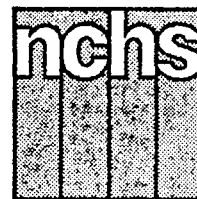


Advance Data



From Vital and Health Statistics of the National Center for Health Statistics

Firearm Mortality Among Children and Youth

by Lois A. Fingerhut, M.A. and Joel C. Kleinman, Ph.D., Division of Analysis

Introduction

In a recent comparison of U.S. childhood mortality with mortality in eight other industrialized countries, it was noted that the United States ranked about midway for natural causes of death but highest or second highest for death rates from injuries and violence (1). In particular, the teenage homicide rate was much higher than in any of the other countries. In 1986 the total homicide rate for males 15–19 years of age in the United States was 15.1 deaths per 100,000 population. For white males it was 8.6 and for black males 51.5 per 100,000—18 times higher than the next highest rate of 2.9 for males in Australia. In the United States the homicide rate for females was lower, 4.7, than for males. However, the rate for black females, 12.1, was nearly 4 times higher than the rate for white females, 3.3, and 8 times higher than the next highest rate of 1.4 for females in Canada (2).

In addition to having the highest overall homicide rate, the United States has an unusually large proportion of homicides attributed to

firearms (3). In this report we examine the contribution of firearms to childhood mortality from homicide, suicide, and unintentional injury.

Data sources and definitions

Mortality data for the 50 States and the District of Columbia are based on data from death certificates provided to NCHS by the States where the death certificates are filed (4). Population data are from the Bureau of the Census (4). Data for eight other countries are based on tabulations provided by the World Health Organization and from individual country reports.

Firearm deaths for 1979–87 are a combination of four categories of deaths classified under the International Classification of Diseases, Ninth Revision (4), as follows:

- (1) E965.0–E965.4—homicide deaths that are caused by firearms;
- (2) E955.0–E955.4—suicide deaths that are caused by firearms;
- (3) E922—unintentional deaths or accidents that are caused by firearms; and
- (4) E985.0–E985.4—deaths caused by

firearms for which the intent was unknown. For 1968–78 the Eighth Revision of the ICD was used to classify deaths. In the eighth revision these causes were coded using three digits rather than four so that firearms could not be distinguished from explosives. However, in 1986 explosives accounted for only 27 out of 31,701 deaths (all ages) from these causes.

While fourth digit Ninth Revision ICD codes are available to identify the type of firearm that was used, the vast majority of weapon types are coded as “other and unspecified”, making it impossible to determine the type of weapon responsible for the death. Based on reports to the Federal Bureau of Investigation, an estimated 44 percent of all “murders” were attributable to handguns and 74 percent of all firearm-related “murders” were caused by handguns (5).

Cause-of-death ranking in this report differs from that used in other publications (4). The major difference is that “motor vehicle accidents” are disaggregated from “accidents and adverse effects” in this report.



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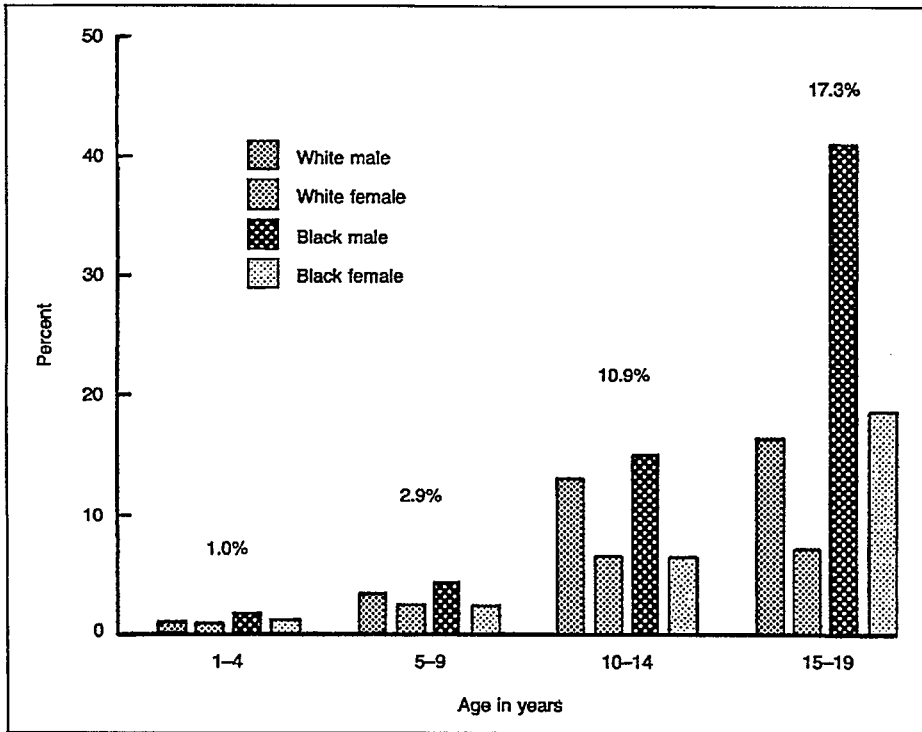


Figure 1. Percent of all childhood deaths resulting from firearms: United States, 1987

Results

In 1987, 3,392 children aged 1-19 years died from firearm-related injuries and violence. This represented 11 percent of childhood deaths. The proportion rises rapidly with age from 1.0 percent at ages 1-4 years to 2.9 percent to 10.9 percent to 17.3 percent among teenagers. The proportion varies considerably by race and sex, especially for the two older groups. For black male teenagers 40.8 percent of the deaths were associated with firearms, compared with 16.2 percent among white males (figure 1).

Within each age group the distribution of firearm deaths by manner of death is different. Homicide and unintentional deaths each account for about half of the 203 firearm deaths among children 1-9 years of age. At 10-14 years of age suicide, homicide, and unintentional deaths each account for about 1/3 of the 484 firearm deaths. Among teenagers, homicide accounts for 48 percent of the deaths, suicide for another 42 percent, and unintentional deaths for 8 percent.

From the other perspective, the proportion of homicide deaths that are

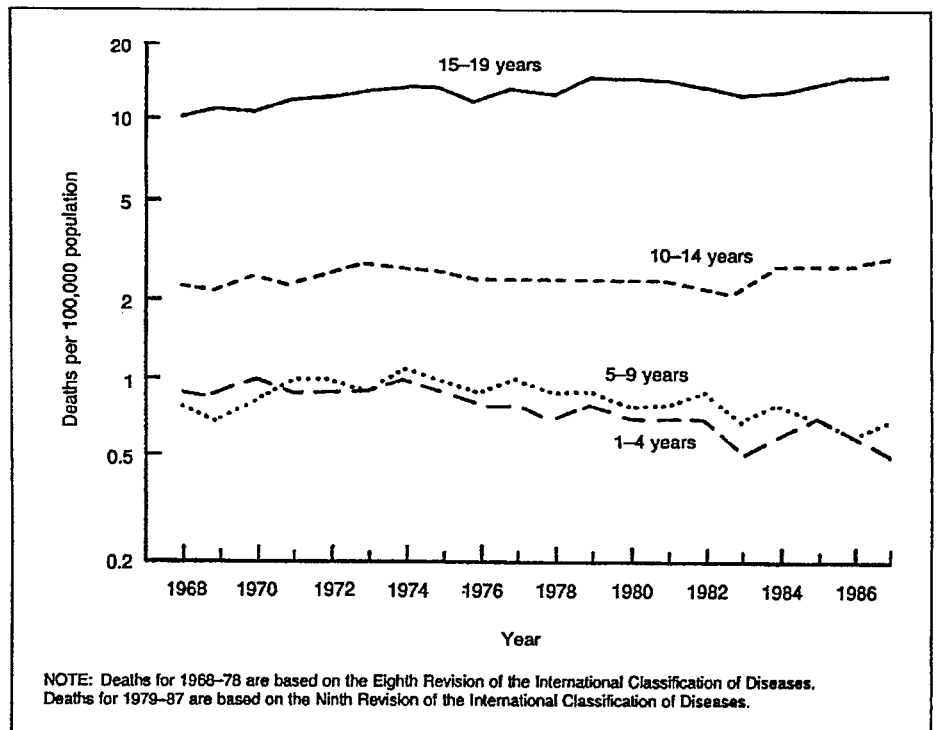
firearm-related rises from 12 percent at 1-4 years of age to 39 percent at ages 5-9 to 65 percent at ages 10-14 to 71 percent of the 1,838 homicide deaths among teenagers 15-19 years. Among black males 15-19 years of

age, 82 percent of homicide deaths are associated with firearms. Similarly, 60 percent of suicide deaths among males 10-14 years of age and 15-19 years of age result from firearms.

From 1968 to 1987, little overall change occurred in total firearm-related mortality in the United States except among teenagers for whom the death rate rose from 10.1 per 100,000 in 1968 to 14.7 in 1987. Among the youngest children (1-4 years of age) there was a decrease in the overall rate during this period (figure 2).

Within each age group, and especially among those ages 5-19 years, firearm-related death rates are much higher for males than for females. The male/female ratio rises from 2.5 for 5-9 years to 3.8 for those 10-14 years of age and to 5.9 for teenagers 15-19 years of age. Because of the concentration of firearm mortality among teenage males, trends in this group will be considered in more detail (table 1).

Among white males 15-19 years of age, motor vehicle injuries have been the leading cause of death for the past several decades, with death rates 3 times higher than the next leading cause, suicide (figure 3).



NOTE: Deaths for 1968-78 are based on the Eighth Revision of the International Classification of Diseases. Deaths for 1979-87 are based on the Ninth Revision of the International Classification of Diseases.

Figure 2. Firearm death rates for children 1-19 years of age: United States, 1968-87

Table 1. Firearm- and nonfirearm-related death rates associated with homicide, suicide and unintentional injury among teenagers 15-19 years according to race and sex: United States, 1968-1987

Race, sex, and year	Homicide		Suicide		Unintentional firearm	Race, sex, and year	Homicide		Suicide		Unintentional firearm
	Firearm	Nonfirearm	Firearm	Nonfirearm			Firearm	Nonfirearm	Firearm	Nonfirearm	
Total						White female					
Deaths per 100,000 population 15-19 years						Deaths per 100,000 population 15-19 years					
1968	4.6	2.2	2.7	2.3	2.7	1968	0.9	0.7	0.9	1.3	0.4
1969	5.3	2.4	2.9	2.7	2.6	1969	0.8	1.1	1.0	1.6	0.4
1970	5.6	2.4	2.8	3.1	2.1	1970	1.2	0.9	1.0	1.9	0.3
1971	5.8	2.6	3.3	3.2	2.4	1971	1.1	1.0	1.2	1.8	0.4
1972	6.1	2.7	3.7	3.1	2.5	1972	1.2	1.6	1.1	1.6	0.5
1973	6.2	2.8	3.8	3.1	2.4	1973	1.4	1.7	1.2	1.9	0.3
1974	6.7	2.9	4.3	2.8	2.3	1974	1.6	1.6	1.7	1.5	0.4
1975	6.5	2.9	4.5	3.0	2.0	1975	1.6	1.6	1.7	1.3	0.3
1976	5.7	2.7	4.2	3.0	1.7	1976	1.3	1.6	1.7	1.6	0.4
1977	5.8	3.1	5.5	3.3	1.8	1977	1.3	1.8	1.9	1.6	0.3
1978	5.9	2.9	4.9	2.9	1.5	1978	1.6	1.8	1.9	1.4	0.3
1979	6.6	3.6	5.3	3.1	1.7	1979	1.7	1.9	1.7	1.7	0.3
1980	7.0	3.6	5.4	3.1	1.8	1980	1.7	2.2	1.9	1.4	0.4
1981	6.8	3.3	5.5	3.2	1.5	1981	1.6	1.9	2.2	1.7	0.3
1982	6.3	3.5	5.5	3.2	1.4	1982	1.4	2.0	2.1	1.3	0.1
1983	5.3	3.2	5.4	3.3	1.4	1983	1.4	1.5	2.0	1.5	0.2
1984	5.4	2.9	5.3	3.7	1.4	1984	1.5	1.7	1.9	1.9	0.3
1985	5.7	2.9	6.0	3.9	1.3	1985	1.2	1.5	2.0	2.1	0.2
1986	6.7	3.3	6.2	4.0	1.3	1986	1.5	1.9	1.9	2.2	0.3
1987	7.0	2.9	6.1	4.2	1.2	1987	1.2	1.8	1.9	2.5	0.1
White male						Black female					
1968	3.4	1.6	4.8	3.4	4.2	1968	5.8	4.0	0.7	1.1	1.3
1969	3.3	1.5	4.9	4.0	4.1	1969	8.6	3.0	1.2	1.8	1.5
1970	3.7	1.5	4.9	4.5	3.4	1970	6.9	3.7	1.1	1.8	1.3
1971	3.7	1.8	5.7	4.6	3.8	1971	8.2	5.6	0.9	2.5	1.2
1972	4.4	1.9	6.4	4.6	3.7	1972	8.0	4.2	1.4	1.7	0.8
1973	4.8	2.2	6.8	4.5	3.9	1973	9.0	4.8	0.6	1.5	0.9
1974	5.6	2.1	7.3	4.4	3.7	1974	9.6	5.4	1.3	1.2	0.8
1975	5.8	2.3	7.8	5.1	3.5	1975	8.9	6.5	0.7	0.8	0.7
1976	5.2	2.2	7.1	4.6	2.9	1976	6.7	4.6	1.0	1.4	0.3
1977	5.7	2.5	9.9	5.2	3.4	1977	6.1	7.1	1.2	1.1	0.5
1978	6.1	2.5	8.9	4.6	2.6	1978	6.1	4.7	0.5	0.8	0.6
1979	6.8	3.7	9.7	4.6	3.0	1979	6.9	5.2	1.1	1.1	0.5
1980	7.2	3.7	9.8	5.2	3.1	1980	6.2	4.8	0.6	1.0	0.7
1981	6.9	3.1	9.8	5.1	2.6	1981	5.8	5.0	1.2	0.4	0.4
1982	6.2	2.9	10.2	5.3	2.4	1982	5.3	5.9	0.3	1.2	0.6
1983	4.8	2.8	9.9	5.2	2.6	1983	4.8	5.7	0.7	1.0	0.1
1984	5.1	2.4	9.7	6.1	2.5	1984	5.2	4.9	0.8	0.9	0.1
1985	4.9	2.4	11.0	6.3	2.1	1985	4.9	5.4	0.7	0.9	0.4
1986	5.8	2.9	11.7	6.5	2.3	1986	6.6	5.6	1.0	1.1	0.2
1987	5.1	2.2	11.1	6.6	2.1	1987	7.2	4.8	1.3	1.4	0.4
Black male											
1968	38.5	15.2	2.3	1.4	9.2						
1969	47.0	16.6	3.0	1.4	8.3						
1970	47.9	17.3	2.5	2.2	7.2						
1971	48.9	16.1	2.7	2.3	8.0						
1972	47.4	12.0	4.9	3.2	9.1						
1973	43.9	11.2	3.6	2.1	7.5						
1974	43.7	13.5	3.3	1.6	5.9						
1975	40.2	11.1	4.3	1.8	4.4						
1976	34.7	11.2	4.5	2.5	3.4						
1977	32.7	10.3	3.0	3.0	2.6						
1978	30.0	8.9	3.0	2.6	2.5						
1979	34.8	12.0	3.6	3.1	2.9						
1980	38.4	10.4	3.4	2.2	2.9						
1981	37.5	10.7	3.2	2.3	2.6						
1982	34.8	12.3	3.2	3.0	2.3						
1983	31.7	11.0	3.8	2.8	1.9						
1984	29.6	9.6	3.4	2.5	2.3						
1985	36.4	10.0	5.3	2.9	3.2						
1986	41.0	10.4	4.6	2.4	2.1						
1987	49.2	10.8	6.3	2.6	2.9						

SOURCE: National Center for Health Statistics: Data computed by the Division of Analysis from data compiled by the Division of Vital Statistics.

Suicide rates have been increasing since 1968, more than doubling during the following 19 years. Most of the increase, however, occurred by 1977. Homicide mortality increased sharply from 1968 to 1980. Since then it has

decreased to the levels of the mid-1970's. It now ranks as the third leading cause of death for this age group. Death rates for malignant neoplasms and drowning continue to decline.

Among white male teenagers firearms have been responsible for about 60-65 percent of all suicides over the period 1968 through 1987. Both the firearm and nonfirearm-related suicide rates doubled between

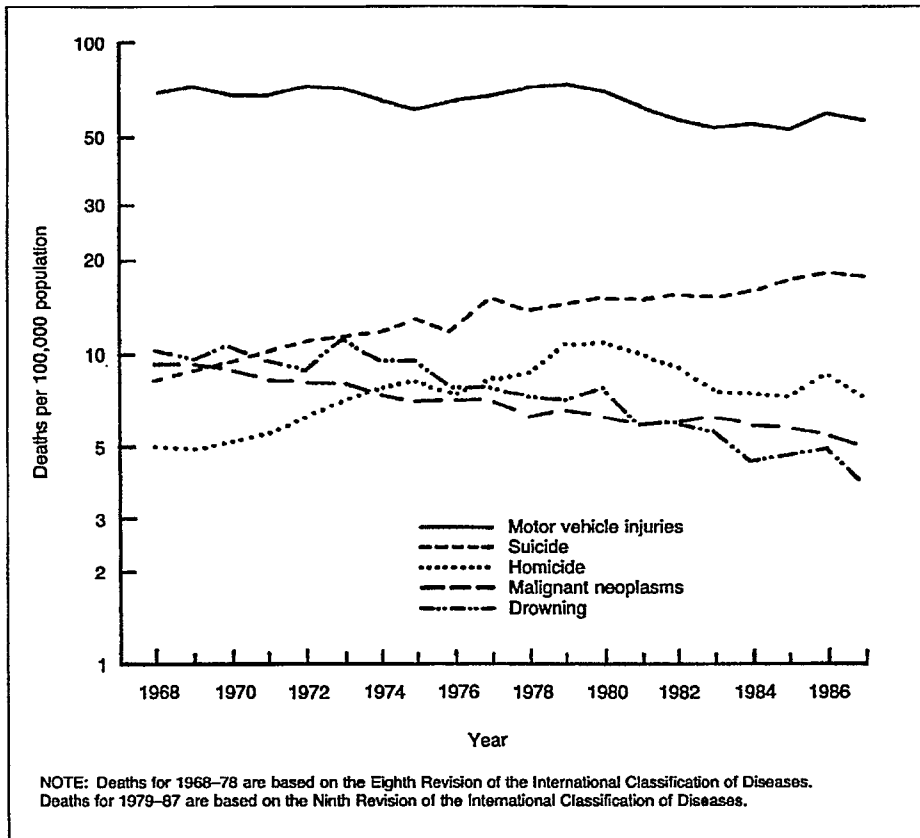


Figure 3. Trends in leading causes of death among white males 15-19 years of age: United States, 1968-87

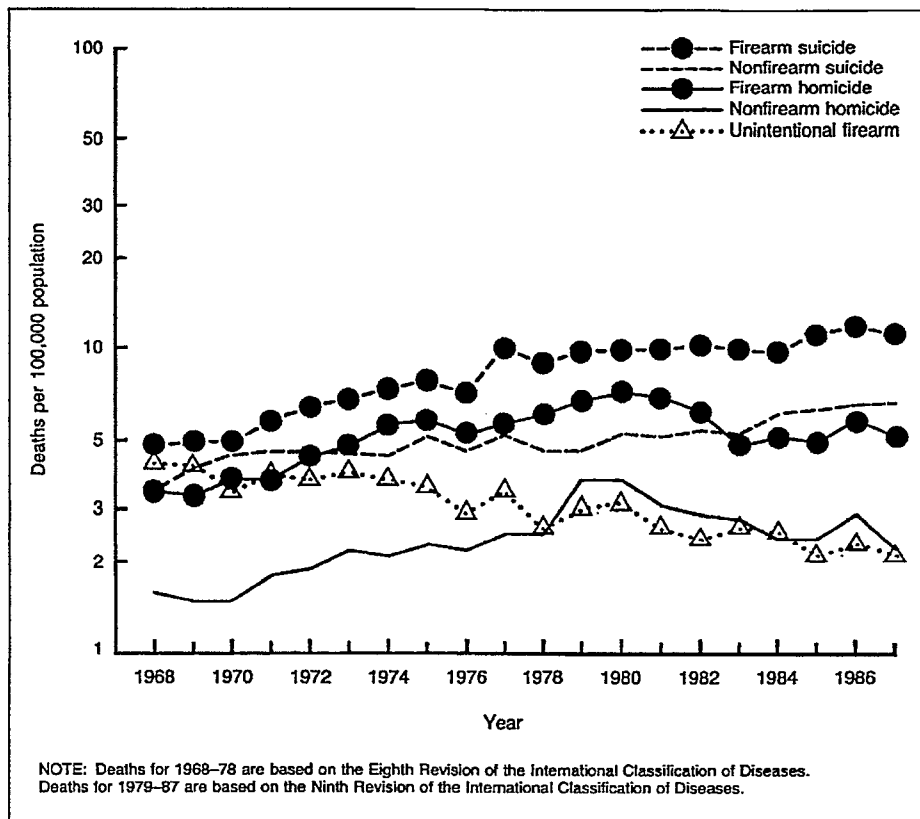


Figure 4. Firearm- and nonfirearm-related death rates for suicide, homicide, and unintentional injury, white males 15-19 years of age: United States, 1968-87

1968 and 1987 (figure 4). Similarly, firearms have been involved in nearly 70 percent of all homicides since 1968. Trends in firearm and nonfirearm homicide mortality have been parallel since 1968. Both rates increased between 1968 and 1980, then declined. Unintentional firearm injury death rates are now the lowest of the firearm death rates for white male teenagers. In the late 1960's the rate from this manner of death was similar to those for firearm-related homicides and suicides. The rate for unintentional firearm injuries has been halved since 1968.

Among black males 15-19 years of age, the leading cause of death since 1968 has been homicide, followed by motor vehicle injuries (figure 5). From 1969 to 1978 the homicide rate declined by 39 percent. Over the next 6 years the rate increased 24 percent, then fell by nearly the same amount. From 1984 through 1987 the homicide rate increased by 53 percent to 60.0 deaths per 100,000, the same high level it had reached in the early 1970's. Death rates for motor vehicle injuries declined steadily from 1968 until 1983. From 1983 through 1987 the rate increased 44 percent to 27.2, still substantially lower than it was in 1968. Drowning mortality has decreased almost continually. Suicide is now the fourth leading cause of death among black male teenagers, bypassing mortality associated with malignant neoplasms. Since 1968 the suicide rate has more than doubled from 3.8 in 1968 to 8.9 in 1987.

Firearms have been responsible for 75-80 percent of all black male teenage homicides since 1968. Between 1984 and 1987 the firearm-related homicide rate increased by 66 percent from 29.6 to 49.2 while the nonfirearm-related homicide rate increased by only 13 percent from 9.6 to 10.8 (figure 6). This recent increase in firearm-related homicides accounts for 95 percent of the increase in the total homicide rate for the 1984-87 period among black males 15-19 years of age. Firearm and nonfirearm suicide trends, on the other hand, have been erratic and the death rates remain relatively low. It is noteworthy however,

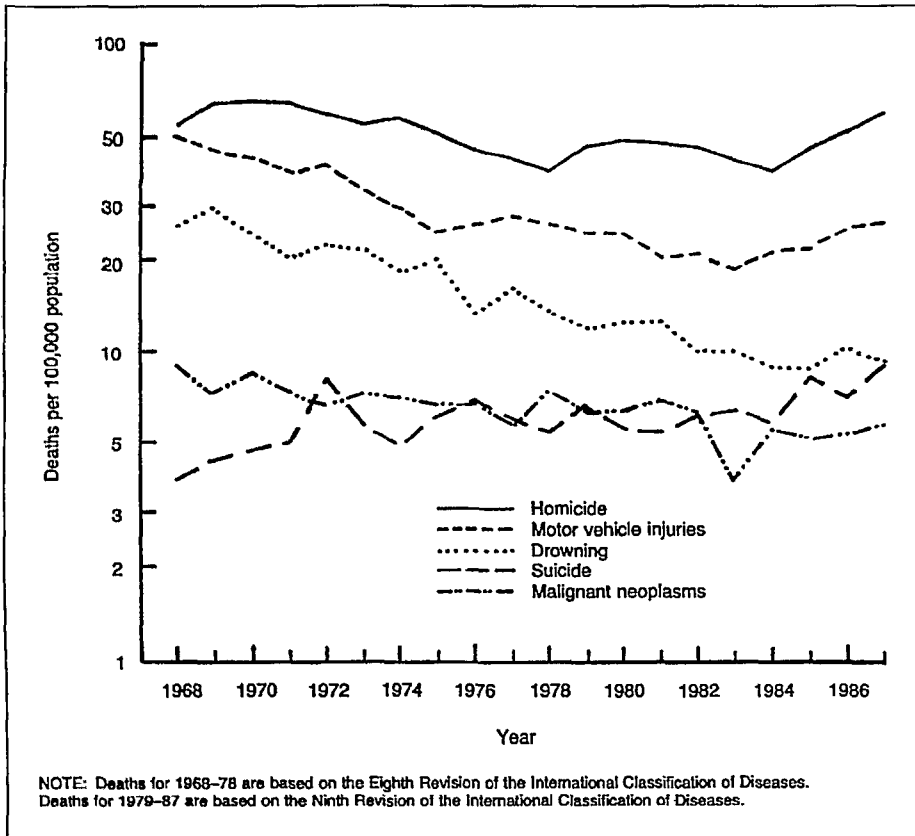


Figure 5. Trends in leading causes of death among black males 15-19 years of age: United States, 1968-87

that during the 1980's firearm-related suicides have accounted for steadily increasing proportions of all black teenage male suicides—from 52 percent in 1982 to 71 percent in 1987. Furthermore, between 1982 and 1987 the firearm-related suicide rate doubled. The death rate for unintentional firearm injuries decreased from 9.2 to 2.9 from 1968 through 1987, with most of the decline occurring between 1972 and 1978. Similar to white males, the rate is the lowest of the firearm-related death rates.

Conclusion

Clearly, firearms have played a major role in U.S. childhood mortality. In 1987 there were 3,392 firearm-related deaths among children 1-19 years of age, 11 percent of all childhood deaths. Comparisons with eight other countries demonstrate that the United States is unique with respect to this problem. In 1986 there were 1,043 firearm-related homicides (out of a total of 1,432) among U.S. males aged 15-19 years—447 among

white males and 575 among black males. In contrast, in Canada there were 6 firearm-related homicides out of a total of 21 and in Japan 2 of 21 homicides among males 15-19 years of age were firearm-related. In 1985 there were no firearm-related homicides among teenage males in England and Wales (out of 11 total homicides) or in Sweden (out of 2) while in the Federal Republic of Germany 5 out of 16 homicides were firearm-related as were 6 of 18 in Australia. Only in France did the proportion of homicides from firearms approach the U.S. level but the numbers were far lower (12 out of 18). (Data are from individual country reports.) These data are based on *deaths* from firearms. It is likely that case-fatality rates have declined over the past two decades due to improvements in emergency medical treatment. Thus, the increase in firearm-related mortality among teenagers probably masks an even larger increase in the incidence of firearm-related injuries.

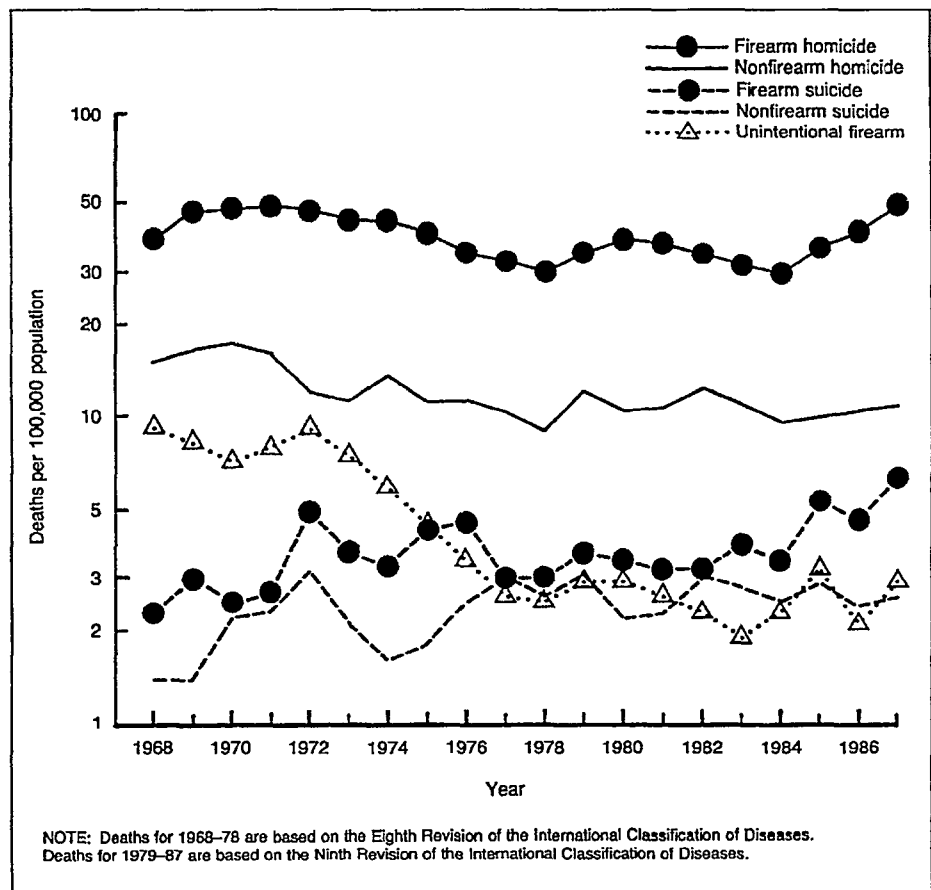


Figure 6. Firearm- and nonfirearm-related death rates for homicide, suicide, and unintentional injury, black males 15-19 years of age: United States, 1968-87

The Public Health Service has targeted violence as a priority concern. Two of the 1990 Health Objectives for the United States include lowering the homicide rate among black males 15–24 years of age as well as the suicide rate for all persons 15–24 years of age. There is a separate objective to reduce the number of handguns in private ownership (6). Additionally, the American Medical Association has recognized the need to “treat this public health matter [firearm injuries and deaths] with as much urgency as any dread disease” (7). The data presented in this report underscore these concerns.

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Suggested citation

Fingerhut LA, Kleinman JC. Firearm mortality among children and youth. Advance data from vital and health statistics; no 178. Hyattsville, Maryland: National Center for Health Statistics. 1989.

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