the type of firearm used was available, close to two thirds of firearm related suicides registered between 1991 and 2001 were committed with a hunting rifle (63%), followed by a shotgun (28%), or handgun (8%). One half of all firearm related accidents involved the use of a hunting rifle (49%), followed by a shotgun (37%), or handgun (11%). The use of different types of firearms is more evenly spread in homicide—37 per cent of firearm related homicides were committed with a hunting rifle, followed by shotgun (34%), or handgun (21%).

Yearly trend data examining the type of firearm used in homicide indicates that the use of handguns increased between 1991 and 2001, with subsequent declines in the use of shotguns and hunting rifles (Figure 6). The spike in the use of military firearms is attributable to the Port Arthur incident in Tasmania in 1996.

Figure 3: Firearm related deaths: rate per 100 000 age specific population, 1991 and 2001



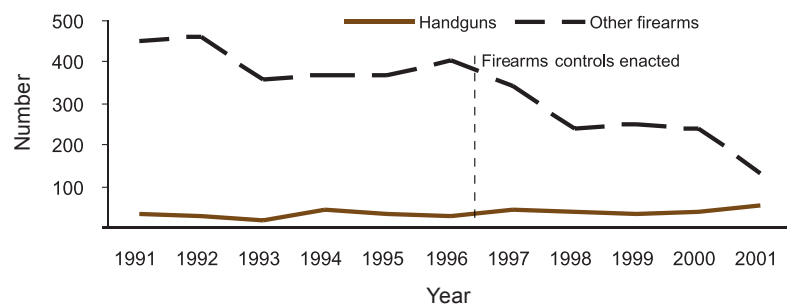
Source: Australian Institute of Criminology adapted from Australian Bureau of Statistics Underlying Cause of Death 1991, 2001 [computer file]

Table 4: Number of firearm related deaths by type of firearm

Year	Handgun	Shotgun	Hunting rifle	Military firearms	Other firearms	Unspecified/ Not Stated firearms	Total
1991	29	133	282	4	0	181	629
1992	26	132	291	9	1	163	622
1993	17	120	211	6	0	168	522
1994	40	112	210	4	0	163	529
1995	30	106	231	1	0	111	479
1996	28	107	231	38	0	117	521
1997	41	101	195	2	0	98	437
1998	36	58	145	0	0	88	327
1999	31	75	134	4	4	105	353
2000	36	55	145	1	0	94	331
2001	49	54	76	0	1	153	333
Total	363	1053	2151	69	6	1441	5083

Source: Australian Institute of Criminology adapted from Australian Bureau of Statistics Underlying Cause of Death 1991-2001 [computer file]

Figure 4: Trends in handgun and other firearms deaths in Australia



Source: Australian Institute of Criminology adapted from Australian Bureau of Statistics Underlying Cause of Death 1991-2001 [computer file]

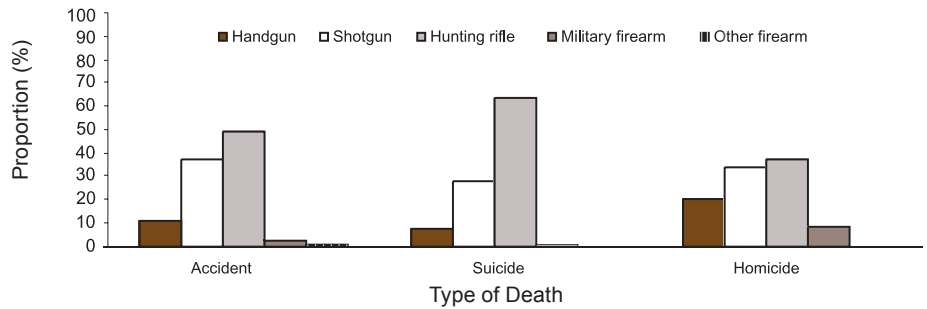
The use of handguns as a proportion of firearm related suicides has also increased (Figure 7). In 1991, four per cent of firearm related suicides were committed with a handgun, compared to 13 per cent in 2001. The use of a shotgun has gradually declined although the trend is not as pronounced as that observed for handguns.

It is important to note that in Figures 6 and 7 there are large proportions of both firearm related homicides and suicides where information relating to the type of firearm was recorded as unspecified or not stated. Over the period examined, in 40 per cent of firearm related homicides, 23 per cent of firearm related suicides and 55 per cent of firearm related accidental deaths, the type of firearm used was not specified. While information as to the type of firearm used in homicide is available through the Australian Institute of Criminology's National Homicide Monitoring Program, previous methodological research suggests that comparisons should be undertaken 'within' data sources and not 'between' data sources to minimise errors in interpretation of trends (see Mouzos, 2003b).

Implications for Research and Policy

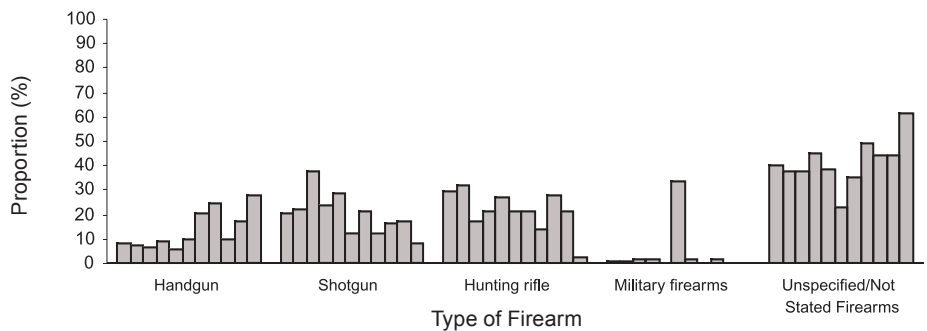
This report has examined trends and patterns in the use of firearms to inflict fatal injury between 1991 and 2001 in Australia. The overall level of lethal firearm injury declined by 47 per cent over this period—from 629 firearm-related deaths in 1991 to 333 in 2001. During the same period there has been an observed increase in the use of handguns to inflict lethal injury. While this trend is more pronounced in homicide, the incomplete nature of data on type of firearm used for suicides and in accidents means definitive conclusions cannot be drawn on whether there has also been an increase in handgun use in these types of deaths. However, the available data suggest a trend towards a greater use of handguns in suicide and accidental deaths.

Figure 5: Firearm related deaths by type of firearm



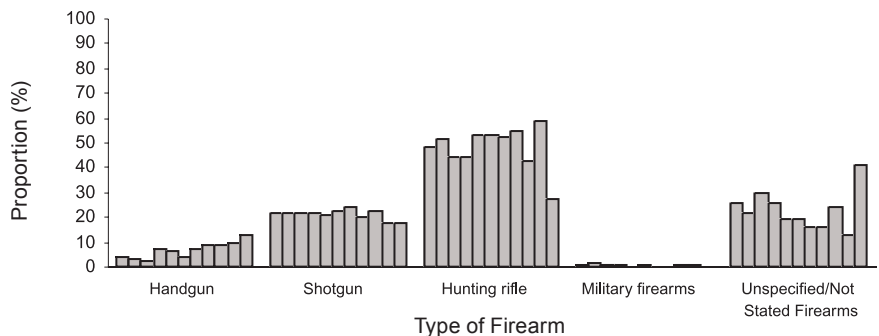
Source: Australian Institute of Criminology adapted from Australian Bureau of Statistics *Underlying Cause of Death 1991-2001* [computer file]

Figure 6: Firearm related homicide by type of firearm



Source: Australian Institute of Criminology adapted from Australian Bureau of Statistics *Underlying Cause of Death 1991-2001* [computer file]

Figure 7: Firearm related suicide by type of firearm



Source: Australian Institute of Criminology adapted from Australian Bureau of Statistics *Underlying Cause of Death 1991-2001* [computer file]

To place this in perspective, it is important to note that in Australia handguns are one of the firearms least likely to be used to commit suicide or be involved in an accidental discharge resulting in death.

On 6 December 2002, the Council of Australian Governments (COAG) agreed to a national approach to restrict the availability and use of handguns, particularly concealable weapons. From 1 July 2003 the importation and possession of handguns for sporting purposes was limited to those that comply with the following criteria:

- a maximum calibre of .38" (except for events specially accredited by COAG where handguns of up to .45" calibre are permitted)
- a minimum barrel length of 120mm for semiautomatics and 100mm for revolvers and single shot handguns, and
- a maximum shot capacity of 10 (see <http://www.handgunbuyback.gov.au>).

The introduction of this new policy directed at limiting the availability of certain types of handguns raises additional research questions. More detailed data will

be required to monitor whether the new policy has any impact on the use of handguns in crime and to inflict lethal injury, and whether the prohibited types of handguns are found to be misused less often.

The availability of accurate and complete information concerning the type of firearm used in suicide and accidental deaths (as well as in homicide) has important implications for policies such as the newly introduced policy governing handguns. The absence of policy relevant information impacts on the ability of policy makers to devise and assess policies based on sound and robust empirical data.

While the type of data collected by the NHMP for homicide can be extended to include specific details as to the type of handgun used, it is unlikely such detailed information would be available for suicides and accidents that involve the use of a handgun. A specialised data collection effort may overcome the limitation in existing data sources.

This research has identified that suicide has consistently accounted for the majority of firearm related deaths—a finding that has important implications for public policy. The firearms reforms of 1996 introduced safeguards restricting access to firearms by mentally unfit persons, and a requirement that health professionals must notify Firearms Registrars if a person who possesses a firearms licence becomes mentally unstable so the firearm may be removed. Recent inquest findings into a firearms suicide revealed that there is some confusion in the medical professional concerning the obligation to report the mental instability of a patient who is in possession of a firearm. As a result of these findings, it is recommended that medical boards publicise the obligation that doctors must report patients when these circumstances arise.

The Coroner who conducted the inquest called for a wider interpretation of the Firearms Act by health professionals and commented that ‘... the obligation to report pursuant of the Firearms Act ... calls for a judgement about the risk the patient’s condition may deteriorate, and his or her ongoing

possession of a gun may become unsafe during the course of such deterioration ...’ (Coroner Wayne Cromwell Chivell, South Australia Coroners Court, 2003, p.9). Put another way, health professionals should take into account the person’s overall and ongoing condition, and not be restricted to whether or not the person may be actively suicidal. The Coroner further recommended amending the Firearms Act so that it is ‘easier’ for health professionals to report on the basis of a reasonable suspicion rather than a reasonable belief. Removing firearms and making it more difficult for mentally unstable and depressed persons carrying out a suicide may at least prevent some firearms suicides. While such persons can turn to alternative means (substitution), research indicates that firearms are one of the more lethal methods, and hence firearm use has a greater incidence in actual suicides than in attempted suicides (De Leo et al. 2001).

Methodological Note

In an attempt to ensure that only those deaths that were attributable to a firearm were included in the analysis, crosschecks were completed on those cases that were coded as ‘firearm related’ based on the Cause of Death Minor Group (AS5, LI1, SH5, UI5, W32) and those cases that were given a ‘firearms flag’ identifying the type of firearm used. There were several inconsistencies in the dataset between cases coded as being firearm related and those with a ‘firearms flag’. These inconsistencies were dealt with in the following manner:

- not all ‘Legal Intervention: firearms’ (minor group LI1) cases prior to 1999 (43 cases) had not been given a ‘firearms flag’ identifying the type of weapon used—these cases were given a ‘firearms flag’ value of ‘6’ (‘Not stated if other or unspecified firearms’)
- two cases had the cause of death identified as ‘Assault by firearms’ (minor group AS5), but did not have a ‘firearms flag’ identifying the type of weapon used—after cross

checking these cases against the recorded actual cause of death they were given a ‘firearms flag’ value of ‘6’ (‘Not stated if other or unspecified firearms’).

- nine cases were identified as having a ‘firearms flag’ value, but the deaths were not coded as being firearms related (for example, ‘Assault by sharp object’)—after cross checking these cases against the recorded actual cause of death they had their firearms flag removed.

For further details relating to the methodology, please contact the authors.

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