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Firearm-related Violence in Australia

Satyanshu Mukherjee

The Port Arthur tragedy of 28 April 1996 revived the debate on control of firearms. The Australian community was outraged not only because so many innocent people lost their lives but also because the incident occurred in a setting where it was least expected. Commonwealth and State governments reflected community concerns and moved jointly towards the development of uniform firearms legislation. The gun buy-back scheme has attracted encouraging responses and by 16 May 1997, 396 884 firearms had been handed in. The Australian Institute of Criminology will monitor the implementation of new firearm legislation. As the dust settles, responsible individuals and agencies are grappling with the methods and procedures to assess the impact of such measures on the level of violence in Australia. This Trends and Issues paper makes an important contribution to this process.

Adam Graycar
Director

The purpose of this paper is to identify the use of firearms in the context of all violent deaths in Australia over the last ten years, the relative place of firearms as the means of suicide and homicide, the difficulties of assessing the impact of firearm control on the level of violence, and to suggest avenues to overcome these difficulties.

The control of firearms is only one of many initiatives to contain violence in Australian society. Recently the Commonwealth Government allocated $18 million towards a National Suicide Prevention Strategy (1996), under which youth suicide receives special attention. There are numerous violence prevention schemes operating throughout Australia, such as initiatives to prevent domestic violence, child abuse and so on. However, in a recent editorial of the *Medical Journal of Australia*, Martin and Goldney (1997) ask a very pertinent question:

> *with so many simultaneous changes, if suicide and suicidal behaviour were to decrease over the next few years, how would we know exactly which program or set of events was responsible?*

Of the 480 deaths by firearm in 1995 in Australia, 389 or 81 per cent were suicides. But suicide is only one aspect of violence perpetrated with a firearm; there were 67 firearm-related homicides. In 1992-93 (the latest year for which data are available) there were 567 firearm-related hospital separations, of which 32 died in hospital (all of these deaths may not have been recorded in death statistics). On an average, each case required seven hospital bed days for treatment (AIHW 1996). Add to these the victims of armed holdups (in 1995 there were 2060 victims of armed robberies where a firearm was used to threaten or injure; *see* ABS 1996) who may suffer for the rest of their lives, and the number of individuals and families who live under constant threat and fear because a member of the family keeps a gun. During a 16-year

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period, 1980 to 1995, there were a total of 493 (average 31 per year) firearm-related accidental deaths in Australia (ABS 1997). Furthermore, we need to take into account the difficulties that law enforcement officers face when they have to deal with armed criminals, and the dangers to bystanders. Thus, while 480 people lost their lives due to firearms in 1995, there were thousands of others who suffered, and perhaps continue to suffer, because they were injured or threatened by someone with a firearm.

Throughout this century firearms have been used to commit suicide and homicide in hundreds of cases each year (*see* Figures 1 and 2). Only in recent years have firearm-related suicides shown a declining trend. Until recently, a third of all homicides each year involved a firearm. In the last three years this proportion has declined to one-fifth.

The use of firearms in violence varies in different groups in society. For example, males use firearm to suicide more than four times as frequently as females and they are killed by a firearm twice as frequently as are females. In terms of age, persons aged 60 and above tend to use a firearm to commit suicide more often than members of younger age groups (*see* Table 1). Those in the age groups 30-39 and 50-59 are more likely to be victims of firearm-related homicide than people in other age groups. And finally, the firearm-related suicide rate in non-capital city regions of Australia is several times higher than that in capital cities, and this pattern prevails in every age group.

Table 1: *Suicide and homicide rates per million total population and percentage by firearm, Australia, 1995*

Age (years)	Suicide	% Firearm	Homicide	% Firearm
0-9	0		8.9	4.2
10-19	51.6	20.5	11.7	17.2
20-29	209.5	13.7	27.6	19.2
30-39	194.2	14.2	26.1	29.3
40-49	161.9	13.9	21.7	17.9
50-59	166.5	16.9	16.3	27.6
60 and over	130.0	25.3	14.7	14.3
Total	**131.1**	**16.4**	**18.4**	**20.1**

Data source: ABS Causes of Death 1995 (microfiche tables).

Figure 1: *Total suicide and suicide by firearm, rate per 100 000 population, Australia, 1915-95*

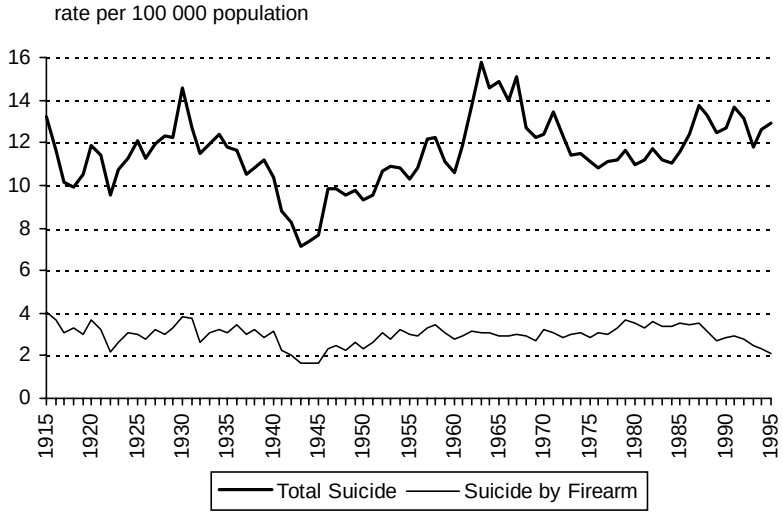
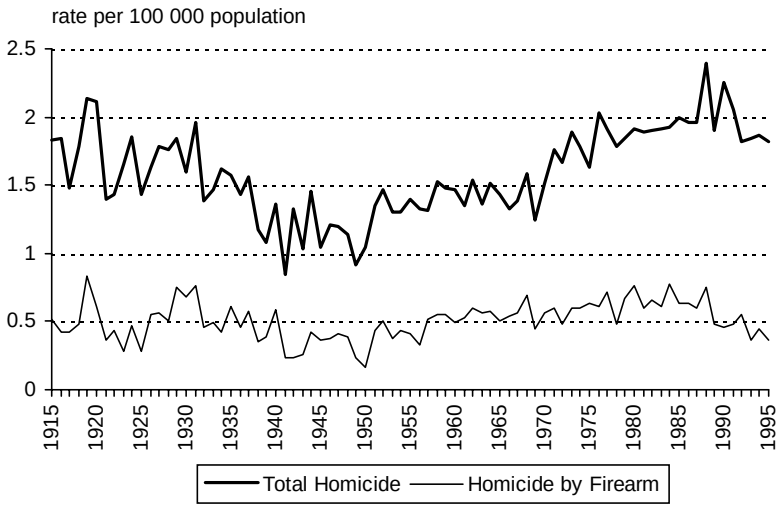


Figure 2: *Total homicide and homicide by firearm, rate per 100 000 population, Australia, 1915-95*



Data source: ABS *Causes of Death*, Cat No. 3303.0.

Methods used in violence

Examination of methods used to commit suicide and homicide is useful for the development of public policies to prevent violence. Detoxification of domestic gas (*see* later in this paper), fencing bridges and tall buildings which have been used in suicide attempts, detoxification of car exhaust gas, have all produced positive results (*see* Clarke & Lester 1989). Restrictions on the access to and availability of firearms have been shown to be effective in reducing firearm-related violence.

Four out of five suicides involve males and therefore the suicide data used in this paper relate to males only. Details of suicides and homicides show that methods used in such violent acts change over time and across age groups.

As can be seen from Table 2, hanging (etc) was the most

frequently used method for committing suicide by Australian males; those aged 40-49 chose car exhaust gas and males aged 60 and older used firearms more frequently than other methods. For homicide, cutting and piercing was the most frequent method used to kill (*see* Table 3).

Table 2: *Male suicide rate per million males by age and methods used, Australia, 1986-95*

Year	*10-19*	*20-29*	*30-39*	*40-49*	*50-59*	*60 +*	*Total*
Poisoning by solid or liquid substance							
1986	5.1	34.5	43.1	29.4	28.9	26.4	23.4
1989	3.7	32.2	33.8	29.1	38.6	20.9	21.6
1992	5.3	33.8	37.9	31.2	28.0	35.1	24.3
1995	3.0	32.9	39.7	30.8	35.3	31.1	24.7
Poisoning by gases & vapour not in domestic use							
1986	11.8	73.4	58.7	75.5	56.4	31.1	42.3
1989	15.5	71.6	62.4	64.6	57.9	35.7	43.1
1992	15.9	75.4	75.8	73.2	57.2	35.9	47.5
1995	6.9	69.3	85.0	77.0	57.4	31.1	46.9
Firearms and explosives							
1986	32.3	92.5	71.2	79.7	76.1	106.5	63.5
1989	39.9	77.3	55.6	48.2	51.4	80.1	50.2
1992	32.5	81.6	54.3	58.4	63.3	88.2	53.2
1995	16.7	53.2	53.7	42.3	50.8	70.0	40.7
Hanging, strangulation and suffocation							
1986	21.3	46.2	41.5	32.5	52.5	62.2	35.2
1989	34.7	90.2	72.1	48.2	69.5	79.2	55.7
1992	33.7	108.5	76.5	51.8	45.1	74.3	56.9
1995	35.0	132.3	94.1	56.2	76.2	56.0	65.0
Total suicides							
1986	75.7	289.2	248.2	243.4	245.5	280.9	191.4
1989	104.1	309.9	261.5	219.1	245.7	264.7	197.8
1992	98.3	337.6	275.9	251.6	224.1	273.6	208.8
1995	78.4	341.5	319.3	243.2	247.2	220.2	208.3

Data source: ABS Causes of Death (microfiche tables).

Changes in methods used to kill

In recent years, research into methods used to kill has been concerned with how to prevent these deaths. Consequently, strategies to prevent suicides, homicides and accidents, have considered the implications of restricting the availability of certain methods. The basic issues are: will restrictions on the access and availability of lethal agents reduce the number of violent incidents using these agents, and, secondly, will such restrictions have an impact on the total number of suicides, homicides and accidents? The research literature presents some convincing and some not so convincing results.

One of the most cited research findings concerns the impact of detoxification of domestic gas on the number of suicides in England and Wales (Clarke & Lester 1989). The detoxification process began in the 1950s and took several years to complete. Suicides by domestic gas constituted 49.8 per cent of all suicides (5298) in England and Wales in 1958; by 1977 this proportion reduced to 0.2 per cent of all suicides (3944). The research concludes that "following detoxification, little displacement to other methods of suicide occurred, especially by women and older men and thousands of lives were saved...." .

In Australia, the most frequently used method of suicide is hanging, suffocation and strangulation for all age groups of males except those in 40-49 age group. The difficulty is that reducing this method of suicide cannot be achieved through external controls. This method is also used in homicide, although not to the same extent.

While the studies cited above examine the impact of the use of certain methods for suicide, the use of firearms has a much broader impact than methods listed above. Firearms are used not only in suicide and homicide, but also in armed robbery, assault, sexual assault, kidnapping and abduction, terrorism, and they are sometimes involved in accidents. Hence, the impact of restricting the access to and availability of firearms is difficult to assess.

A number of countries have introduced new restrictions on the availability and use of firearms. Canada implemented new law on firearms in 1977. In a before-after study for the years 1969 to 1985, Lester and Leenaars found that while the number of suicides by firearms declined after the introduction of the new law, the overall suicide rate in Canada increased. Gabor (1994) examined 16 studies on the subject conducted between 1980 and 1993. Fifteen of these studies found a strong, positive relationship between firearm availability and suicide by firearms.

Cantor and Slater (1995) examined the impact of Queensland's *Weapons Act 1990* on suicide. They found that firearm suicide rates dropped significantly in both metropolitan and provincial areas following the legislation; the change in rate in rural Queensland was not significant. Although overall suicide rates showed some decline, the authors could not reach a definite conclusion. Dudley et al. (1996, p. 370) concluded that "Beyond reasonable doubt, a causal relationship exists between gun ownership and firearm suicides and homicides."

A recent report to the Commonwealth Department of Health and Family Services concluded that restricting the

Table 3: *Homicide rate per million total population, by age of victim and methods used, Australia, 1986-95*

	Age							
Year	*0-9*	*10-19*	*20-29*	*30-39*	*40-49*	*50-59*	*60 +*	*Total*
Firearms and explosives								
1986	3.4	3.4	6.7	10.3	10.8	8.0	3.3	6.3
1989	2.0	2.3	11.9	6.4	4.2	3.9	1.6	4.8
1992	0.4	1.6	10.7	5.7	11.3	6.8	2.6	5.5
1995	0.4	2.0	5.3	7.7	3.9	4.5	2.1	3.7
Cutting and piercing								
1986	--	4.1	11.2	7.5	5.4	6.7	2.1	5.3
1989	0.8	2.3	7.2	10.9	6.1	3.3	2.7	4.9
1992	0.8	3.5	11.0	10.7	5.4	8.7	4.0	6.3
1995	0.4	4.3	11.6	9.0	7.4	3.9	4.6	6.1
Other methods								
1986	7.1	5.3	10.1	9.9	15.1	4.7	4.6	8.1
1989	6.8	6.8	11.9	8.7	12.6	11.1	8.6	9.3
1992	4.3	3.5	9.6	8.9	7.5	5.6	5.1	6.5
1995	8.2	5.5	10.6	9.4	10.5	7.9	8.1	8.6
Total								
1986	10.5	12.8	27.9	27.6	31.2	19.4	10.0	19.7
1989	9.7	11.3	31.1	26.0	22.8	18.3	12.8	19.0
1992	5.5	8.5	31.3	25.3	24.2	21.1	11.7	18.2
1995	8.9	11.7	27.6	26.1	21.7	16.3	14.7	18.4

Data source: ABS Causes of Death (microfiche tables).

availability, and changing the cultural acceptability, of a method "will influence suicide rates by that method" (Cantor et al. 1996).

The aforementioned research deals primarily with suicide. However, a number of studies, particularly in North America, have examined the relationship between firearms and violent crime. Gabor (1994) arrives at the conclusion that firearm ownership and homicide rates are positively related. He suggests that

> *Firearm availability may contribute to violence because: increased availability increases firearm use in crime and firearms are more dangerous than other weapons; firearms provide more antiseptic and safer means of killing; they pose a greater danger to bystanders and facilitate drive-by killings.... (Gabor 1994, p. 35).*

In examining violent crime and the use of firearms it is educative to look at the situation in the United States. In 1995, firearms were used in 68.2 per cent (13 673) of homicides, 41 per cent (238 000) robberies, and 23 per cent (252 800) aggravated assaults. In 1995, there was a 9.2 per cent decline in the total number of homicides compared to 1994, and the decline in firearm homicide was 11.6 per cent.

Firearm Violence in Australia

Measures to control violence need to be appropriately evaluated. Since the impact of a measure may not be felt immediately, it is important that any before-after research include relatively long periods. Any planned evaluation must control for as many exogenous variables as could be meaningfully conceptualised and measured. This is relevant because the total amount of violence in a country does not appear to show erratic swings from one year to another, but, as is evident from the Australian data in Figures 3 and 4, methods used in violence often show some significant fluctuations.

The rate of suicide by the use of solid or liquid substances has not changed substantially for most age groups. Suicides by this method increased by 6 per cent between 1986 and 1995. Poisoning by gases and vapour not in domestic use, primarily motor vehicle exhaust gas, appears to have increased slightly, but the behaviour of two age groups require special mention. The suicide rate, using this method, of 10-19 year-old males dropped significantly in 1995, but the rate of those in the 30-39 age group increased from 58.7 per million in 1986 to 85 per million in 1995, an increase of 45 per cent. The overall firearm suicide rate declined significantly over this 10-year period; the trend was almost universal in all the age groups.

In 1986, a firearm was the most frequent method of committing suicide in Australia. Except for males 60-years-old and over, hanging, strangulation and suffocation were the most frequently used method of suicide in 1995. Thus while firearm suicides declined by a third over the ten-year period, suicides by hanging, strangulation and suffocation increased by 85 per cent, and for the age group 20-29, the suicide rate by hanging, strangulation and suffocation almost tripled in the ten-year period, and that for the 30-39 age group has more than doubled.

There could be a number of explanations for fewer firearms suicides, and as will be seen shortly, fewer firearm-related homicides in Australia. Literature on firearms suggest that there exists a positive correlation between the number of homes with firearms (firearm ownership) and suicides, homicides, and other violence by firearm. In the Australian context it is possible that debate on firearms control has enlightened the community to the extent that some owners have disposed of their firearms. It may also be possible that the Australian community has become more aware of the dangers of gun ownership and therefore keep a gun in a very secure place. It is necessary to untangle these shifts

in the methods used for suicide because in evaluating the impact of the proposed uniform firearm legislation in Australia, this substantial decline in firearm suicides will need to be taken into account.

The trend in firearm homicides is similar to firearm suicides. The two most common reasons for gun ownership are sport and self-protection. Gabor (1994) notes:

> *There is evidence that some crime will be prevented through civilian firearm ownership. However, there are also contrary research findings which suggest that the net harm from the availability of firearms is greater than the crime that is prevented. There is not enough research to draw any conclusions.*

This summary is based on research in the United States where the level of violent crimes such as homicide, robbery, aggravated assault, and rape with firearms is several times higher than that in most Western countries and where the fear of crime is based on the very real level of crime.

The total homicide rate in Australia dropped marginally in the ten-year period (*see* Figure 4), but the most pronounced decline is observed in firearm-related homicide. In this case, too, part of the decline is counterbalanced by an increase in homicides involving cutting and piercing instruments. The use of cutting and piercing instruments to murder people in the 60 and over age group has more than doubled, and the use of other methods has also increased; these increases have been more than offset by the reduction in homicides by firearms.

Measuring Impact

The data presented here highlight the difficulties of measuring the impact of methods used to commit violence. Access to and availability of methods are relevant factors. However, although it may be possible to restrict the availability of and access to firearms through legislation, and it is possible to detoxify domestic gases and motor vehicle exhaust gas, some of the other methods used in Australia to commit suicide and homicide are beyond regulation. The data also reveal that the use of a particular method very often depends on the age of the victim.

The new firearm legislation restricts the availability of certain types of firearms. It is important to examine the type of firearms that are used most frequently in committing violence. Table 4 shows that in one-third of firearms deaths between 1980 and 1995, the type of firearm was not known because the information on the death certificates was not clear. The restrictions on hand guns, introduced in the 1930s in Australia, must be credited with the relatively low number of hand gun related deaths. In order to measure the effects of any new legislation it is necessary to develop better data sets including estimates of firearm ownership, the type of shotguns and hunting rifles, the differing seasonal use of guns, supply and demand of firearms, as well as imports and the illegal market.

Another major hurdle to the proper measurement of impact is that at present the procedures and criteria for recording and classifying deaths are not uniform across Australia. Thus, it is possible for one type of death to be recorded as an accident in one jurisdiction and suicide in another. It is impossible at present to ascertain whether the firearms used in suicide, homicide, and crime are licensed or unlicensed and if licensed, whether the gun was owned by the user.

Figure 3: *Relative change in male suicide, rate per million males, by method used, Australia (1986=100)*

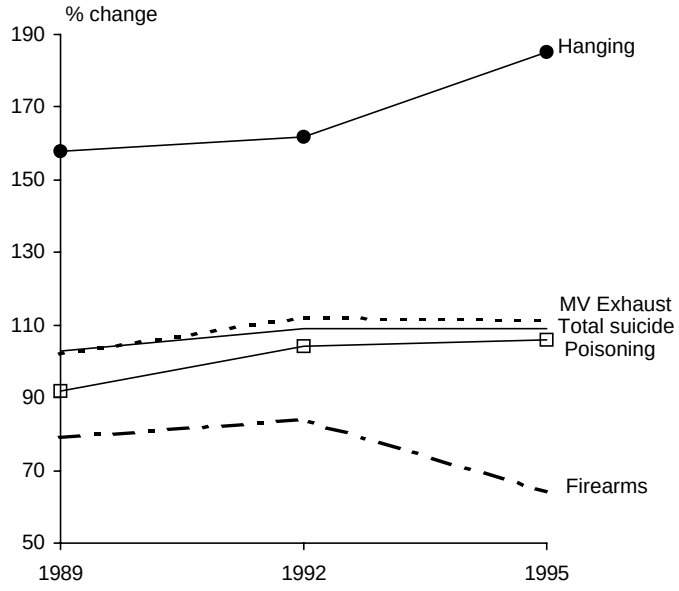
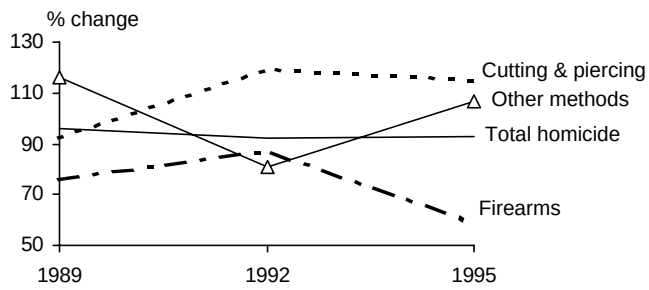


Figure 4: *Relative change in homicide, rate per million total population, by methods used, Australia (1986=100)*



Data source: ABS Causes of Death (microfiche tables).

Summary

Australia's annual death rate from non-natural causes is relatively high and in young age groups it is higher still. Methods used to inflict such deaths are many. Generally, two types of preventive measures have been suggested by experts: the public health approach and method-specific measures. On this matter the evidence so far is as follows:

- there is no evidence to show that increasing the availability of firearms reduces violent deaths;
- there is mixed evidence that shows restricting the availability of firearms alters the overall violent death rate;
- the evidence very strongly suggests that restricting the availability of firearms reduces firearm-related death rates.

The Australian governments' initiative will have a significant impact on the number of firearm-related suicides and accidents as well as homicides. Restrictions imposed on the availability of and access to firearms can be expected to reduce the number of other crimes; such a possibility will make the tasks of law enforcement a little easier. Research has shown that gun seizures in high gun crime areas reduces gun violence without total displacement (Sherman & Rogan 1995; *see also* Kleck 1991). The evaluation and monitoring of the impact of uniform legislation may require adherence to uniform procedures by various agencies. In particular, it will be useful if the following are achieved:

- uniform procedure for classification and recording of deaths by coroners;
- recording on death certificates the type of firearm used, as per categories developed by the Attorney-General's Department Office of Law Enforcement Coordination;
- uniform procedures for recording the type of firearm used in robbery, assault, sexual assault, kidnapping and abduction, and so on, by various police forces;
- uniform procedures for recording firearm-related injury cases attended to by various hospitals.

References

Australia. Commonwealth Government 1996, *National Suicide Prevention Strategy*, 1996-97 Budget paper No. 1, AGPS, Canberra.

Australian Bureau of Statistics 1996, *National Crime Statistics 1995*, Catalogue No. 4510.0.

———— 1997, *Firearms Deaths Australia 1980-95*, Catalogue No. 4397.0.

Australian Institute of Health and Welfare 1996, "Injury by Firearm, Australia 1994", *Australian Injury Prevention Bulletin*, Issue 13 supplement, October.

Cantor, C.H. & Slater, P.J. 1995, "The impact of firearm control legislation on suicide in Queensland: Preliminary findings", *The Medical Journal of Australia*, vol. 162, June, pp. 583-5.

Cantor, C., Turrell, G. & Baume, P. 1996, *Access to Means of Suicide by Young Australians: A background report*, Australian Institute for Suicide Research and Prevention, Griffith University, Carina, Queensland, September.

Clarke, R.V. & Lester, D. 1989, *Suicide: Closing the Exits*, Springer Verlag, New York.

Dudley, M., Cantor, C. & de Moore, G. 1996, "Jumping the gun: Firearms and the mental health of Australians", *Australian and New Zealand Journal of Psychiatry*, vol. 30, pp. 370-81.

Gabor, T. 1994, The Impact of the Availability of Firearms on Violent Crime, Suicide, and Accidental Death: A review of the literature with special reference to the Canadian situation, Department of Justice, Canada.

Kleck, G. 1991, *Point Blank: Guns and Violence in America*, Aldine, New York.

Lester, D. & Leenaars, A. 1993, "Suicide rates in Canada before and after the tightening firearm control laws", *Psychological Reports*, vo. 72, pp. 787-90.

Martin, G. & Goldney, ?? 1997, "Guns and suicide in Australia", *Medical Journal of Australia*, vol. 166, 6 January.

Sherman, L.W. & Rogan, D.P. 1995, "Effects of gun seizures on gun violence: 'Hot Spots' patrol in Kansas City", *Justice Quarterly*, vol. 12, no. 4, December, pp. 673-93.

US Department of Justice, *Crime in the United States 1995*, Federal Bureau of Investigation, New York.

Table 4: *Firearm-related death, by type of firearm involved, Australia, 1980-95*

Type of firearm	Accidents	Suicides	Homicides	Total[(a)]	%
Hand gun	21	226	92	355	5.3%
Shotgun	75	1 589	326	2 018	30.2%
Hunting rifle	182	3 620	368	4 218	63.2%
Military style	5	52	27	85	1.3%
Total	283	5 487	813	6 676	100.0%
All deaths including those where a firearm could not be identified	493	7 945	1 471	10 150	

(a) Includes deaths due to legal intervention and other deaths, not separately shown.

Data source: ABS *Firearms Deaths Australia 1980-95*, ABS Cat No. 4397.0.

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