



Youth Violence Research Bulletin



J. Robert Flores, OJJDP Administrator

March 2004

Juvenile Suicides, 1981–1998

Howard N. Snyder and Monica H. Swahn

Between 1981 and 1998, 20,775 juveniles ages 7–17 committed suicide in the United States—nearly as many as were homicide or cancer victims. Males were the victims in 78% of these juvenile suicides. Over the same period, the suicide rate for American Indian juveniles was far higher than for any other race.

Statistics on juvenile suicides, and juvenile deaths in general, come from the National Vital Statistics System (NVSS), compiled by the National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC). NVSS summarizes information from death certificates filed in state vital statistics offices and includes cause-of-death information reported by attending physicians, medical examiners, or coroners. Analyses of these data for the period 1981–98 uncovered the following:

- ◆ The number of youth ages 13–14 who committed suicide in the U.S. equaled the number who were murdered.
- ◆ Of the juveniles who committed suicide, 66% of the males and 62% of the females were 17 years old.
- ◆ Sixty-two percent of juvenile suicides were committed with a firearm, 24% resulted from suffocation (primarily hanging), and 10% were caused by poisoning.
- ◆ While more than half of both boys (65%) and girls (51%) committed suicide with a firearm, girls were far more likely

than boys to use poison (25% versus 6%, respectively).

- ◆ Firearms were used more often in the suicides of white (63%) and black (64%) juveniles than in the suicides of American Indian (45%) and Asian (46%) juveniles.¹
- ◆ A white juvenile between ages 7 and 17 was nearly 1.5 times more likely to commit suicide than to be murdered, while black youth were almost 7 times more likely to be murdered than to commit suicide.
- ◆ The states with the highest rates of juvenile suicide were Alaska, Montana, Idaho, Wyoming, and New Mexico, in that order.
- ◆ In contrast to murder trends, the suicide rate for juveniles ages 7–17 increased from the early to the late 1980s and then remained relatively constant for most of the 1990s.
- ◆ The suicide rate for white juveniles ages 7–17 averaged nearly twice the rates for black youth and Asian youth. However, the suicide rate for American Indian juveniles was almost twice the rate for white youth.

¹ In this Bulletin, the term “American Indian” is used for CDC’s racial category American Indian/Alaskan Native, and the term “Asian” is used for the racial category Asian/Pacific Islander.

About This Series

The Surgeon General’s report on youth violence, released in January 2001, notes that youth violence is a serious public health issue that affects millions of children and their families. A shared commitment to ending youth violence has led to a strong partnership between the Office of Juvenile Justice and Delinquency Prevention and the Centers for Disease Control and Prevention’s National Center for Injury Prevention and Control. The partnership is dedicated, in part, to promoting the Blueprints for Violence Prevention initiative, which identifies and disseminates information nationwide about violence prevention and intervention programs that have been found effective.

The Youth Violence Research Bulletin Series is the most recent endeavor in the OJJDP–CDC partnership. The series presents the latest research findings on critical topics related to youth violence, including gangs, firearms, suicide prevention, and the impact of violence on youth. The Bulletins discuss research in a way that makes it relevant to both the public health and juvenile justice fields and are written in a style that is accessible to all readers, including practitioners, service providers, parents, and policymakers. By focusing on the issue of youth violence and emphasizing the public health benefits of reducing violence among youth and within families, OJJDP and CDC hope to help all children have the opportunity to lead safe and productive lives.

- ◆ Although suicide rates were higher for white youth than for black youth, the suicide rate for black males increased 240% between 1981 and 1994, while the rate for white males increased 40%.

Suicide was the fourth leading cause of death for juveniles older than age 6

A total of 20,775 youth ages 7–17 committed suicide in the U.S. between 1981 and 1998, making it the fourth leading cause of death for persons in this age group.² In these years, 4% of all individuals who committed suicide were younger than age 18.

Unintentional injuries were the leading cause of death for youth ages 7–17 between 1981 and 1998. Of these 123,700 deaths, 65% were the result of motor vehicle crashes, 10% were drownings, 5% were firearms related, and 5% were caused by fire or burns. The second leading cause of death for juveniles ages 7–17 was homicide (27,000). Less common than homicide but more common than suicide were deaths resulting from malignant neoplasms (i.e., cancer) (24,000).

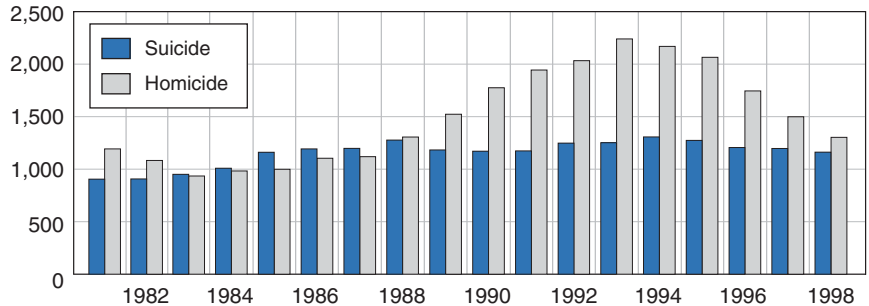
Two sources of data on homicide victims

There are two sources of national data on homicide victims: the National Center for Health Statistics' (NCHS's) National Vital Statistics System reported by coroners or medical examiners and the Federal Bureau of Investigation's (FBI's) Supplementary Homicide Reports reported by law enforcement agencies. The NCHS data indicate that 27,000 youth ages 7–17 were victims of homicide in the U.S. between 1981 and 1998. The estimate using the FBI data is 24,600 (91% of the NCHS estimate). Researchers have speculated on the reasons for this discrepancy: inconsistent reporting procedures, definitional differences, the incomplete/voluntary reporting of law enforcement agencies to the FBI, or the reclassification (or lack thereof) of deaths after an initial report. In this Bulletin, all information on the victims of suicide and homicide come from the NCHS data. Characteristics of homicide offenders come from analyses of the FBI data because the NCHS data do not contain information on perpetrators.

² It is possible that coroners or medical examiners underreport juvenile suicides, particularly those of young juveniles.

From 1983 to 1987, the number of juveniles ages 7–17 who committed suicide in the U.S. was equal to or greater than the number who were murdered

Victims ages 7–17

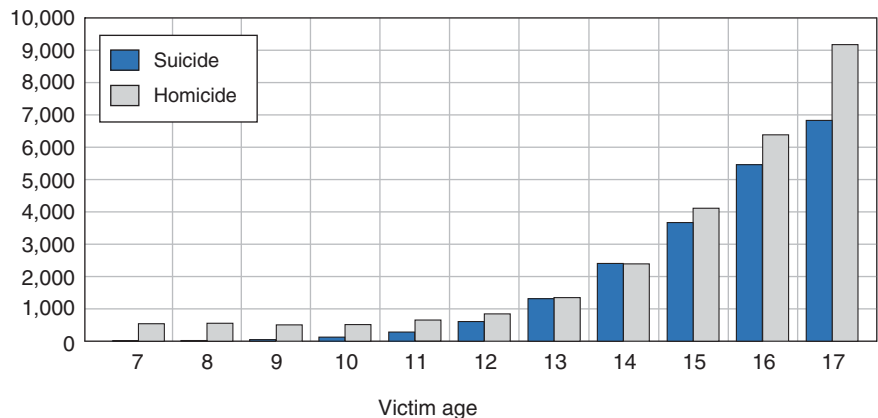


- ◆ Suicides of juveniles ages 7–17 increased from the early to the late 1980s and then remained relatively constant for most of the 1990s, in contrast to juvenile murder trends. The number of suicides peaked in 1994 and the number of murders peaked a year earlier. Between 1981 and 1994, suicides increased 44%, whereas homicides increased 82%.
- ◆ After 1994, the annual number of murders of juveniles ages 7–17 fell sharply, whereas suicides in this group declined only marginally. As a result, there were 28% more suicides and 9% more homicides of juveniles in 1998 than there were in 1981.

Data source: NVSS, compiled by CDC's National Center for Health Statistics. [See Data source notes on page 7 for detail.]

The number of juveniles who committed suicide between 1981 and 1998 increased substantially with age, a trend paralleled by the number of murders

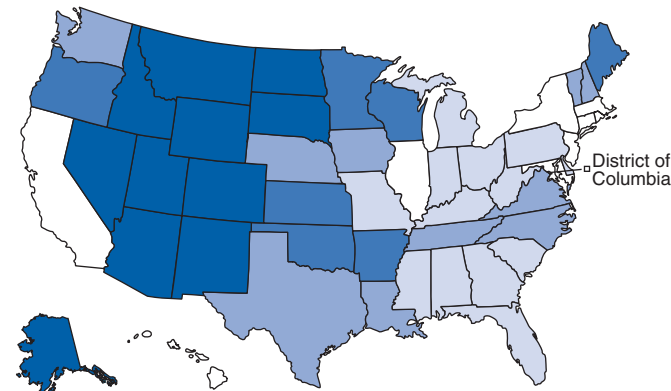
Victims, 1981–98



- ◆ One likely limitation of the juvenile suicide data is that counts may be underreported due to errors in classifying the cause of death as something other than suicide and possible reluctance of medical examiners to classify the cause of death, particularly for persons under age 10, as suicide.
- ◆ Over this period, the number of persons ages 13–14 murdered in the U.S. equaled the number who committed suicide.
- ◆ The number of 17-year-olds who committed suicide between 1981 and 1998 was 11 times the number of 12-year-olds who committed suicide.

Data source: NVSS, compiled by CDC's National Center for Health Statistics. [See Data source notes on page 7 for detail.]

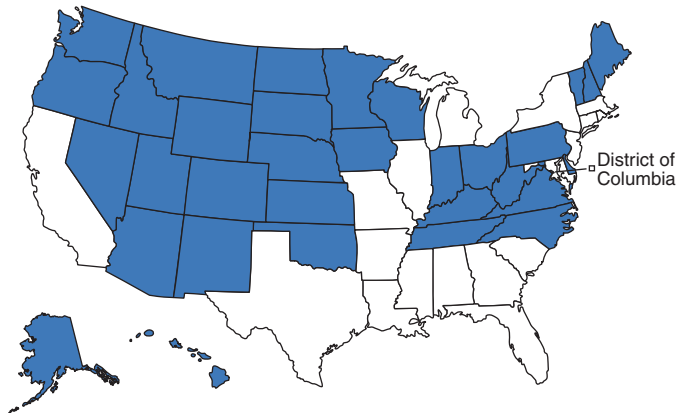
Juvenile suicide rates varied considerably across states



Annual suicides per 1 million juveniles ages 7–17, 1981–98 (n = number of states)

- 46 to 69 (n = 11)
- 36 to 45 (n = 7)
- 31 to 35 (n = 10)
- 26 to 30 (n = 13)
- 15 to 25 (n = 10)

In 32 states, the number of juvenile suicides exceeded juvenile homicides



Juveniles ages 7–17, 1981–98 (n = number of states)

- Suicides exceed homicides (n = 32)
- Homicides exceed suicides (n = 19)

Data table

State	1981–98 Suicide Rate*	1981–98 Suicide/Homicide Ratio†	State	1981–98 Suicide Rate*	1981–98 Suicide/Homicide Ratio†	State	1981–98 Suicide Rate*	1981–98 Suicide/Homicide Ratio†
United States	29.3	0.70	Kentucky	29.2	1.67	North Dakota	48.4	8.64
Alabama	29.2	0.80	Louisiana	33.8	0.57	Ohio	26.7	1.27
Alaska	68.2	2.05	Maine	37.3	4.03	Oklahoma	38.7	1.19
Arizona	46.7	1.06	Maryland	24.5	0.48	Oregon	39.2	1.93
Arkansas	37.3	0.99	Massachusetts	17.7	0.85	Pennsylvania	26.3	1.04
California	24.1	0.40	Michigan	29.0	0.58	Rhode Island	19.7	0.91
Colorado	47.6	1.85	Minnesota	38.0	2.77	South Carolina	26.8	0.91
Connecticut	19.2	0.57	Mississippi	28.5	0.72	South Dakota	55.7	4.92
Delaware	26.7	1.41	Missouri	30.2	0.69	Tennessee	30.6	1.04
Dist. of Columbia	16.8	0.05	Montana	61.9	3.06	Texas	33.5	0.73
Florida	27.8	0.69	Nebraska	34.5	1.94	Utah	52.9	3.13
Georgia	28.2	0.72	Nevada	47.1	1.05	Vermont	34.6	3.44
Hawaii	24.5	1.90	New Hampshire	33.1	3.33	Virginia	32.0	1.10
Idaho	61.7	4.68	New Jersey	15.3	0.60	Washington	34.0	1.31
Illinois	23.4	0.36	New Mexico	59.1	1.38	West Virginia	28.5	1.38
Indiana	29.4	1.16	New York	16.0	0.35	Wisconsin	36.3	1.85
Iowa	34.6	3.33	North Carolina	30.9	1.02	Wyoming	61.3	3.88
Kansas	35.9	1.35						

* The suicide rate is the average annual number of suicides of youth ages 7–17 divided by the average annual population of youth ages 7–17 (in millions).

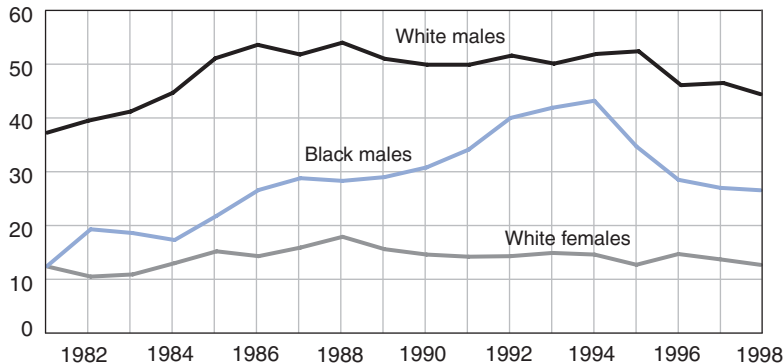
† The suicide/homicide ratio is the total number of suicides of youth ages 7–17 divided by the total number of homicides of youth ages 7–17. A ratio of less than 1.0 indicates that the number of homicides is greater than the number of suicides.

- ◆ Suicide rates were lowest in some highly urban areas (New Jersey, New York, the District of Columbia, Massachusetts, Connecticut, and Rhode Island) and highest in the relatively rural states (Alaska, Montana, Idaho, Wyoming, and New Mexico).
- ◆ The reasons for variations in the numbers of juvenile suicides and homicides among states are beyond the scope of this Bulletin. States with the largest suicide/homicide ratios tend to have low homicide rates.

Data source: NVSS, compiled by CDC’s National Center for Health Statistics. Population data from the U.S. Bureau of the Census. [See Data source notes on page 7 for detail.]

Between 1981 and 1998, the annual suicide rate for white males ages 7–17 was greater than that for black males

Suicides per 1 million juveniles ages 7–17



- ◆ The juvenile suicide rate for black males increased 240% between 1981 and 1994, while the rate for white males increased 40%. The rates for white males and black males were more similar in 1994 than at any other point in the period.
- ◆ In 1998, the juvenile suicide rate for white males was 66% greater than the rate for black males, while the rate for white females was 88% greater than the rate for black females.
- ◆ Black female suicide rates for approximately half of the years are based on 20 or fewer reported suicides, so the line graph for black females is not displayed.

Data source: NVSS, compiled by CDC's National Center for Health Statistics. Population data from the U.S. Bureau of the Census. [See Data source notes on page 7 for detail.]

Juvenile males were more likely to commit suicide than juvenile females

Between 1981 and 1998, boys ages 7–17 were more than three times as likely as girls of the same age group to commit suicide in the U.S. (16,282 boys versus 4,493 girls). The age profiles of males and females who committed suicide were very similar: 10% of males and 6% of females were younger than age 13, whereas 66% of males and 62% of females were 17 years old.

For every 1 million youth ages 7–17, 29 juveniles committed suicide in the U.S. annually between 1981 and 1998. The annual suicide rate for youth ages 7–17 peaked in 1988 at 34 per 1 million, with the rate for males at 50 per 1 million and the rate for females at 17 per 1 million in that year. Between 1981 and 1988, the rates for both males and females increased 49%. After 1988, the rate for females fell more sharply than the rate for males; by 1998, the female rate was 7% higher than its 1981 level, while the rate for males was still 23% higher than its 1981 level. In 1998, the suicide rate for males ages 7–17 was 41 per 1 million, compared with the female rate of 12 per 1 million.

The manner in which juvenile girls committed suicide differed from that of boys. Girls were more likely to use poison (25% of girls versus 6% of boys), while boys were more likely to use a firearm (65% of boys versus 51% of girls). Similar proportions of girls and boys committed suicide by suffocating themselves (26% of boys and 20% of girls).

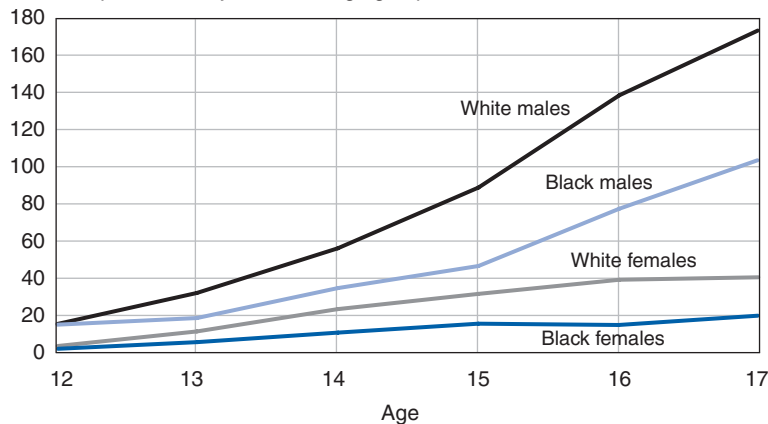
American Indian youth were far more likely to commit suicide than youth of other races

Of youth ages 7–17 who committed suicide between 1981 and 1998, 17,954 were white (86%), 1,958 were black (9%), 443 were American Indian (2%), and 415 were Asian (2%).³ Because white youth were 80% of the juvenile population during this period, they were overrepresented in juvenile suicides. More specifically, the suicide rate for white juveniles (31 per 1 million) averaged nearly twice the rates for black juveniles and Asian juveniles (both at 18 per 1 million). However, the suicide rate for American Indian juveniles (57 per 1 million) was almost twice the rate for white juveniles.

³ In five suicides, the race of the victim was unknown. Data on Hispanic ethnicity of suicide victims were not available for the period 1981–98.

After age 12, suicide rates for white juveniles and black juveniles diverge

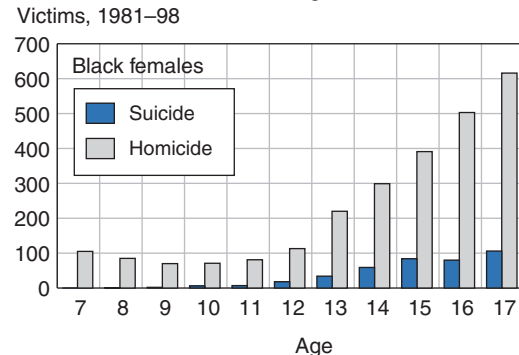
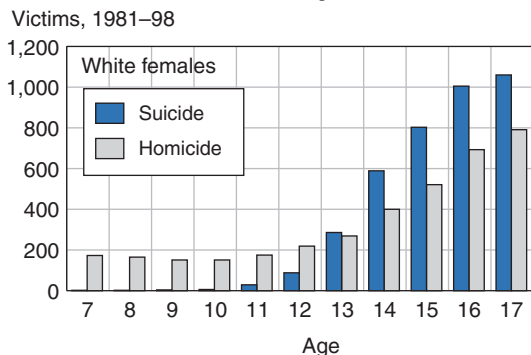
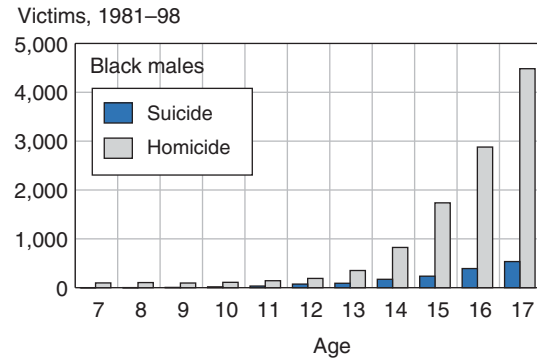
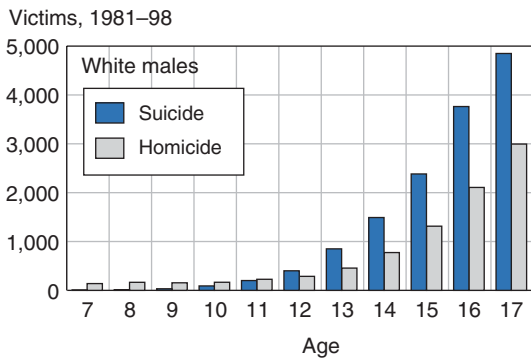
Suicides per 1 million juveniles in age group, 1981–98



- ◆ Over the 1981–98 period, the annual average suicide rate for 12-year-olds was essentially equal for white youth and black youth, within gender groups.
- ◆ In contrast, among 17-year-olds, the average annual suicide rate for white males was more than 8 times the rate for black females, more than 4 times the rate for white females, and two-thirds greater than the rate for black males.
- ◆ Suicide rates for some gender/race groups of youth younger than age 12 are based on 20 or fewer reported suicides, so they are not displayed.

Data source: NVSS, compiled by CDC's National Center for Health Statistics. Population data from the U.S. Bureau of the Census. [See Data source notes on page 7 for detail.]

Between 1981 and 1998, white juveniles ages 13–17 were more likely to kill themselves than to be killed by others



- ◆ Between 1981 and 1998, more white male juveniles ages 7–17 committed suicide (14,080) than were murdered (8,785), while black male juveniles were far more likely to be murdered (11,017) than to commit suicide (1,561).
- ◆ The number of white female juveniles ages 7–17 who were murdered between 1981 and 1998 (3,708) was slightly less than the number who committed suicide (3,874), while more than 6 times as many black female juveniles ages 7–17 were murdered (2,554) as committed suicide (397).

Data source: NVSS, compiled by CDC's National Center for Health Statistics. [See Data source notes on page 7 for detail.]

White youth were involved in a decreasing proportion of juvenile suicides between 1981 (91%) and 1998 (84%). The proportionate growth was mainly in suicides of black youth, which began at 6% of all juvenile suicides in 1981, peaked at 13% in 1994, and ended the period in 1998 at 10%. From 1981 to 1998, the proportion of juvenile suicides also increased for Asian youth (from 1% to 3%) and American Indian youth (from 2% to 3%).

Suicides involving black juveniles increased substantially between 1981 and 1994

The peak year for juvenile suicides in the 1981–98 period was 1994. Between 1981 and 1994, the number of juvenile suicides increased 44%. The increase was greater for males (51%) than females (24%) and substantially greater for black youth (230%) than white youth (32%).

From 1994 to 1998, the juvenile suicide rate fell 11%, resulting in a 1998 rate that was still 28% above the 1981 rate. Declines in the number of suicides occurred in the following groups: males, females, white youth, and black youth. For each of these groups, however, the number of juvenile suicides in 1998 was still greater than the number in 1981: for males it was 33% greater; for females, 15% greater; for white youth, 18% greater; and for black youth, 126% greater.

White youth and American Indian youth were at greater risk of suicide than murder

From 1981 to 1998, white and American Indian youth ages 7–17 were approximately 1.5 times more likely to commit suicide than to be murdered. For black youth and Asian youth, the risk of being murdered was far greater than the risk of committing suicide. Black youth were almost 7 times

more likely, and Asian youth 1.5 times more likely, to be murdered than to commit suicide between 1981 and 1998.

The relative risk of suicide, as compared with murder, increased substantially with age for white juveniles

Between ages 7 and 12, a white youth was at greater risk of being murdered than of committing suicide. For example, a 10-year-old white youth was 3 times more likely to be murdered than to commit suicide. However, between ages 13 and 17, the threat of suicide increased, so that by age 17, a white youth's death was 56% more likely to be a suicide than a murder. Similarly, when American Indian youth passed their 12th birthday, their risk of committing suicide became greater than their risk of being murdered.

At each age from 7 through 17, however, Asian youth and black youth were more likely to be murdered than to commit suicide. For example, at age 17, Asian youth were nearly 1.5 times and black youth nearly 8 times more likely to be murdered than to commit suicide between 1981 and 1998.

Most juvenile suicides involved firearms

From 1981 through 1998, 62% of juvenile suicides were committed with a firearm, compared with 59% of adult suicides. (For comparison, 76% of murdered juveniles ages 7–17 were killed with a firearm.) Another 24% of juvenile suicides were by suffocation (primarily hanging) and 10% by poisoning.

Over the 1981–98 period, the suicides of white youth and black youth were more likely to involve firearms than were those of American Indian youth or Asian youth. Within each race, males were more likely to use firearms than were females.

Percentage of juvenile suicides involving firearms, 1981–98:

Race	Total	Male	Female
All	62%	65%	51%
White	63	65	52
Black	64	67	52
American Indian	45	52	23
Asian	46	52	31

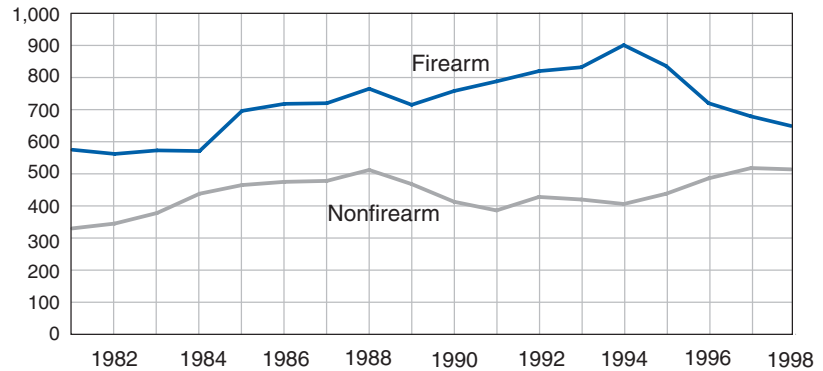
Use of firearms in homicides and suicides varied by gender and race

Firearms were less common in juvenile suicides than in murders committed by juveniles between 1981 and 1998. The NCHS data show that 62% of juveniles who committed suicide used a firearm, while the Federal Bureau of Investigation's (FBI's) Supplementary Homicide Reports indicate that firearms were used by 71% of juveniles who committed homicide. This pattern varied by gender and race.

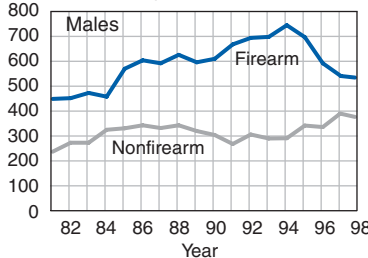
Among juvenile males, the proportion who used firearms to commit murder (73%) was greater than the proportion who used them to commit suicide (65%). The reverse was true for juvenile females. Over the 1981–98 period, a firearm was used by 51% of juvenile females who committed suicide, but by just 38% of juvenile females who committed murder.

Most of the growth in juvenile suicides between 1981 and 1994 was firearm related, especially for males and black youth

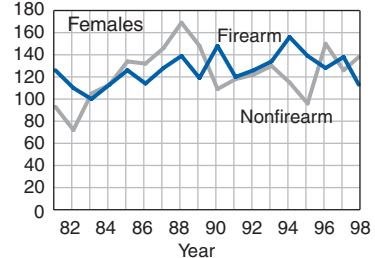
Suicide victims ages 7–17



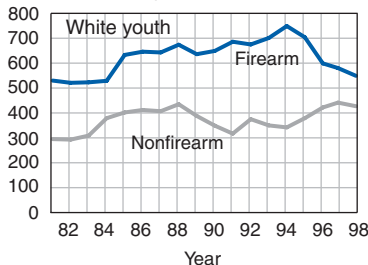
Suicide victims ages 7–17



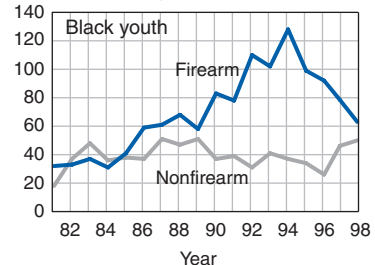
Suicide victims ages 7–17



Suicide victims ages 7–17



Suicide victims ages 7–17



- ◆ Although percentages of both firearm- and nonfirearm-related suicides increased between 1981 and 1994, the growth in juvenile suicides was tied to a greater increase in suicides involving firearms (57%) than in suicides involving other methods (23%).
- ◆ Over the same period, this general pattern of increases was found in the suicides of male juveniles (66% firearm related versus 23% nonfirearm related), white juveniles (41% versus 16%), and, especially, black juveniles (300% versus 106%). Firearm-related and nonfirearm-related suicides of females increased equally (24% each).
- ◆ The overall effect of the 28% decline in firearm-related suicides between 1994 and 1998 was muted by a 27% increase in nonfirearm-related juvenile suicides over the same period.

Data source: NVSS, compiled by CDC's National Center for Health Statistics. Population data from the U.S. Bureau of the Census. [See Data source notes on page 7 for detail.]

White juveniles were equally likely to use a firearm to commit suicide (63%) as to commit murder (62%), as were American Indian juveniles, although they did so at much lower levels (45% in suicides and 47% in murders). In contrast, firearm use was less prevalent in suicides than in murders among both black juveniles (64% versus 77%) and Asian juveniles (46% versus 71%).

Trends in juvenile suicides and murders were largely tied to firearms

There are similarities in the trends of juvenile suicides and homicides by juveniles between 1981 and 1998. Between 1981 and 1994, the number of juvenile suicides increased 44%, with firearm-related suicides accounting for 80% of this growth. As a result, the proportion of juvenile suicides involving firearms increased from 64% in 1981 to 69% in 1994. Similarly, the number of juvenile offenders who committed murder with a firearm tripled between 1981 and 1994, while the number of juveniles who committed murder by other means remained constant. As a result, the proportion of juvenile offenders who committed murder with a firearm increased from 59% in 1981 to 81% in 1994.

Between 1994 and 1998, the number of juvenile suicides declined 11%, while the number of murders by juveniles fell 40%. The decline in the overall number of murders by juveniles was directly related to a decline in firearm-related homicides. The number of juvenile suicides by firearm also declined substantially (down 28%) during this period; however, reducing the overall impact of this decline was a 27% increase in the number of juvenile suicides that did not involve firearms.

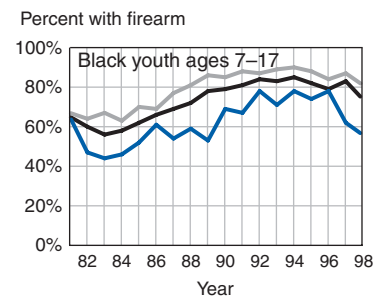
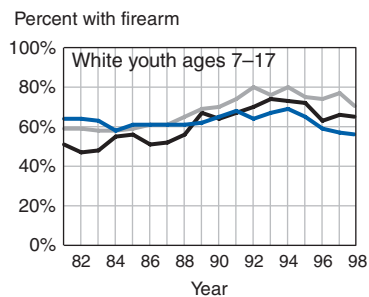
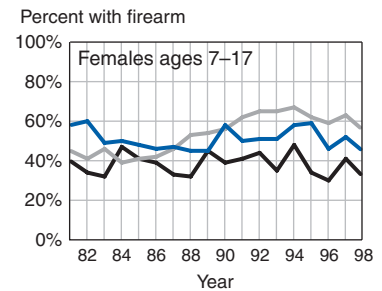
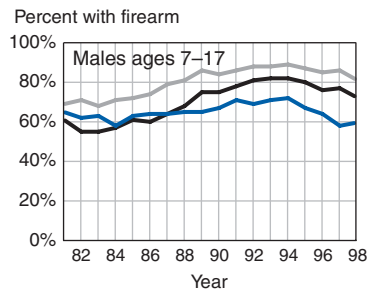
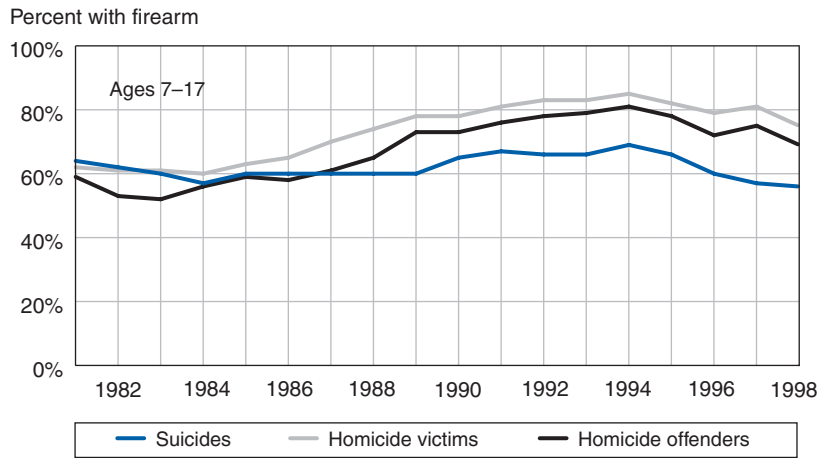
Data source notes

Federal Bureau of Investigation. *Supplementary Homicide Reports, 1981–1998* [machine-readable data files]. Washington, DC: U.S. Department of Justice, Federal Bureau of Investigation.

National Center for Health Statistics. *Vital Statistics Mortality Data, Underlying Cause of Death, 1981–1998* [machine-readable data files]. Hyattsville, MD: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Center for Health Statistics.

National Center for Health Statistics. National Vital Statistics System for numbers of deaths, U.S. Bureau of the Census

Among youth ages 7–17, the proportion of firearm-related suicides peaked in 1994, as did the proportion of firearm-related homicides and the proportion of homicide offenders who used a firearm



- ◆ Between 1981 and 1994, the proportion of firearm-related suicides increased from 64% to 69%. The increase in this proportion was seen for males (65% to 72%), whereas the proportion for females was 58% in both 1981 and 1994. The proportion of firearm-related suicides involving white juveniles increased from 64% to 69%, whereas the proportion for black juveniles grew from 64% to 78%.
- ◆ In 1994, 69% of juvenile suicides, 85% of homicides involving juvenile victims, and 81% of homicides committed by juveniles involved a firearm.
- ◆ Each of these proportions fell by 1998. The firearm proportion of juvenile suicides (56%) fell to its lowest level in the 1981–98 period. The proportions of juvenile murderers who used a firearm (69%) and juvenile murder victims killed with a firearm (75%) had fallen to their lowest levels in 10 years, but were still above their levels of the early 1980s.
- ◆ The increase that occurred between 1981 and 1994 in firearm-related juvenile suicides and homicides and in juvenile homicide offenders who used firearms was greatest for black youth.

Data source: NVSS, compiled by CDC's National Center for Health Statistics. Population data from the U.S. Bureau of the Census. [See Data source notes on this page for detail.]

U.S. Department of Justice

Office of Justice Programs

Office of Juvenile Justice and Delinquency Prevention

Washington, DC 20531

Official Business

Penalty for Private Use \$300



PRESORTED STANDARD
POSTAGE & FEES PAID
DOJ/OJJDP
PERMIT NO. G-91

for population estimates [compiled using Web-Based Injury Statistics Query and Reporting System (WISQARS), an interactive data system available online at www.cdc.gov/ncipc/wisqars]. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Office of Statistics and Programming.

U.S. Bureau of the Census. *Estimates of the Population of States by Age, Sex, Race, and Hispanic Origin: 1980-1999* [machine-readable data files, available online at eire.census.gov/popest/archives/1990.php]. Washington, DC: U.S. Department of Commerce, Economics and Statistics Administration, U.S. Bureau of the Census.

Acknowledgments

This Bulletin was written by Howard N. Snyder, Ph.D., Director of Systems Research, National Center for Juvenile Justice, and Monica H. Swahn, Ph.D., Senior Service Fellow, Division of Violence Prevention, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention (CDC). The authors gratefully acknowledge the assistance provided by Steve James of CDC. This work was partially funded by OJJDP's National Juvenile Justice Data Analysis Project.

This Bulletin was prepared under cooperative agreement number 1999-JN-FX-K002 from the Office of Juvenile Justice and Delinquency Prevention, U.S. Department of Justice.

Points of view or opinions expressed in this document are those of the authors and do not necessarily represent the official position or policies of OJJDP or the U.S. Department of Justice.

The Office of Juvenile Justice and Delinquency Prevention is a component of the Office of Justice Programs, which also includes the Bureau of Justice Assistance, the Bureau of Justice Statistics, the National Institute of Justice, and the Office for Victims of Crime.