Articles Relating to Suicide / Violence

Suicide

in the United States 1980-1992

Violence Surveillance Summary Series, No. 1

S. Patrick Kachur, MD, MPH
Lloyd B. Potter, PhD, MPH
Stephen P. James
Kenneth E. Powell, MD, MPH

National Center for Injury Prevention and Control

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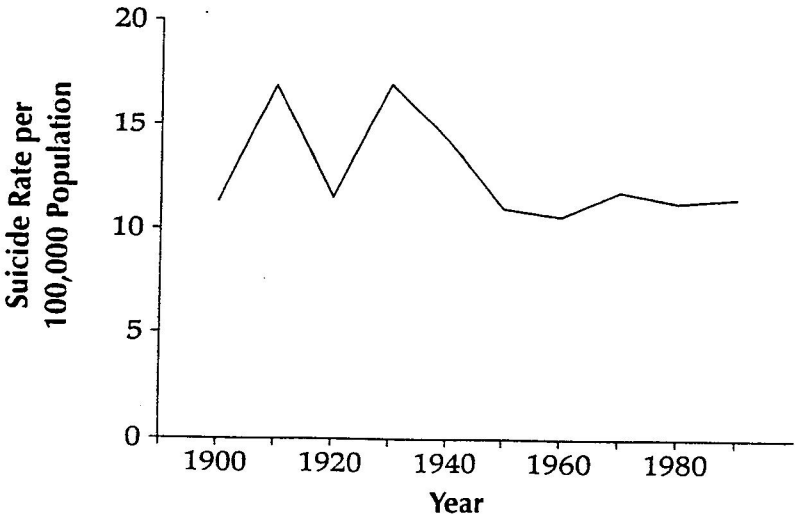
Introduction

A total of 384,262 suicides were recorded in the United States during the 13 years from 1980 through 1992. In 1992, more than 30,000 Americans took their own lives. Suicide, the ninth leading cause of death, has exceeded the number of homicides every year since 1981.

Nationally, the age-adjusted suicide rate has remained remarkably constant since the 1940s (Figure 1). Despite this apparent stability, however, suicide risk and the usual methods of suicide vary across age, race, and gender groups as well as between different geographic regions. This report documents some of the trends in suicide rates during the 1980s and early 1990s.

Despite apparent stability over recent decades, suicide rates have changed remarkably for some groups.

Figure 1. Age-Adjusted Suicide Rates, United States, 1900-1990



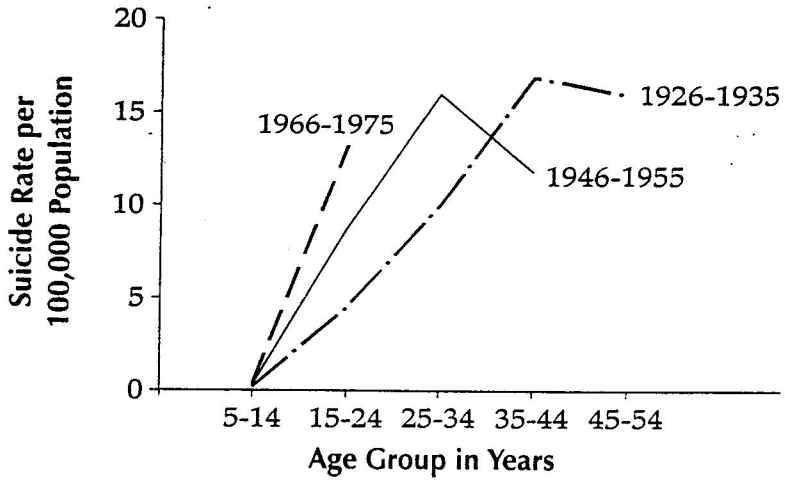
We calculated age-adjusted rates by the direct method of standardization using the age distribution of the 1940 U.S. census population as the standard. Age-adjusted and age-specific rates do not include suicide deaths for which the decedent's age was not recorded. Crude rates, however, do include these deaths. Comparable statistics for previous decades were obtained from published reports of the Public Health Service.[4,5]

Figure 2. Ten Leading Causes of Death, by Age Group, United States, 1992

Rank	Age Groups											
	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Congenital Anomalies 7,449	Unintentional Injuries 2,467	Unintentional Injuries 1,628	Unintentional Injuries 1,760	Unintentional Injuries 13,662	Unintentional Injuries 13,798	Malignant Neoplasms 16,882	Malignant Neoplasms 41,206	Malignant Neoplasms 91,609	Heart Disease 595,314	Heart Disease 717,706
2	SIDS 4,891	Congenital Anomalies 856	Malignant Neoplasms 557	Malignant Neoplasms 548	Homicide 8,019	HIV 10,426	HIV 14,203	Heart Disease 31,413	Heart Disease 72,516	Malignant Neoplasms 362,060	Malignant Neoplasms 520,578
3	Short Gestation 4,035	Malignant Neoplasms 479	Congenital Anomalies 245	Homicide 441	Suicide 4,693	Homicide 7,343	Heart Disease 12,698	Unintentional Injuries 7,485	Bronchitis Emphysema Asthma 10,098	Cerebro-vascular 125,392	Cerebro-vascular 143,769
4	Respiratory Distress Synd. 2,063	Homicide 430	Homicide 146	Suicide 304	Malignant Neoplasms 1,809	Suicide 6,172	Unintentional Injuries 12,010	HIV 5,575	Cerebro-vascular 9,709	Bronchitis Emphysema Asthma 78,182	Bronchitis Emphysema Asthma 91,938
5	Maternal Complications 1,461	Heart Disease 286	Heart Disease 130	Congenital Anomalies 203	Heart Disease 968	Malignant Neoplasms 5,303	Suicide 6,009	Cerebro-vascular 4,791	Diabetes 7,109	Pneumonia & Influenza 67,489	Unintentional Injuries 86,777
6	Placenta Cord Membranes 993	Pneumonia & Influenza 188	HIV 72	Heart Disease 154	HIV 578	Heart Disease 3,423	Homicide 4,460	Liver Disease 4,569	Unintentional Injuries 6,397	Diabetes 37,328	Pneumonia & Influenza 75,719
7	Perinatal Infections 901	HIV 161	Benign Neoplasms 53	Bronchitis Emphysema Asthma 62	Congenital Anomalies 450	Cerebro-vascular 796	Liver Disease 3,608	Suicide 4,018	Liver Disease 5,780	Unintentional Injuries 26,633	Diabetes 50,067
8	Unintentional Injuries 819	Perinatal Period 113	Pneumonia & Influenza 53	Pneumonia & Influenza 51	Pneumonia & Influenza 229	Liver Disease 765	Cerebro-vascular 2,591	Diabetes 3,203	Pneumonia & Influenza 3,453	Nephritis 18,711	HIV 33,566
9	Intraulerine Hypoxia 613	Septicemia 77	Bronchitis Emphysema Asthma 38	Benign Neoplasms 44	Cerebro-vascular 197	Diabetes 658	Diabetes 1,600	Bronchitis Emphysema Asthma 2,274	Suicide 3,105	Athero-sclerosis 15,995	Suicide 30,484
10	Pneumonia & Influenza 600	Anemias 65	Anemias 30	Cerebro-vascular 37	Bronchitis Emphysema Asthma 189	Pneumonia & Influenza 654	Pneumonia & Influenza 1,350	Homicide 2,046	HIV 1,785	Septicemia 15,884	Homicide 25,488

Analysis of age-specific suicide rates for three birth cohorts shows the rates of suicide early in life increasing for each successive cohort (Figure 5). Suicide rates in the middle adult years have generally declined for each successive generation. The trend toward higher suicide rates at earlier ages affects YPLL-65 and is an important public health concern.

Figure 5. Age-Specific Suicide Rates in Three Birth Cohorts, United States



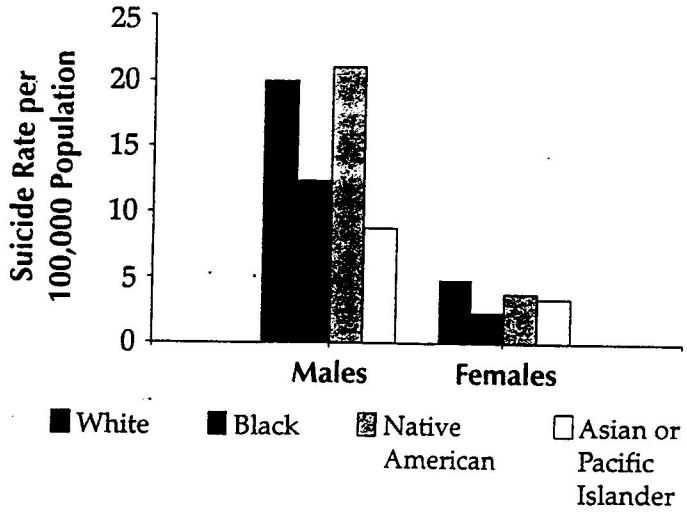
Rates of suicide early in life have been increasing from one generation to the next.

Age-Specific Suicide Rates

During the 1980s and early 1990s, as in previous decades, the elderly had the highest suicide rates, and children, the lowest (Table 1). Suicide rates for several other age groups changed substantially, however. In particular, there were net increases (>10%) in rates among persons aged 70 and older for the first time since the late 1930s. Among those aged 80 to 84 years, the rate increased 36% between 1980 and 1992. In 1992, this group had the highest suicide rate.

From 1980 to 1992, suicide rates also increased dramatically among persons younger than 20 years. Among children aged 10 to 14, suicide increased 121%. Although suicide remains a rare event in this age group (1.7 per 100,000 in 1992), its steep rate of increase is a concerning new trend. As in previous decades, rates among teens aged 15 to 19 continued to climb, increasing by 27% during 1980-1992. For the 20 to 24 age group, the rate of suicide levelled during the 1980s, after several decades of continued increase.

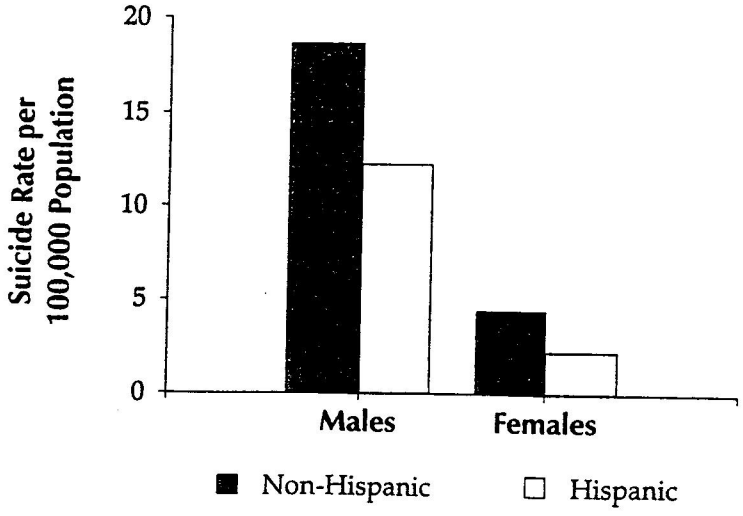
Figure 7. Estimated Age-Adjusted Suicide Rates,* by Race and Sex, United States, 1990



White males and white females have higher suicide rates than other race and sex groups.

*Estimates based on states with >95% reporting of Asian or Pacific Islander and Native American race.

Figure 8. Estimated Age-Adjusted Suicide Rates,* by Sex and Ethnicity, United States, 1990



Non-Hispanic males and females have higher suicide rates than Hispanics.

*Estimates are based on states with >95% reporting of Hispanic ethnicity.

For white females, the 1992 suicide rate increases slowly to crest at 8.1 in the 50 to 54 age group and then slowly declines throughout late adulthood. Black females have a similar change in suicide risk over the life span, except that their suicide rate peaks at 3.8 in the 30 to 34 age group. For both Asian or Pacific Islander and Native American females, suicide rates peak in the 30 to 34 age group and again later in life.

Both white and black males demonstrated modest increases (3% and 11%, respectively) in age-adjusted suicide rates between 1980 and 1992. These subtle overall changes were driven by substantial increases in suicide rates among adolescent and elderly men. The age-adjusted rates for males of other races declined by 14% over the 13 years. Finally, during the study period, suicide rates diminished for white females (19%), black females (13%), and females of other races (19%). For women of all races, the overall rate of decline was most notable during the middle adult years.

In all six race and sex groups, the greatest net increase in age-specific suicide rates was in the 10 to 14 age group, with the margins of increase ranging from 88% to 283% (Table 2). During the 1980s and early 1990s, suicide rates climbed most rapidly among young black males in both the younger teenage group (10 to 14 years, 283% increase) and the older teenage group (15 to 19 years, 165% increase). Substantial increases (>50%) were also noted for black males over 75 years of age, for males of other races ranging in age from 75 to 84, and for females of other races ranging from 60 to 69. The largest decreases in age-specific suicide rates between 1980 and 1992 were reported for black females and for females of other races during the middle adult years.

In all race and sex groups, suicide rates increased most for 10 to 14 year olds.

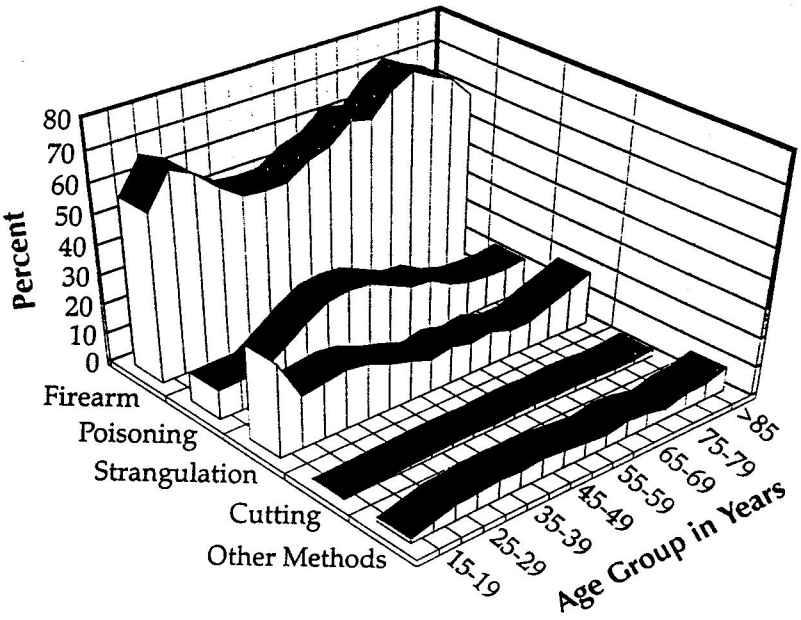
Level of Education and Marital Status

In general, young and middle-aged adults who have had some post-secondary education have a lower rate of suicide than those who have completed 12 or fewer years of school (Figure 10, Table 4). Paradoxically, higher levels of education seem to be associated with relatively higher suicide rates late in life. Marital status also has an impact on suicide rates, with married persons having lower suicide rates than single, never married individuals (Figure 11, Table 5). The highest rates occur among widowed and divorced persons.

Method of Suicide

Firearms were used in most suicides in the United States during the 1980s and early 1990s (Table 1) and accounted for 60% of all suicides in 1992 (Figure 12). The next most commonly reported methods were poisoning (18%), strangulation (15%), and cutting (1%). Other, or unspecified, means accounted for 6% of all suicides in 1992. These relative proportions changed little between 1980 and 1992. Strangulation by hanging was a particularly prominent method among children, adolescents, and young adults. The greatest proportion of suicides due to poisoning occurred among middle-aged adults.

Figure 12. Percentage of Suicides for Five-Year Age Groups, by Method, United States, 1992



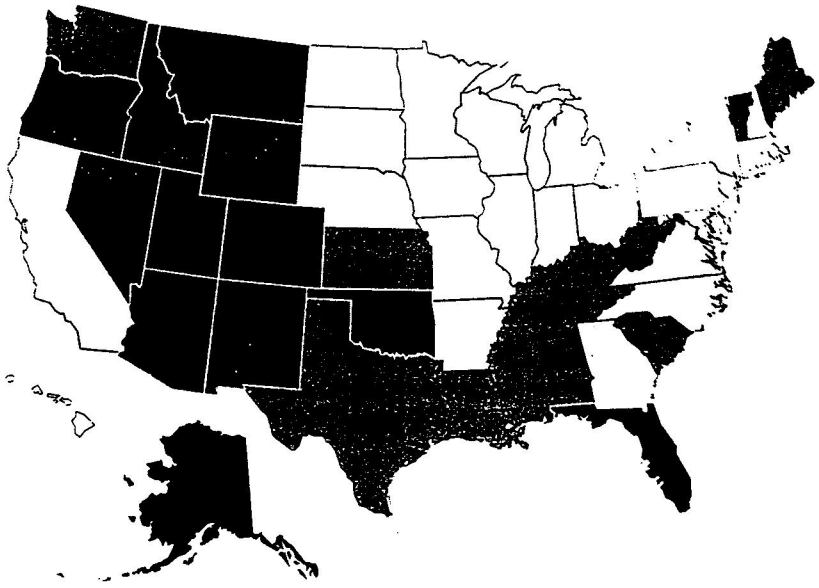
Firearms are by far the most common method of suicide.

The methods of suicide in 1990 also varied by race, ethnicity, and sex (Figure 13). Firearms accounted for the majority of suicides among white males (66%), black males (64%), Hispanic males (58%), non-Hispanic males (65%), and Native American males (53%). Among males who are Asian or Pacific Islanders, strangulation accounted for slightly more suicides (40%) than firearms (36%).

Geographic Variation

In 1990, age-adjusted suicide rates varied substantially across states (Figure 14, Table 6), from 22.2 in Nevada to 5.4 in the District of Columbia. The median state-specific suicide rate was 12.0. Montana, formerly ranked 9th, had the second highest rate. New Mexico dropped in rank from second to third, even though its rate (18.3) increased slightly from 1980. Idaho moved to fourth (18.2) after being 13th in 1980. Wyoming remained fifth despite a slight increase over the decade.

Figure 14. State Variations in Age-Adjusted Suicide Rates, United States, 1992



Suicides per 100,000, in Quartiles

5.1-10.7 | 10.8-11.5 | 11.6-12.9 | 13.0-22.9

National Rate = 11.1 per 100,000

Suicide rates are generally higher in the western states than in the rest of the country.

Suicide rates increased in 34 states during the 1980s, with increases of 20% or more in Nebraska, Montana, Idaho, and South Carolina. Nebraska's increase (44%) was driven largely by a drastic increase in suicides by poisoning and by firearm wounds. These increases propelled the state from 44th in 1980

Discussion

Although the total national suicide rate appears to have changed very little in recent years, it masks considerable variation in age-, race-, sex-, and state-specific suicide rates. This variation is a source of both concern and optimism. High and increasing rates of suicide can help identify populations in need of attention. Although there is at present very little evidence that any of the currently proposed interventions can reduce suicide rates, the low and declining rates observed in some states and population groups offer hope that local environmental, legislative, and cultural features can reduce the likelihood of suicide.

During the 1980s, suicide rates—especially rates of firearm-related suicide—increased most rapidly for young males, elderly males, and black males. Firearms also accounted for most of the difference between suicide rates in western states and those in other regions. Relatively low rates of suicide decreased further among white females and females of other races, largely because of diminishing rates of suicide by poisoning. At the same time, however, suicide rates for black females did not decline.

The current challenge is to use these newly identified trends in suicide to develop preventive interventions.

The challenge facing public health and mental health officials is to use these newly identified trends to develop effective preventive interventions. In the absence of proven suicide prevention strategies, the following recommendations are suggested:[8]

- Ensure that new and existing suicide prevention programs are linked closely to professional mental health services in the community.
- Avoid reliance on a single prevention strategy.
- Evaluate new and existing suicide prevention programs.

References

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NON-FIREARM SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
E950-E954 E955.5-E959

ALL RACES / BOTH SEXES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	4	0.02	0	0.00	5	0.03	3	0.02	4	0.02	1	0.01	7	0.04
10-14	109	0.66	99	0.60	112	0.68	98	0.58	116	0.68	109	0.62	132	0.73
15-19	745	3.96	773	4.13	798	4.31	768	4.23	647	3.62	619	3.61	596	3.49
20-24	1278	6.14	1229	6.07	1116	5.66	1086	5.63	1057	5.52	1023	5.34	1024	5.38
25-29	1549	7.07	1472	6.73	1437	6.61	1443	6.69	1272	5.96	1307	6.30	1225	6.07
30-34	1535	7.50	1554	7.41	1567	7.33	1490	6.87	1505	6.89	1607	7.25	1589	7.13
35-39	1378	7.41	1305	7.02	1365	7.19	1385	7.12	1487	7.49	1485	7.23	1553	7.36
40-44	956	6.65	1088	6.97	1032	6.38	1063	6.27	1185	6.74	1255	6.69	1377	7.32
45-49	827	6.97	846	6.89	827	6.40	845	6.30	851	6.19	960	6.81	991	6.45
50-54	771	7.16	744	6.90	631	5.75	653	5.83	678	5.99	731	6.28	738	6.12
55-59	767	6.89	707	6.45	662	6.17	627	5.95	619	5.90	627	6.02	555	5.29
60-64	692	6.37	662	6.14	574	5.32	599	5.59	597	5.62	608	5.74	590	5.65
65-69	549	5.76	580	5.96	574	5.85	551	5.53	505	5.02	489	4.88	476	4.77
70-74	547	7.20	523	6.80	481	6.15	440	5.57	480	6.02	429	5.20	396	4.67
75-79	465	8.27	466	8.09	456	7.74	394	6.55	411	6.73	387	6.15	423	6.59
80-84	307	8.82	321	8.93	330	8.92	308	8.06	332	8.49	321	7.94	342	8.24
85+	264	9.65	280	9.95	258	8.96	288	9.74	270	8.94	313	9.92	290	8.90
UNK AGE	8		11		13		13		5		13		11	
TOTAL*	12751	5.31	12660	5.22	12238	5.00	12054	4.88	12021	4.83	12284	4.87	12315	4.83
AGEADJ**		(4.98)		(4.89)		(4.68)		(4.58)		(4.52)		(4.56)		(4.51)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989 and
decennial census data are used for 1990. Demo-Detail postcensal population estimates are used for 1991-92.

NON-FIREARM SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
E950-E954 E955.5-E959

ALL RACES / MALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	2	0.02	0	0.00	4	0.04	2	0.02	3	0.03	1	0.01	6	0.06
10-14	82	0.97	76	0.91	79	0.93	68	0.79	86	0.98	82	0.91	89	0.96
15-19	556	5.78	561	5.86	585	6.17	560	6.02	505	5.51	462	5.25	445	5.08
20-24	1042	9.89	1020	9.94	900	9.01	898	9.17	877	9.00	825	8.46	843	8.69
25-29	1241	11.29	1163	10.60	1125	10.31	1123	10.37	1021	9.54	1024	9.84	994	9.80
30-34	1160	11.40	1143	10.95	1182	11.11	1115	10.34	1119	10.30	1249	11.31	1204	10.84
35-39	963	10.49	926	10.08	998	10.63	996	10.35	1088	11.06	1091	10.71	1150	10.97
40-44	582	8.24	696	9.06	658	8.26	723	8.65	814	9.38	865	9.34	942	10.14
45-49	497	8.57	529	8.81	483	7.62	539	8.20	581	8.62	596	8.62	651	8.63
50-54	453	8.69	420	8.03	381	7.15	392	7.21	430	7.83	474	8.38	446	7.61
55-59	460	8.69	438	8.38	399	7.80	377	7.49	352	7.03	381	7.64	343	6.83
60-64	375	7.46	390	7.82	331	6.62	368	7.40	365	7.38	386	7.80	359	7.34
65-69	334	7.82	339	7.76	342	7.78	327	7.33	299	6.63	295	6.57	287	6.41
70-74	327	10.22	320	9.85	279	8.43	292	8.70	271	7.97	270	7.63	238	6.52
75-79	266	12.23	296	13.25	287	12.53	249	10.60	252	10.55	235	9.45	263	10.30
80-84	183	15.32	204	16.53	202	15.86	202	15.30	207	15.27	211	14.99	215	14.77
85+	178	22.97	203	25.62	176	21.85	179	21.70	166	19.73	191	21.75	173	19.02
UNK AGE	7		9		11		12		3		11		7	
TOTAL*	8708	7.45	8733	7.40	8422	7.07	8422	7.00	8439	6.96	8649	7.03	8655	6.95
AGEADJ**		(7.04)		(6.97)		(6.65)		(6.61)		(6.59)		(6.64)		(6.57)

ALL RACES / FEMALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	2	0.02	0	0.00	1	0.01	1	0.01	1	0.01	0	0.00	1	0.01
10-14	27	0.34	23	0.29	33	0.41	30	0.37	30	0.36	27	0.31	43	0.49
15-19	189	2.05	212	2.32	213	2.36	208	2.35	142	1.63	157	1.88	151	1.82
20-24	236	2.29	209	2.09	216	2.22	188	1.98	180	1.92	198	2.10	181	1.94
25-29	308	2.82	309	2.84	312	2.88	320	2.98	251	2.36	283	2.74	231	2.30
30-34	375	3.64	411	3.90	385	3.58	375	3.44	386	3.52	358	3.22	385	3.45
35-39	415	4.41	379	4.03	367	3.83	389	3.96	399	3.98	394	3.81	403	3.80
40-44	374	5.11	392	4.94	374	4.55	340	3.95	371	4.16	390	4.11	435	4.57
45-49	330	5.45	317	5.06	344	5.22	306	4.48	270	3.85	364	5.06	340	4.35
50-54	318	5.72	324	5.83	250	4.42	261	4.53	248	4.26	257	4.29	292	4.71
55-59	307	5.26	269	4.68	263	4.69	250	4.54	267	4.87	246	4.52	212	3.88
60-64	317	5.44	272	4.70	243	4.20	231	4.03	232	4.09	222	3.94	231	4.16
65-69	215	4.09	241	4.49	232	4.29	224	4.08	206	3.71	194	3.50	189	3.44
70-74	220	5.00	203	4.56	202	4.48	148	3.26	209	4.56	159	3.37	158	3.27
75-79	199	5.77	170	4.82	169	4.69	145	3.95	159	4.28	152	4.00	160	4.14
80-84	124	5.42	117	4.96	128	5.27	106	4.24	125	4.90	110	4.18	127	4.72
85+	86	4.39	77	3.81	82	3.96	109	5.11	104	4.77	122	5.36	117	4.98
UNK AGE	1		2		2		1		2		2		4	
TOTAL*	4043	3.28	3927	3.16	3816	3.04	3632	2.87	3582	2.81	3635	2.81	3660	2.80
AGEADJ**		(3.02)		(2.92)		(2.79)		(2.64)		(2.52)		(2.57)		(2.53)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989
decennial census data are used for 1990. Demo-Detail postcensal population estimates are used for 1991-92

NON-FIREARM SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
E950-E954 E955.5-E959

WHITE / BOTH SEXES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	1	0.01	0	0.00	5	0.03	2	0.01	2	0.01	0	0.00	4	0.03
10-14	87	0.65	77	0.58	88	0.66	75	0.56	100	0.73	89	0.63	117	0.81
15-19	667	4.33	688	4.51	702	4.68	655	4.48	554	3.86	523	3.81	516	3.79
20-24	1125	6.52	1057	6.32	965	5.96	897	5.68	901	5.76	878	5.62	860	5.57
25-29	1336	7.28	1270	6.95	1231	6.80	1204	6.73	1051	5.96	1109	6.51	1023	6.19
30-34	1346	7.81	1360	7.72	1350	7.54	1280	7.07	1290	7.09	1405	7.62	1378	7.46
35-39	1234	7.77	1171	7.43	1216	7.59	1232	7.54	1322	7.94	1329	7.74	1373	7.80
40-44	882	7.12	1000	7.42	952	6.85	967	6.67	1069	7.13	1139	7.15	1233	7.78
45-49	777	7.62	780	7.40	766	6.88	788	6.83	783	6.62	878	7.26	894	6.76
50-54	722	7.72	691	7.40	581	6.12	604	6.25	621	6.37	676	6.75	681	6.58
55-59	723	7.37	680	7.06	628	6.69	599	6.52	578	6.33	581	6.43	527	5.81
60-64	651	6.73	621	6.49	554	5.79	556	5.87	562	5.99	565	6.07	552	6.03
65-69	519	6.07	539	6.18	547	6.24	517	5.81	477	5.31	462	5.18	445	5.03
70-74	524	7.65	494	7.12	464	6.58	416	5.84	454	6.31	400	5.39	378	4.96
75-79	450	8.83	453	8.68	443	8.31	377	6.93	394	7.14	366	6.43	405	6.99
80-84	297	9.33	308	9.38	314	9.29	294	8.43	324	9.09	311	8.44	327	8.65
85+	255	10.18	266	10.33	248	9.42	279	10.32	255	9.24	301	10.45	283	9.51
UNK AGE	5		9		11		11		5		10		9	
TOTAL*	11601	5.70	11464	5.60	11065	5.37	10753	5.18	10742	5.15	11022	5.22	11005	5.17
AGEADJ**		(5.28)		(5.17)		(4.95)		(4.79)		(4.74)		(4.82)		(4.77)

BLACK / BOTH SEXES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	2	0.08	0	0.00	0	0.00	1	0.04	2	0.07	1	0.04	0	0.00
10-14	12	0.47	18	0.71	15	0.59	18	0.70	9	0.34	15	0.55	14	0.50
15-19	49	1.77	55	1.98	59	2.13	65	2.38	46	1.69	53	2.01	38	1.44
20-24	102	3.59	111	3.97	117	4.27	133	4.95	93	3.50	98	3.68	94	3.50
25-29	157	5.67	158	5.68	158	5.66	180	6.46	160	5.76	141	5.12	136	5.01
30-34	156	6.35	157	6.16	168	6.40	175	6.52	157	5.78	155	5.60	157	5.62
35-39	112	5.45	99	4.64	115	5.20	119	5.19	124	5.26	123	4.99	132	5.15
40-44	52	3.47	58	3.65	52	3.10	73	4.08	88	4.68	83	4.04	112	5.24
45-49	34	2.66	43	3.26	43	3.17	38	2.74	53	3.75	52	3.58	68	4.41
50-54	32	2.87	30	2.68	34	2.99	31	2.67	43	3.65	33	2.73	35	2.79
55-59	30	2.83	13	1.23	24	2.28	16	1.53	18	1.73	25	2.38	16	1.51
60-64	28	2.93	26	2.70	16	1.65	20	2.06	15	1.54	21	2.14	20	2.03
65-69	13	1.61	22	2.67	18	2.15	19	2.23	14	1.63	16	1.84	16	1.82
70-74	12	1.93	15	2.40	3	0.48	11	1.74	15	2.35	13	1.96	10	1.47
75-79	9	2.00	7	1.52	9	1.92	7	1.46	4	0.83	6	1.23	3	0.60
80-84	5	1.96	6	2.27	5	1.84	2	0.71	2	0.69	3	1.01	6	1.99
85+	3	1.49	1	0.48	2	0.94	2	0.92	5	2.25	4	1.73	3	1.26
UNK AGE	3		1		2		2		0		2		2	
TOTAL*	811	2.80	820	2.79	840	2.82	912	3.02	848	2.78	844	2.71	862	2.72
AGEADJ**		(2.81)		(2.80)		(2.82)		(3.01)		(2.81)		(2.74)		(2.74)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989
decennial census data are used for 1990. Demo-Detail postcensal population estimates are used for 1991-92.

NON-FIREARM SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
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OTHER / BOTH SEXES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	1	0.15	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	0.34
10-14	10	1.52	4	0.59	9	1.29	5	0.68	7	0.92	5	0.61	1	0.11
15-19	29	4.35	30	4.22	37	4.91	48	6.07	47	5.75	43	5.34	42	5.15
20-24	51	7.03	61	8.16	34	4.40	56	6.93	63	7.51	47	5.26	70	7.50
25-29	56	7.14	44	5.38	48	5.63	59	6.66	61	6.70	57	6.12	66	6.90
30-34	33	4.25	37	4.52	49	5.73	35	3.91	58	6.27	47	4.84	54	5.35
35-39	32	4.81	35	4.94	34	4.50	34	4.24	41	4.91	33	3.72	48	5.15
40-44	22	4.37	30	5.41	28	4.63	23	3.48	28	3.97	33	4.28	32	3.95
45-49	16	4.18	23	5.59	18	4.06	19	3.99	15	2.97	30	5.50	29	4.88
50-54	17	5.54	23	7.05	16	4.59	18	4.84	14	3.58	22	5.22	22	4.93
55-59	14	5.35	14	5.08	10	3.46	12	3.95	23	7.29	21	6.28	12	3.38
60-64	13	5.78	15	6.29	4	1.60	23	8.74	20	7.33	22	7.57	18	5.94
65-69	17	9.96	19	10.30	9	4.53	15	7.06	14	6.30	11	4.62	15	5.97
70-74	11	8.96	14	10.81	14	10.27	13	9.02	11	7.31	16	9.59	8	4.42
75-79	6	7.33	6	6.89	4	4.34	10	10.28	13	12.86	15	13.64	15	12.63
80-84	5	11.91	7	15.54	11	22.70	12	23.12	6	11.01	7	11.66	9	13.81
85+	6	20.53	13	41.70	8	24.01	7	19.57	10	26.43	8	18.63	4	8.67
UNK AGE	0		1		0		0		0		1		0	
TOTAL*	339	4.35	376	4.57	333	3.84	389	4.25	431	4.53	418	4.15	448	4.25
AGEADJ**		(4.43)		(4.67)		(3.81)		(4.34)		(4.54)		(4.24)		(4.26)

TOTAL / BOTH SEXES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	4	0.02	0	0.00	5	0.03	3	0.02	4	0.02	1	0.01	7	0.04
10-14	109	0.66	99	0.60	112	0.68	98	0.58	116	0.68	109	0.62	132	0.73
15-19	745	3.96	773	4.13	798	4.31	768	4.23	647	3.62	619	3.61	596	3.49
20-24	1278	6.14	1229	6.07	1116	5.66	1086	5.63	1057	5.52	1023	5.34	1024	5.38
25-29	1549	7.07	1472	6.73	1437	6.61	1443	6.69	1272	5.96	1307	6.30	1225	6.07
30-34	1535	7.50	1554	7.41	1567	7.33	1490	6.87	1505	6.89	1607	7.25	1589	7.13
35-39	1378	7.41	1305	7.02	1365	7.19	1385	7.12	1487	7.49	1485	7.23	1553	7.36
40-44	956	6.65	1088	6.97	1032	6.38	1063	6.27	1185	6.74	1255	6.69	1377	7.32
45-49	827	6.97	846	6.89	827	6.40	845	6.30	851	6.19	960	6.81	991	6.45
50-54	771	7.16	744	6.90	631	5.75	653	5.83	678	5.99	731	6.28	738	6.12
55-59	767	6.89	707	6.45	662	6.17	627	5.95	619	5.90	627	6.02	555	5.29
60-64	692	6.37	662	6.14	574	5.32	599	5.59	597	5.62	608	5.74	590	5.65
65-69	549	5.76	580	5.96	574	5.85	551	5.53	505	5.02	489	4.88	476	4.77
70-74	547	7.20	523	6.80	481	6.15	440	5.57	480	6.02	429	5.20	396	4.67
75-79	465	8.27	466	8.09	456	7.74	394	6.55	411	6.73	387	6.15	423	6.59
80-84	307	8.82	321	8.93	330	8.92	308	8.06	332	8.49	321	7.94	342	8.24
85+	264	9.65	280	9.95	258	8.96	288	9.74	270	8.94	313	9.92	290	8.90
UNK AGE	8		11		13		13		5		13		11	
TOTAL*	12751	5.31	12660	5.22	12238	5.00	12054	4.88	12021	4.83	12284	4.87	12315	4.83
AGEADJ**		(4.98)		(4.89)		(4.68)		(4.58)		(4.52)		(4.56)		(4.51)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989
decennial census data are used for 1990. Demo-Detail postcensal population estimates are used for 1991-92.

NON-FIREARM SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
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WHITE MALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.0
5-9	1	0.01	0	0.00	4	0.05	1	0.01	2	0.03	0	0.00	4	0.0
10-14	64	0.94	59	0.87	62	0.91	52	0.75	75	1.07	65	0.90	77	1.0
15-19	503	6.38	502	6.42	519	6.74	483	6.43	435	5.89	387	5.49	388	5.5
20-24	921	10.50	879	10.33	775	9.38	743	9.21	748	9.34	706	8.83	716	9.0
25-29	1068	11.50	1002	10.84	968	10.57	940	10.38	844	9.45	875	10.14	836	9.9
30-34	1016	11.73	995	11.24	1012	11.24	950	10.44	956	10.45	1091	11.76	1046	11.2
35-39	847	10.69	830	10.54	877	10.95	884	10.80	967	11.59	976	11.33	1018	11.5
40-44	534	8.70	636	9.51	620	8.97	656	9.08	733	9.80	784	9.86	844	10.6
45-49	463	9.20	486	9.34	445	8.09	506	8.86	533	9.11	538	8.98	586	8.9
50-54	427	9.35	390	8.54	348	7.49	366	7.73	394	8.25	442	9.00	412	8.1
55-59	433	9.20	421	9.09	375	8.30	361	8.15	328	7.45	346	7.92	327	7.4
60-64	352	7.81	363	8.14	318	7.11	343	7.73	339	7.69	357	8.12	336	7.7
65-69	312	8.10	309	7.85	325	8.22	305	7.61	283	6.99	276	6.87	268	6.7
70-74	314	10.84	304	10.34	271	9.03	272	8.94	257	8.34	253	7.91	227	6.8
75-79	259	13.17	286	14.15	277	13.36	239	11.23	241	11.13	223	9.88	251	10.8
80-84	176	16.20	192	17.12	197	17.02	196	16.34	203	16.47	206	16.10	205	15.4
85+	172	24.55	194	27.09	171	23.50	173	23.22	158	20.79	185	23.32	170	20.7
UNK AGE	4		7		10		10		3		8		7	
TOTAL*	7866	7.92	7855	7.85	7574	7.52	7480	7.37	7499	7.34	7718	7.47	7718	7.4
AGEADJ**		(7.38)		(7.29)		(6.98)		(6.86)		(6.85)		(6.95)		(6.8

WHITE FEMALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.0
5-9	0	0.00	0	0.00	1	0.01	1	0.01	0	0.00	0	0.00	0	0.0
10-14	23	0.36	18	0.28	26	0.40	23	0.35	25	0.38	24	0.35	40	0.5
15-19	164	2.18	186	2.51	183	2.51	172	2.42	119	1.71	136	2.04	128	1.9
20-24	204	2.41	178	2.17	190	2.40	154	2.00	153	2.01	172	2.26	144	1.9
25-29	268	2.96	268	2.97	263	2.94	264	2.99	207	2.38	234	2.78	187	2.2
30-34	330	3.85	365	4.17	338	3.80	330	3.67	334	3.69	314	3.43	332	3.6
35-39	387	4.87	341	4.33	339	4.24	348	4.26	355	4.27	353	4.12	355	4.0
40-44	348	5.57	364	5.37	332	4.75	311	4.27	336	4.47	355	4.45	389	4.9
45-49	314	6.08	294	5.51	321	5.70	282	4.83	250	4.18	340	5.56	308	4.6
50-54	295	6.17	301	6.31	233	4.81	238	4.83	227	4.57	234	4.58	269	5.1
55-59	290	5.68	259	5.18	253	5.20	238	5.00	250	5.29	235	5.03	200	4.2
60-64	299	5.79	258	5.05	236	4.62	213	4.23	223	4.49	208	4.23	216	4.4
65-69	207	4.41	230	4.81	222	4.61	212	4.34	194	3.93	186	3.80	177	3.6
70-74	210	5.31	190	4.75	193	4.76	144	3.53	197	4.79	147	3.48	151	3.4
75-79	191	6.10	167	5.23	166	5.10	138	4.16	153	4.56	143	4.17	154	4.4
80-84	121	5.77	116	5.36	117	5.26	98	4.28	121	5.18	105	4.37	122	4.9
85+	83	4.60	72	3.87	77	4.04	106	5.41	97	4.85	116	5.56	113	5.2
UNK AGE	1		2		1		1		2		2		2	
TOTAL*	3735	3.59	3609	3.45	3491	3.31	3273	3.09	3243	3.04	3304	3.07	3287	3.0
AGEADJ**		(3.25)		(3.13)		(3.00)		(2.79)		(2.68)		(2.76)		(2.6

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989
decennial census data are used for 1990 Demo-Detail postcensal 17 population estimates are used for 1991-92

NON-FIREARM SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
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BLACK MALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.0
5-9	1	0.08	0	0.00	0	0.00	1	0.07	1	0.07	1	0.07	0	0.0
10-14	10	0.78	15	1.18	8	0.63	12	0.92	6	0.45	12	0.87	11	0.7
15-19	34	2.44	36	2.58	41	2.94	44	3.19	37	2.70	44	3.30	30	2.2
20-24	81	5.86	93	6.84	98	7.35	111	8.46	76	5.85	83	6.36	78	5.9
25-29	131	9.96	129	9.76	126	9.49	143	10.78	126	9.53	107	8.14	111	8.5
30-34	122	10.68	122	10.25	133	10.85	140	11.16	124	9.76	131	10.13	123	9.4
35-39	95	10.03	77	7.84	97	9.49	93	8.76	93	8.50	97	8.47	103	8.6
40-44	37	5.39	43	5.90	29	3.77	54	6.56	61	7.03	63	6.63	79	7.9
45-49	24	4.13	34	5.67	27	4.37	23	3.63	38	5.89	39	5.90	48	6.8
50-54	16	3.18	19	3.76	22	4.29	15	2.87	30	5.66	20	3.68	24	4.2
55-59	20	4.22	11	2.34	17	3.64	12	2.59	9	1.96	19	4.10	9	1.9
60-64	15	3.61	19	4.55	9	2.15	13	3.11	11	2.63	15	3.56	15	3.5
65-69	10	2.92	17	4.89	12	3.40	11	3.08	7	1.94	11	3.00	12	3.2
70-74	8	3.24	6	2.42	2	0.80	11	4.39	9	3.56	6	2.27	6	2.2
75-79	4	2.35	5	2.89	6	3.42	5	2.82	2	1.12	5	2.76	3	1.6
80-84	4	4.45	5	5.43	3	3.19	1	1.04	2	2.03	1	0.99	5	4.8
85+	3	4.80	1	1.57	2	3.11	2	3.06	3	4.53	3	4.40	1	1.4
UNK AGE	3		1		1		2		0		2		0	
TOTAL*	618	4.51	633	4.56	633	4.50	693	4.86	635	4.40	659	4.48	658	4.3
AGEADJ**		(4.54)		(4.62)		(4.49)		(4.82)		(4.49)		(4.55)		(4.4

BLACK FEMALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.0
5-9	1	0.08	0	0.00	0	0.00	0	0.00	1	0.07	0	0.00	0	0.0
10-14	2	0.16	3	0.24	7	0.56	6	0.47	3	0.23	3	0.22	3	0.2
15-19	15	1.09	19	1.38	18	1.31	21	1.55	9	0.67	9	0.69	8	0.6
20-24	21	1.44	18	1.26	19	1.35	22	1.60	17	1.25	15	1.10	16	1.1
25-29	26	1.79	29	1.99	32	2.18	37	2.53	34	2.33	34	2.36	25	1.7
30-34	34	2.59	35	2.57	35	2.50	35	2.45	33	2.28	24	1.63	34	2.2
35-39	17	1.53	22	1.91	18	1.51	26	2.11	31	2.45	26	1.97	29	2.1
40-44	15	1.84	15	1.74	23	2.54	19	1.97	27	2.66	20	1.81	33	2.8
45-49	10	1.43	9	1.25	16	2.16	15	1.99	15	1.95	13	1.65	20	2.3
50-54	16	2.61	11	1.79	12	1.92	16	2.51	13	2.01	13	1.95	11	1.5
55-59	10	1.70	2	0.34	7	1.20	4	0.69	9	1.55	6	1.02	7	1.1
60-64	13	2.40	7	1.28	7	1.27	7	1.27	4	0.72	6	1.08	5	0.8
65-69	3	0.64	5	1.05	6	1.24	8	1.62	7	1.40	5	0.99	4	0.7
70-74	4	1.07	9	2.39	1	0.26	0	0.00	6	1.56	7	1.75	4	0.9
75-79	5	1.79	2	0.70	3	1.02	2	0.66	2	0.66	1	0.32	0	0.0
80-84	1	0.60	1	0.58	2	1.13	1	0.54	0	0.00	2	1.02	1	0.5
85+	0	0.00	0	0.00	0	0.00	0	0.00	2	1.28	1	0.61	2	1.1
UNK AGE	0		0		1		0		0		0		2	
TOTAL*	193	1.26	187	1.21	207	1.32	219	1.38	213	1.33	185	1.13	204	1.2
AGEADJ**		(1.29)		(1.21)		(1.35)		(1.41)		(1.34)		(1.14)		(1.2

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989
decennial census data are used for 1990. Demo-Detail postcensal population estimates are used for 1991-92

NON-FIREARM SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
E950-E954 E955.5-E959

OTHER MALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.0
5-9	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	0.4
10-14	8	2.38	2	0.58	9	2.51	4	1.07	5	1.29	5	1.19	1	0.2
15-19	19	5.47	23	6.23	25	6.39	33	8.05	33	7.80	31	7.48	27	6.4
20-24	40	10.67	48	12.43	27	6.77	44	10.54	53	12.21	36	7.81	49	10.2
25-29	42	10.84	32	7.88	31	7.31	40	9.06	51	11.26	42	9.07	47	9.9
30-34	22	5.88	26	6.58	37	8.95	25	5.77	39	8.72	27	5.72	35	7.1
35-39	21	6.74	19	5.71	24	6.73	19	5.00	28	7.06	18	4.26	29	6.4
40-44	11	4.58	17	6.46	9	3.15	13	4.17	20	6.02	18	4.99	19	5.0
45-49	10	5.31	9	4.47	11	5.10	10	4.34	10	4.11	19	7.27	17	6.0
50-54	10	6.96	11	7.12	11	6.58	11	6.11	6	3.16	12	5.88	10	4.6
55-59	7	6.01	6	4.88	7	5.39	4	2.90	15	10.41	16	10.38	7	4.2
60-64	8	7.87	8	7.52	4	3.61	12	10.39	15	12.55	14	10.95	8	6.0
65-69	12	15.63	13	15.63	5	5.58	11	11.51	9	9.06	8	7.62	7	6.4
70-74	5	8.96	10	17.21	6	9.90	9	14.13	5	7.52	11	14.89	5	6.2
75-79	3	7.87	5	12.48	4	9.54	5	11.42	9	19.94	7	14.32	9	17.3
80-84	3	15.98	7	34.32	2	9.01	5	20.85	2	7.91	4	14.83	5	17.1
85+	3	25.45	8	63.61	3	22.43	4	28.01	5	33.04	3	17.71	2	11.1
UNK AGE	0		1		0		0		0		1		0	
TOTAL*	224	5.85	245	6.06	215	5.04	249	5.54	305	6.52	272	5.51	279	5.4
AGEADJ**		(5.98)		(6.21)		(5.06)		(5.68)		(6.58)		(5.79)		(5.4

OTHER FEMALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.0
5-9	1	0.31	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.2
10-14	2	0.63	2	0.61	0	0.00	1	0.28	2	0.54	0	0.00	0	0.0
15-19	10	3.12	7	2.05	12	3.31	15	3.93	14	3.56	12	3.07	15	3.7
20-24	11	3.14	13	3.60	7	1.88	12	3.07	10	2.47	11	2.54	21	4.6
25-29	14	3.53	12	2.91	17	3.97	19	4.27	10	2.19	15	3.20	19	3.9
30-34	11	2.74	11	2.60	12	2.71	10	2.16	19	3.98	20	4.00	19	3.6
35-39	11	3.11	16	4.26	10	2.51	15	3.56	13	2.97	15	3.23	19	3.9
40-44	11	4.17	13	4.47	19	5.95	10	2.86	8	2.14	15	3.66	13	3.0
45-49	6	3.08	14	6.66	7	3.08	9	3.67	5	1.92	11	3.87	12	3.8
50-54	7	4.29	12	6.99	5	2.76	7	3.65	8	3.97	10	4.60	12	5.1
55-59	7	4.82	8	5.25	3	1.88	8	4.81	8	4.66	5	2.77	5	2.6
60-64	5	4.05	7	5.31	0	0.00	11	7.45	5	3.26	8	4.91	10	5.8
65-69	5	5.32	6	5.92	4	3.67	4	3.42	5	4.07	3	2.26	8	5.6
70-74	6	8.97	4	5.60	8	10.57	4	4.98	6	7.14	5	5.38	3	2.9
75-79	3	6.87	1	2.13	0	0.00	5	9.34	4	7.15	8	13.09	6	8.9
80-84	2	8.62	0	0.00	9	34.28	7	25.06	4	13.70	3	9.07	4	11.0
85+	3	17.21	5	26.89	5	25.07	3	13.96	5	22.03	5	19.23	2	7.1
UNK AGE	0		0		0		0		0		0		0	
TOTAL*	115	2.90	131	3.13	118	2.67	140	3.00	126	2.60	146	2.85	169	3.1
AGEADJ**		(2.96)		(3.22)		(2.61)		(3.04)		(2.59)		(2.79)		(3.1

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989
decennial census data are used for 1990. Demo Detail postcensal population estimates are used for 1991-92

FIREARM SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
E955.0-.4

ALL RACES / BOTH SEXES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	1	0.01	1	0.01	1	0.01	1	0.01	2	0.01	0	0.00	3	0.02
10-14	141	0.86	151	0.92	125	0.76	138	0.82	142	0.83	156	0.88	172	0.95
15-19	1151	6.11	1129	6.03	1261	6.81	1241	6.84	1332	7.45	1280	7.46	1251	7.33
20-24	1946	9.35	1793	8.85	1754	8.90	1775	9.21	1833	9.58	1829	9.54	1822	9.56
25-29	1880	8.58	1900	8.69	1918	8.82	1856	8.61	1920	9.00	1779	8.58	1639	8.12
30-34	1747	8.53	1729	8.24	1788	8.36	1776	8.19	1853	8.49	1821	8.21	1719	7.72
35-39	1474	7.93	1494	8.03	1544	8.13	1552	7.98	1611	8.12	1604	7.81	1624	7.70
40-44	1205	8.38	1245	7.97	1264	7.81	1331	7.85	1434	8.15	1423	7.59	1455	7.74
45-49	1068	9.01	1085	8.84	1071	8.28	1109	8.27	1208	8.79	1246	8.84	1260	8.20
50-54	1070	9.93	1032	9.56	1003	9.13	1035	9.24	981	8.67	1046	8.98	1029	8.54
55-59	1149	10.32	1131	10.31	1058	9.87	1023	9.71	1073	10.23	986	9.46	986	9.40
60-64	1174	10.81	1150	10.67	1112	10.30	1093	10.20	1094	10.30	1020	9.64	974	9.33
65-69	1158	12.15	1177	12.10	1144	11.66	1191	11.96	1161	11.53	1083	10.80	1079	10.82
70-74	1160	15.27	1148	14.92	1097	14.04	1093	13.83	1084	13.58	1083	13.12	1087	12.81
75-79	968	17.21	1003	17.40	991	16.82	955	15.87	1050	17.20	1008	16.03	964	15.03
80-84	543	15.59	612	17.03	685	18.51	602	15.76	700	17.91	710	17.57	679	16.37
85+	314	11.48	354	12.58	347	12.06	406	13.73	401	13.27	445	14.10	424	13.01
UNK AGE	4		2		6		1		6		7		2	
TOTAL*	18153	7.56	18136	7.48	18169	7.43	18178	7.36	18885	7.59	18526	7.35	18169	7.12
AGEADJ**		(6.92)		(6.81)		(6.77)		(6.74)		(6.96)		(6.76)		(6.58)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989 and
decennial census data are used for 1990. Demo-Detail postcensal population estimates are used for 1991-92.

FIREARM SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
E955.0-.4

ALL RACES / MALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	1	0.01	1	0.01	1	0.01	1	0.01	1	0.01	0	0.00	2	0.02
10-14	114	1.35	122	1.45	97	1.15	113	1.31	105	1.20	125	1.38	135	1.46
15-19	996	10.35	964	10.06	1083	11.42	1077	11.58	1151	12.55	1126	12.80	1115	12.72
20-24	1682	15.97	1564	15.24	1575	15.76	1571	16.04	1627	16.70	1660	17.01	1641	16.91
25-29	1584	14.41	1616	14.73	1654	15.16	1619	14.95	1646	15.38	1539	14.79	1441	14.21
30-34	1465	14.39	1448	13.87	1502	14.11	1482	13.74	1553	14.30	1549	14.03	1463	13.17
35-39	1227	13.36	1240	13.49	1281	13.65	1305	13.56	1325	13.47	1327	13.03	1372	13.09
40-44	970	13.73	1015	13.21	1038	13.03	1079	12.91	1197	13.80	1192	12.87	1216	13.09
45-49	883	15.22	863	14.37	858	13.54	916	13.94	1002	14.87	1018	14.73	1038	13.77
50-54	875	16.79	880	16.83	831	15.60	864	15.90	823	14.98	891	15.75	864	14.75
55-59	957	18.07	945	18.08	895	17.50	845	16.79	902	18.01	858	17.21	840	16.72
60-64	996	19.82	985	19.76	951	19.01	920	18.50	944	19.08	892	18.03	844	17.26
65-69	1010	23.66	1022	23.41	1019	23.17	1056	23.66	1003	22.25	923	20.55	940	21.01
70-74	1041	32.54	1043	32.12	982	29.66	1000	29.79	973	28.62	978	27.64	967	26.49
75-79	895	41.16	919	41.14	912	39.81	883	37.60	985	41.23	946	38.02	889	34.82
80-84	512	42.85	574	46.52	649	50.95	561	42.50	655	48.31	667	47.38	635	43.61
85+	306	39.48	336	42.41	322	39.98	388	47.04	388	46.12	423	48.16	398	43.77
UNK AGE	4		2		6		0		5		6		2	
TOTAL*	15518	13.27	15539	13.17	15656	13.14	15680	13.04	16285	13.43	16120	13.11	15802	12.69
AGEADJ**		(12.26)		(12.10)		(12.08)		(12.02)		(12.39)		(12.14)		(11.79)

ALL RACES / FEMALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	0	0.00	0	0.00	0	0.00	0	0.00	1	0.01	0	0.00	1	0.01
10-14	27	0.34	29	0.36	28	0.35	25	0.31	37	0.44	31	0.36	37	0.42
15-19	155	1.68	165	1.80	178	1.97	164	1.85	181	2.08	154	1.84	136	1.64
20-24	264	2.57	229	2.29	179	1.84	204	2.15	206	2.19	169	1.79	181	1.94
25-29	296	2.71	284	2.61	264	2.44	237	2.21	274	2.58	240	2.32	198	1.97
30-34	282	2.74	281	2.67	286	2.66	294	2.70	300	2.73	272	2.44	256	2.29
35-39	247	2.62	254	2.70	263	2.74	247	2.52	286	2.86	277	2.68	252	2.37
40-44	235	3.21	230	2.90	226	2.75	252	2.93	237	2.66	231	2.43	239	2.51
45-49	185	3.05	222	3.54	213	3.23	193	2.82	206	2.94	228	3.17	222	2.84
50-54	195	3.51	152	2.73	172	3.04	171	2.97	158	2.71	155	2.59	165	2.66
55-59	192	3.29	186	3.24	163	2.91	178	3.23	171	3.12	128	2.35	146	2.67
60-64	178	3.05	165	2.85	161	2.78	173	3.01	150	2.64	128	2.27	130	2.34
65-69	148	2.81	155	2.89	125	2.31	135	2.46	158	2.84	160	2.89	139	2.53
70-74	119	2.71	105	2.36	115	2.55	93	2.05	111	2.42	105	2.23	120	2.48
75-79	73	2.12	84	2.38	79	2.19	72	1.96	65	1.75	62	1.63	75	1.94
80-84	31	1.36	38	1.61	36	1.48	41	1.64	45	1.76	43	1.63	44	1.63
85+	8	0.41	18	0.89	25	1.21	18	0.84	13	0.60	22	0.97	26	1.11
UNK AGE	0		0		0		1		1		1		0	
TOTAL*	2635	2.14	2597	2.09	2513	2.00	2498	1.97	2600	2.04	2406	1.86	2367	1.81
AGEADJ**		(2.07)		(2.01)		(1.93)		(1.90)		(1.97)		(1.79)		(1.73)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989
decennial census data are used for 1990. Demo-Detail postcensal population estimates are used for 1991-92

FIREARM SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
E955.0-.4

WHITE / BOTH SEXES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	1	0.01	1	0.01	1	0.01	0	0.00	2	0.01	0	0.00	2	0.01
10-14	125	0.94	141	1.07	107	0.81	121	0.90	119	0.87	139	0.98	148	1.03
15-19	1049	6.81	991	6.50	1117	7.45	1088	7.44	1147	7.99	1105	8.05	1015	7.45
20-24	1750	10.14	1592	9.53	1524	9.41	1502	9.52	1580	10.10	1572	10.07	1544	10.01
25-29	1668	9.09	1670	9.14	1709	9.44	1643	9.18	1680	9.52	1520	8.92	1441	8.72
30-34	1569	9.10	1550	8.80	1554	8.68	1570	8.68	1662	9.14	1640	8.90	1517	8.21
35-39	1338	8.43	1346	8.54	1410	8.81	1396	8.54	1457	8.75	1470	8.56	1472	8.36
40-44	1130	9.13	1157	8.59	1172	8.43	1222	8.43	1335	8.90	1331	8.35	1349	8.51
45-49	991	9.72	1018	9.66	995	8.94	1042	9.03	1126	9.52	1155	9.54	1191	9.01
50-54	1014	10.85	975	10.44	943	9.93	984	10.18	919	9.43	986	9.84	968	9.35
55-59	1098	11.19	1084	11.25	1006	10.72	974	10.60	1017	11.14	927	10.25	949	10.46
60-64	1124	11.62	1102	11.51	1058	11.05	1038	10.95	1044	11.13	962	10.33	925	10.10
65-69	1096	12.82	1123	12.88	1091	12.44	1125	12.65	1113	12.39	1034	11.59	1040	11.76
70-74	1109	16.19	1099	15.84	1061	15.05	1057	14.83	1039	14.45	1043	14.05	1048	13.75
75-79	940	18.45	968	18.56	958	17.97	931	17.11	1027	18.61	969	17.03	934	16.11
80-84	527	16.55	590	17.97	673	19.90	586	16.81	684	19.18	684	18.57	653	17.27
85+	304	12.13	344	13.36	340	12.92	391	14.46	387	14.02	433	15.03	408	13.71
UNK AGE	3		2		6		1		6		4		2	
TOTAL*	16836	8.28	16753	8.18	16725	8.11	16671	8.03	17344	8.31	16974	8.04	16606	7.80
AGEADJ**		(7.46)		(7.32)		(7.26)		(7.22)		(7.47)		(7.27)		(7.06)

BLACK / BOTH SEXES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	0	0.00	0	0.00	0	0.00	1	0.04	0	0.00	0	0.00	1	0.04
10-14	13	0.51	7	0.28	14	0.55	14	0.54	20	0.76	16	0.59	19	0.68
15-19	79	2.85	107	3.86	108	3.91	110	4.03	137	5.05	130	4.93	185	7.01
20-24	150	5.28	152	5.44	181	6.61	217	8.07	189	7.12	198	7.43	219	8.16
25-29	175	6.32	183	6.58	167	5.98	160	5.74	197	7.09	203	7.36	167	6.15
30-34	147	5.98	154	6.04	192	7.31	174	6.48	161	5.92	146	5.28	174	6.23
35-39	106	5.15	126	5.91	111	5.02	125	5.45	128	5.43	114	4.63	125	4.87
40-44	61	4.07	71	4.46	79	4.71	95	5.31	83	4.41	70	3.41	82	3.83
45-49	67	5.23	54	4.09	63	4.64	56	4.03	75	5.31	80	5.51	52	3.37
50-54	50	4.48	48	4.28	48	4.21	47	4.05	48	4.08	51	4.21	48	3.82
55-59	42	3.96	40	3.78	46	4.38	44	4.22	49	4.71	50	4.77	31	2.93
60-64	42	4.39	41	4.25	46	4.75	50	5.15	43	4.42	43	4.39	46	4.68
65-69	57	7.04	54	6.56	47	5.61	61	7.16	44	5.12	45	5.18	36	4.10
70-74	44	7.07	45	7.20	35	5.58	32	5.06	40	6.27	35	5.28	33	4.84
75-79	24	5.34	34	7.39	29	6.18	24	5.02	23	4.76	36	7.36	30	6.01
80-84	15	5.87	19	7.20	11	4.05	16	5.69	14	4.86	23	7.75	19	6.29
85+	9	4.48	8	3.87	5	2.36	15	6.88	12	5.39	10	4.32	14	5.87
UNK AGE	0		0		0		0		0		3		0	
TOTAL*	1081	3.73	1143	3.89	1182	3.97	1241	4.11	1263	4.14	1253	4.03	1281	4.05
AGEADJ**		(3.78)		(3.90)		(4.01)		(4.14)		(4.21)		(4.10)		(4.11)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989
decennial census data are used for 1990. Demo-Detail postcensal population estimates are used for 1991-92.

FIREARM SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
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OTHER / BOTH SEXES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
10-14	3	0.46	3	0.44	4	0.57	3	0.41	3	0.39	1	0.12	5	0.57
15-19	23	3.45	31	4.36	36	4.78	43	5.43	48	5.88	45	5.58	51	6.25
20-24	46	6.34	49	6.56	49	6.35	56	6.93	64	7.62	59	6.60	59	6.32
25-29	37	4.72	47	5.74	42	4.93	53	5.98	43	4.73	56	6.01	31	3.24
30-34	31	4.00	25	3.06	42	4.91	32	3.57	30	3.24	35	3.60	28	2.78
35-39	30	4.51	22	3.11	23	3.04	31	3.87	26	3.12	20	2.26	27	2.90
40-44	14	2.78	17	3.07	13	2.15	14	2.12	16	2.27	22	2.86	24	2.97
45-49	10	2.61	13	3.16	13	2.93	11	2.31	7	1.39	11	2.02	17	2.86
50-54	6	1.95	9	2.76	12	3.44	4	1.08	14	3.58	9	2.14	13	2.91
55-59	9	3.44	7	2.54	6	2.07	5	1.64	7	2.22	9	2.69	6	1.69
60-64	8	3.55	7	2.94	8	3.19	5	1.90	7	2.57	15	5.16	3	0.99
65-69	5	2.93	0	0.00	6	3.02	5	2.35	4	1.80	4	1.68	3	1.19
70-74	7	5.70	4	3.09	1	0.73	4	2.78	5	3.32	5	3.00	6	3.32
75-79	4	4.89	1	1.15	4	4.34	0	0.00	0	0.00	3	2.73	0	0.00
80-84	1	2.38	3	6.66	1	2.06	0	0.00	2	3.67	3	5.00	7	10.74
85+	1	3.42	2	6.42	2	6.00	0	0.00	2	5.29	2	4.66	2	4.34
UNK AGE	1		0		0		0		0		0		0	
TOTAL*	236	3.03	240	2.92	262	3.02	266	2.90	278	2.92	299	2.97	282	2.68
AGEADJ**		(2.97)		(2.87)		(2.98)		(2.83)		(2.91)		(2.98)		(2.71)

TOTAL / BOTH SEXES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	1	0.01	1	0.01	1	0.01	1	0.01	2	0.01	0	0.00	3	0.02
10-14	141	0.86	151	0.92	125	0.76	138	0.82	142	0.83	156	0.88	172	0.95
15-19	1151	6.11	1129	6.03	1261	6.81	1241	6.84	1332	7.45	1280	7.46	1251	7.33
20-24	1946	9.35	1793	8.85	1754	8.90	1775	9.21	1833	9.58	1829	9.54	1822	9.56
25-29	1880	8.58	1900	8.69	1918	8.82	1856	8.61	1920	9.00	1779	8.58	1639	8.12
30-34	1747	8.53	1729	8.24	1788	8.36	1776	8.19	1853	8.49	1821	8.21	1719	7.72
35-39	1474	7.93	1494	8.03	1544	8.13	1552	7.98	1611	8.12	1604	7.81	1624	7.70
40-44	1205	8.38	1245	7.97	1264	7.81	1331	7.85	1434	8.15	1423	7.59	1455	7.74
45-49	1068	9.01	1085	8.84	1071	8.28	1109	8.27	1208	8.79	1246	8.84	1260	8.20
50-54	1070	9.93	1032	9.56	1003	9.13	1035	9.24	981	8.67	1046	8.98	1029	8.54
55-59	1149	10.32	1131	10.31	1058	9.87	1023	9.71	1073	10.23	986	9.46	986	9.40
60-64	1174	10.81	1150	10.67	1112	10.30	1093	10.20	1094	10.30	1020	9.64	974	9.33
65-69	1158	12.15	1177	12.10	1144	11.66	1191	11.96	1161	11.53	1083	10.80	1079	10.82
70-74	1160	15.27	1148	14.92	1097	14.04	1093	13.83	1084	13.58	1083	13.12	1087	12.81
75-79	968	17.21	1003	17.40	991	16.82	955	15.87	1050	17.20	1008	16.03	964	15.03
80-84	543	15.59	612	17.03	685	18.51	602	15.76	700	17.91	710	17.57	679	16.37
85+	314	11.48	354	12.58	347	12.06	406	13.73	401	13.27	445	14.10	424	13.01
UNK AGE	4		2		6		1		6		7		2	
TOTAL*	18153	7.56	18136	7.48	18169	7.43	18178	7.36	18885	7.59	18526	7.35	18169	7.12
AGEADJ**		(6.92)		(6.81)		(6.77)		(6.74)		(6.96)		(6.76)		(6.58)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989
decennial census data are used for 1990. Demo-Detail postcensal population estimates are used for 1991-92.

FIREARM SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
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WHITE MALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	1	0.01	1	0.01	1	0.01	0	0.00	1	0.01	0	0.00	1	0.01
10-14	102	1.50	114	1.68	84	1.23	99	1.43	87	1.24	110	1.52	114	1.54
15-19	911	11.55	850	10.88	954	12.40	941	12.53	987	13.37	964	13.67	901	12.85
20-24	1506	17.16	1386	16.28	1370	16.59	1331	16.50	1399	17.47	1419	17.76	1387	17.54
25-29	1403	15.11	1417	15.33	1470	16.05	1428	15.76	1435	16.07	1316	15.25	1261	15.07
30-34	1320	15.24	1296	14.64	1296	14.39	1304	14.33	1390	15.20	1381	14.89	1286	13.82
35-39	1106	13.96	1110	14.10	1171	14.62	1178	14.39	1197	14.35	1214	14.09	1233	13.95
40-44	907	14.77	937	14.00	961	13.90	991	13.72	1111	14.86	1111	13.97	1124	14.19
45-49	820	16.30	801	15.39	799	14.53	855	14.98	935	15.98	939	15.68	983	15.00
50-54	827	18.11	830	18.17	782	16.83	822	17.36	768	16.09	840	17.11	810	15.95
55-59	921	19.57	903	19.49	853	18.88	806	18.19	858	19.48	806	18.45	806	18.36
60-64	957	21.23	946	21.21	904	20.21	874	19.69	903	20.48	843	19.17	803	18.52
65-69	957	24.85	974	24.75	973	24.60	999	24.91	964	23.82	880	21.89	909	22.76
70-74	999	34.50	997	33.90	950	31.66	967	31.78	931	30.23	943	29.47	931	28.23
75-79	870	44.24	889	44.00	880	42.44	861	40.47	962	44.43	909	40.26	862	37.21
80-84	498	45.85	554	49.40	637	55.04	548	45.68	640	51.94	643	50.25	610	46.08
85+	296	42.24	326	45.52	315	43.29	374	50.19	376	49.49	412	51.94	385	46.88
UNK AGE	3		2		6		0		5		4		2	
TOTAL*	14404	14.49	14333	14.32	14406	14.29	14378	14.16	14949	14.64	14734	14.26	14408	13.81
AGEADJ**		(13.12)		(12.88)		(12.85)		(12.78)		(13.19)		(12.91)		(12.52)

WHITE FEMALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	0	0.00	0	0.00	0	0.00	0	0.00	1	0.01	0	0.00	1	0.01
10-14	23	0.36	27	0.42	23	0.36	22	0.34	32	0.48	29	0.42	34	0.48
15-19	138	1.84	141	1.90	163	2.23	147	2.07	160	2.30	141	2.12	114	1.72
20-24	244	2.88	206	2.51	154	1.94	171	2.22	181	2.37	153	2.01	157	2.09
25-29	265	2.93	253	2.81	239	2.67	215	2.43	245	2.81	204	2.42	180	2.21
30-34	249	2.90	254	2.90	258	2.90	266	2.96	272	3.01	259	2.83	231	2.52
35-39	232	2.92	236	2.99	239	2.99	218	2.67	260	3.13	256	2.99	239	2.73
40-44	223	3.57	220	3.24	211	3.02	231	3.17	224	2.98	220	2.76	225	2.83
45-49	171	3.31	217	4.07	196	3.48	187	3.20	191	3.20	216	3.53	208	3.12
50-54	187	3.91	145	3.04	161	3.32	162	3.29	151	3.04	146	2.86	158	2.99
55-59	177	3.47	181	3.62	153	3.14	168	3.53	159	3.36	121	2.59	143	3.05
60-64	167	3.23	156	3.05	154	3.02	164	3.26	141	2.84	119	2.42	122	2.53
65-69	139	2.96	149	3.11	118	2.45	126	2.58	149	3.02	154	3.14	131	2.70
70-74	110	2.78	102	2.55	111	2.74	90	2.20	108	2.63	100	2.37	117	2.71
75-79	70	2.24	79	2.47	78	2.39	70	2.11	65	1.94	60	1.75	72	2.07
80-84	29	1.38	36	1.66	36	1.62	38	1.66	44	1.89	41	1.71	43	1.75
85+	8	0.44	18	0.97	25	1.31	17	0.87	11	0.55	21	1.01	23	1.07
UNK AGE	0		0		0		1		1		0		0	
TOTAL*	2432	2.34	2420	2.31	2319	2.20	2293	2.16	2395	2.25	2240	2.08	2198	2.02
AGEADJ**		(2.25)		(2.21)		(2.09)		(2.07)		(2.16)		(1.99)		(1.91)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989
decennial census data are used for 1990. Demo-Detail postcensal population estimates are used for 1991-92

FIREARM SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
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BLACK MALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	0	0.00	0	0.00	0	0.00	1	0.07	0	0.00	0	0.00	1	0.07
10-14	10	0.78	6	0.47	9	0.70	11	0.84	15	1.13	15	1.09	17	1.21
15-19	65	4.67	89	6.38	95	6.82	100	7.25	120	8.76	120	9.01	168	12.58
20-24	136	9.84	136	10.00	160	12.00	192	14.64	171	13.16	188	14.41	202	15.31
25-29	153	11.64	157	11.88	144	10.85	142	10.70	174	13.16	176	13.40	154	11.89
30-34	123	10.76	131	11.01	171	13.95	154	12.27	143	11.26	135	10.44	151	11.55
35-39	96	10.14	113	11.50	93	9.10	103	9.71	106	9.69	96	8.38	113	9.44
40-44	50	7.29	64	8.78	66	8.58	78	9.48	72	8.30	63	6.63	74	7.48
45-49	55	9.47	49	8.17	47	7.60	51	8.05	62	9.61	70	10.59	41	5.83
50-54	45	8.95	43	8.50	38	7.40	39	7.47	44	8.30	43	7.90	44	7.79
55-59	28	5.91	36	7.65	38	8.15	35	7.57	40	8.70	43	9.28	28	5.99
60-64	31	7.46	33	7.91	39	9.32	41	9.80	35	8.37	38	9.01	38	8.98
65-69	49	14.32	48	13.82	40	11.34	53	14.82	35	9.70	39	10.65	28	7.54
70-74	35	14.16	43	17.34	31	12.47	29	11.57	39	15.42	31	11.75	30	10.99
75-79	21	12.35	29	16.76	28	15.98	22	12.41	23	12.87	34	18.77	27	14.66
80-84	13	14.47	17	18.47	11	11.69	13	13.47	13	13.22	21	20.80	18	17.46
85+	9	14.39	8	12.58	5	7.77	14	21.40	10	15.09	9	13.21	11	15.68
UNK AGE	0		0		0		0		0		2		0	
TOTAL*	919	6.70	1002	7.21	1015	7.21	1078	7.56	1102	7.64	1123	7.63	1145	7.64
AGEADJ**		(6.99)		(7.47)		(7.41)		(7.78)		(7.91)		(7.95)		(7.85)

BLACK FEMALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
10-14	3	0.24	1	0.08	5	0.40	3	0.23	5	0.38	1	0.07	2	0.15
15-19	14	1.02	18	1.31	13	0.95	10	0.74	17	1.26	10	0.77	17	1.30
20-24	14	0.96	16	1.12	21	1.50	25	1.82	18	1.33	10	0.73	17	1.25
25-29	22	1.51	26	1.78	23	1.57	18	1.23	23	1.58	27	1.87	13	0.92
30-34	24	1.83	23	1.69	21	1.50	20	1.40	18	1.24	11	0.75	23	1.55
35-39	10	0.90	13	1.13	18	1.51	22	1.79	22	1.74	18	1.36	12	0.88
40-44	11	1.35	7	0.81	13	1.43	17	1.76	11	1.09	7	0.63	8	0.70
45-49	12	1.72	5	0.69	16	2.16	5	0.66	13	1.69	10	1.27	11	1.31
50-54	5	0.81	5	0.81	10	1.60	8	1.26	4	0.62	8	1.20	4	0.58
55-59	14	2.38	4	0.68	8	1.37	9	1.55	9	1.55	7	1.19	3	0.51
60-64	11	2.03	8	1.46	7	1.27	9	1.63	8	1.45	5	0.90	8	1.43
65-69	8	1.71	6	1.26	7	1.44	8	1.62	9	1.80	6	1.19	8	1.58
70-74	9	2.40	2	0.53	4	1.06	3	0.79	1	0.26	4	1.00	3	0.73
75-79	3	1.07	5	1.74	1	0.34	2	0.66	0	0.00	2	0.65	3	0.95
80-84	2	1.21	2	1.16	0	0.00	3	1.63	1	0.53	2	1.02	1	0.50
85+	0	0.00	0	0.00	0	0.00	1	0.66	2	1.28	1	0.61	3	1.78
UNK AGE	0		0		0		0		0		1		0	
TOTAL*	162	1.06	141	0.91	167	1.06	163	1.03	161	1.00	130	0.79	136	0.82
AGEADJ**		(1.07)		(0.89)		(1.11)		(1.03)		(1.02)		(0.80)		(0.82)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989
decennial census data are used for 1990. Demo-Detail postcensal population estimates are used for 1991-92

FIREARM SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
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OTHER MALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
10-14	2	0.59	2	0.58	4	1.12	3	0.80	3	0.77	0	0.00	4	0.90
15-19	20	5.76	25	6.77	34	8.70	36	8.78	44	10.40	42	10.14	46	10.99
20-24	40	10.67	42	10.87	45	11.28	48	11.50	57	13.13	53	11.50	52	10.84
25-29	28	7.23	42	10.35	40	9.43	49	11.10	37	8.17	47	10.15	26	5.48
30-34	22	5.88	21	5.31	35	8.46	24	5.54	20	4.47	33	6.99	26	5.30
35-39	25	8.03	17	5.11	17	4.76	24	6.32	22	5.55	17	4.02	26	5.82
40-44	13	5.41	14	5.32	11	3.85	10	3.21	14	4.21	18	4.99	18	4.74
45-49	8	4.25	13	6.46	12	5.56	10	4.34	5	2.06	9	3.44	14	4.95
50-54	3	2.09	7	4.53	11	6.58	3	1.67	11	5.80	8	3.92	10	4.67
55-59	8	6.87	6	4.88	4	3.08	4	2.90	4	2.78	9	5.84	6	3.64
60-64	8	7.87	6	5.64	8	7.23	5	4.33	6	5.02	11	8.60	3	2.26
65-69	4	5.21	0	0.00	6	6.69	4	4.19	4	4.03	4	3.81	3	2.75
70-74	7	12.55	3	5.16	1	1.65	4	6.28	3	4.51	4	5.41	6	7.50
75-79	4	10.49	1	2.50	4	9.54	0	0.00	0	0.00	3	6.14	0	0.00
80-84	1	5.33	3	14.71	1	4.50	0	0.00	2	7.91	3	11.12	7	24.06
85+	1	8.48	2	15.90	2	14.95	0	0.00	2	13.22	2	11.81	2	11.11
UNK AGE	1		0		0		0		0		0		0	
TOTAL*	195	5.09	204	5.05	235	5.51	224	4.98	234	5.00	263	5.33	249	4.83
AGEADJ**		(5.08)		(4.99)		(5.47)		(4.84)		(4.96)		(5.37)		(4.88)

OTHER FEMALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
10-14	1	0.31	1	0.30	0	0.00	0	0.00	0	0.00	1	0.25	1	0.23
15-19	3	0.94	6	1.76	2	0.55	7	1.84	4	1.02	3	0.77	5	1.26
20-24	6	1.71	7	1.94	4	1.07	8	2.05	7	1.73	6	1.38	7	1.54
25-29	9	2.27	5	1.21	2	0.47	4	0.90	6	1.31	9	1.92	5	1.04
30-34	9	2.24	4	0.95	7	1.58	8	1.73	10	2.09	2	0.40	2	0.39
35-39	5	1.41	5	1.33	6	1.50	7	1.66	4	0.91	3	0.65	1	0.21
40-44	1	0.38	3	1.03	2	0.63	4	1.14	2	0.53	4	0.98	6	1.40
45-49	2	1.03	0	0.00	1	0.44	1	0.41	2	0.77	2	0.70	3	0.96
50-54	3	1.84	2	1.17	1	0.55	1	0.52	3	1.49	1	0.46	3	1.29
55-59	1	0.69	1	0.66	2	1.25	1	0.60	3	1.75	0	0.00	0	0.00
60-64	0	0.00	1	0.76	0	0.00	0	0.00	1	0.65	4	2.46	0	0.00
65-69	1	1.06	0	0.00	0	0.00	1	0.85	0	0.00	0	0.00	0	0.00
70-74	0	0.00	1	1.40	0	0.00	0	0.00	2	2.38	1	1.08	0	0.00
75-79	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
80-84	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
85+	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
UNK AGE	0		0		0		0		0		0		0	
TOTAL*	41	1.03	36	0.86	27	0.61	42	0.90	44	0.91	36	0.70	33	0.61
AGEADJ**		(0.99)		(0.85)		(0.57)		(0.86)		(0.90)		(0.70)		(0.63)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates; intercensal data are used for 1984-1989
decennial census data are used for 1990. Demo-Detail postcensal population estimates are used for 1991-92

CENTERS FOR DISEASE CONTROL

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

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Perspectives in Disease Prevention and Health Promotion

Suicide — United States, 1970-1980

During the 11-year period 1970-1980, 287,322 suicides occurred in the United States—approximately one every 20 minutes.* The unadjusted suicide rate for this period rose from a low of 11.6 suicides per 100,000 population in 1970 to a high of 13.1/100,000 in 1977, then declined to 11.9/100,000 in 1980. Males had a markedly higher risk of suicide than females, and the differential between rates for males and females continued to widen. Between 1970 and 1980, almost three-fourths (72.8%) of suicides occurred among males, and the suicide rate increased for males while it decreased for females. In 1980, the age-adjusted suicide rate for males (18.0) was more than three times that for females (5.4) (Table 1).

*Suicide deaths for these years were compiled from death certificate information by the National Center for Health Statistics, U.S. Department of Health and Human Services. Suicide deaths of nonresident aliens and U.S. citizens living abroad are excluded from this report. Because suicide varies by age, age-adjusted suicide rates are used in some parts of this report to allow for comparison of rates between populations without concern for age. The age-adjusted rates were computed by the direct method of standardization using the 1940 U.S. population as the standard.

TABLE 1. Age-adjusted suicide rates,* by race, sex, and year — United States, 1970-1980

Year	White			Black and other			All races			Unadjusted rate
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
1970	18.2	7.2	12.4	10.3	3.3	6.5	17.3	6.8	11.8	11.6
1971	18.0	7.4	12.4	10.1	3.8	6.7	17.2	7.0	11.8	11.6
1972	18.4	7.3	12.6	11.8	3.6	7.4	17.8	6.9	12.1	11.9
1973	18.6	7.0	12.5	11.5	3.3	7.1	17.8	6.6	11.9	11.9
1974	18.9	7.0	12.7	11.6	3.2	7.1	18.1	6.6	12.1	12.0
1975	19.6	7.3	13.2	11.9	3.5	7.4	18.8	6.8	12.5	12.6
1976	19.0	7.0	12.7	12.1	3.4	7.4	18.3	6.6	12.1	12.3
1977	20.3	7.1	13.5	12.2	3.6	7.6	19.4	6.7	12.8	13.1
1978	19.0	6.6	12.5	11.9	3.2	7.2	18.2	6.1	11.9	12.3
1979	18.6	6.3	12.2	12.7	3.3	7.7	17.9	5.9	11.7	12.1
1980	18.9	5.7	12.1	11.3	2.8	6.7	18.0	5.4	11.4	11.9

*Age-adjusted rates per 100,000 population computed by the direct method of standardization using the total population for 1940 as the standard population

Suicide — Continued

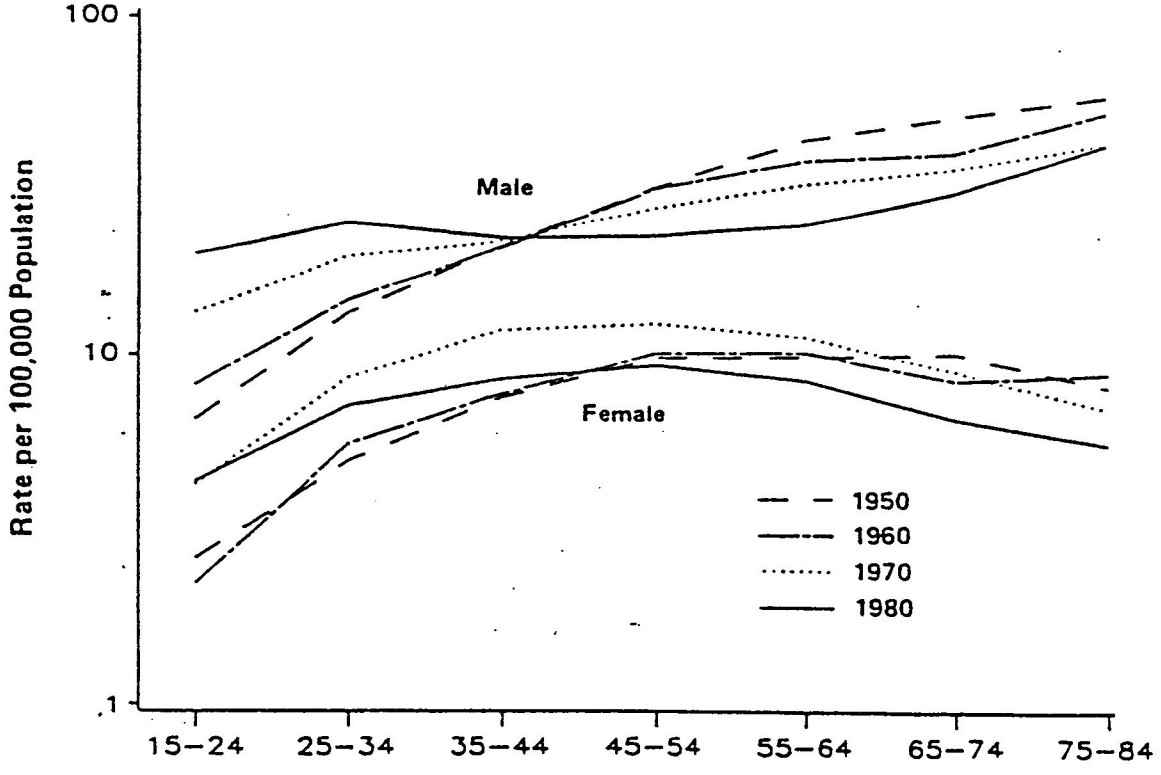
The age-adjusted suicide rate for whites (12.1) was almost twice that for blacks and other races (6.7). White males consistently had the highest suicide rates, with black and other males the second highest, followed by white females and black and other females. In terms of absolute numbers of suicides committed in the United States in 1980, 70% were among white males; 22%, among white females; 6%, among black and other males; and 2%, among black and other females.

While the overall suicide rate changed little, rates for older persons decreased, and rates for younger persons increased. In 1970, the median age of persons who committed suicide was 47.2 years of age; by 1980, the median age had decreased sharply to 39.9 years. In 1970, fewer than one-fourth (22.8%) of males who committed suicide were under age 30 years; by 1980, more than one-third (34.3%) of males who committed suicide were under age 30 years.

The most striking aspect of the change in suicide rates from 1970 to 1980 was the large percentage increase in rates for males in both the 15- to 24-year and 25- to 34-year age groups and the consistent percentage decrease in rates for females in all age groups except the youngest (15-24 years) (Figure 1). Between 1970 and 1980, suicide rates for males 15-24 years of age increased 50%, while those for females in this age group increased only slightly, the only increase for females in any age group. Again, in the 25- to 34-year age group, suicide among males increased almost 30%, while suicide among females in that age group decreased almost 20%.

Within the 15- to 24-year age group, most of the increase in the suicide rate is due to the increase in the suicide rate for white males. Suicide rates increased by 60% for white males

FIGURE 1. Suicide rates, by age group and sex — United States, selected years



Suicide — Continued

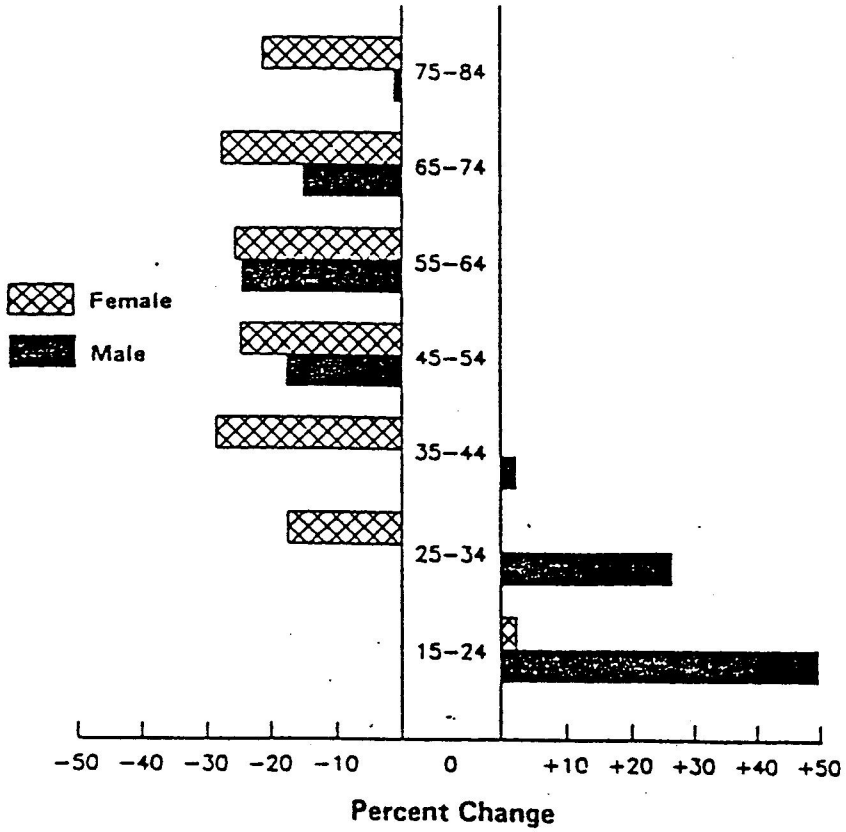
15-19 years of age, and for white males 20-24 years of age, by 44% between 1970 and 1980. As a result of these changes, even though white males had their highest suicide rates in the oldest age group, in absolute numbers, most suicides occurred among young persons. White males ages 15-39 years in 1980 represented one-half of suicides among white males and more than one-third (35.0%) of all suicide deaths in the United States. On the other hand, in both 1970 and 1980, approximately one-fifth of all suicides among white males were among those over 65 years of age.

For males, this pattern of suicide rates by age group has been changing consistently over the past 30 years (Figure 2). In 1950, suicide rates for males were lowest at the youngest ages and increased with each successive age group, attaining the highest rates at the oldest age groups. The 1980 pattern of suicide for males by age had changed so that the curve was relatively flat for all age groups before age 65 years. This change occurred, because, from 1950 to 1980, age-specific suicide rates for males increased for the youngest three age groups but decreased for the oldest four age groups. For females, the curve between 1950 and 1980 by age was unchanged, namely an inverted U-shaped curve with the lowest suicide rates in the youngest and oldest age groups and the highest rates in mid-life. However, as with the males from 1950 to 1980, rates for younger women increased, and rates for older women decreased.

The most commonly used method of suicide in the United States is firearms.† In 1970,

†The International Classification of Diseases, 9th Revision (ICD-9), category for firearms includes firearms and explosives (E955); however, less than 1% of suicide deaths classified in the category "firearms and explosives" are due to explosives.

FIGURE 2. Percent change in suicide rates, by age group and sex — United States, 1970 and 1980



Suicide — Continued

50.1% of the 23,480 suicides were caused by firearms; in 1980, 57.3% of the 26,869 suicides were caused by firearms. The pattern of suicide by method varies little by race. While the male pattern of suicide by method has changed little between 1970 and 1980, the female pattern of suicide by method has significantly changed. In 1970, as in 1980, firearms were the leading method of suicide for males (58.4% and 63.1%, respectively), followed by hanging, strangulation, and suffocation (14.6% and 14.6%, respectively). There was a shift, however, between 1970 and 1980, in the most frequent method of suicide for females. In 1970, poisoning by solids or liquids was the method most frequently used by females (36.7%), followed by firearms (30.2%); in 1980 firearms were the methods most frequently used by females (38.6%), followed by poisoning by solids and liquids (26.9%).

By geographic area, suicide rates in 1980 ranged from a low of 7.4 suicides/100,000 population in New Jersey to 22.9/100,000 in Nevada. By region of the country, suicide rates were lowest in the Northeast and highest in the West in both 1970 and 1980, but this difference diminished over this period. Rates for the Northeast, North Central, and South all increased between 1970 and 1980, while rates decreased for the West.

For the aggregate of all suicides for 1970-1980, there was a seasonal trend in the occurrence of suicide.[§] Suicides were more likely to occur during March, April, and May than other months of the year.

Reported by Violence Epidemiology Br, Center for Health Promotion and Education, CDC.

Editorial Note: Suicide is a serious public health problem in the United States. According to national vital statistics information, almost 27,000 persons took their own lives in 1980, making suicide the tenth leading cause of death for that year (Figure 3). Suicide is a special concern for adolescents and young adults for whom it is the third leading cause of death. In 1980 alone, suicide accounted for a loss of some 619,533 years of potential life lost for individuals between the ages of 1 and 65 years.[¶] Suicide ranked as the second leading cause of death for white persons 15-34 years of age. A problem of this magnitude requires priority attention on the part of public health agencies at the national, state, and local levels.

The marked increase in the percentage of suicides by firearms is also of considerable public health concern. The trend toward firearms and away from poisoning as a preferred method of suicide for females indicates a move toward more immediately lethal methods, i.e., methods with less chance of intervention or "rescue."

The number of suicides specified in the national vital statistics reflects the judgments and professional opinions of the physicians, coroners, or medical examiners who certify the medical/legal cause of death on the death certificate. Suicide statistics based on death certificates probably understate the true number of suicides for several reasons: (1) inadequate information on which to make a determination of suicide as the cause of death; (2) certifier error or bias; and (3) lack of awareness of a suicide because a body was never recovered, e.g., drowning after jumping from a bridge.

The Violence Epidemiology Branch of the Center for Health Promotion and Education, CDC, is responsible for assessing the magnitude of mortality and morbidity related to suicide and suicide attempts, identifying population groups at highest risk of suicide, and suggesting intervention and prevention strategies to be implemented by public health, social service, and education agencies (*1*).

[§] Unadjusted for the number of days in each month

[¶] Calculated by multiplying the number of suicides in each 5-year age category by the difference between age 65 and the mid-point age for each 5-year age group from ages 15-64 years and the mid-point for the 1- to-14 year age category.

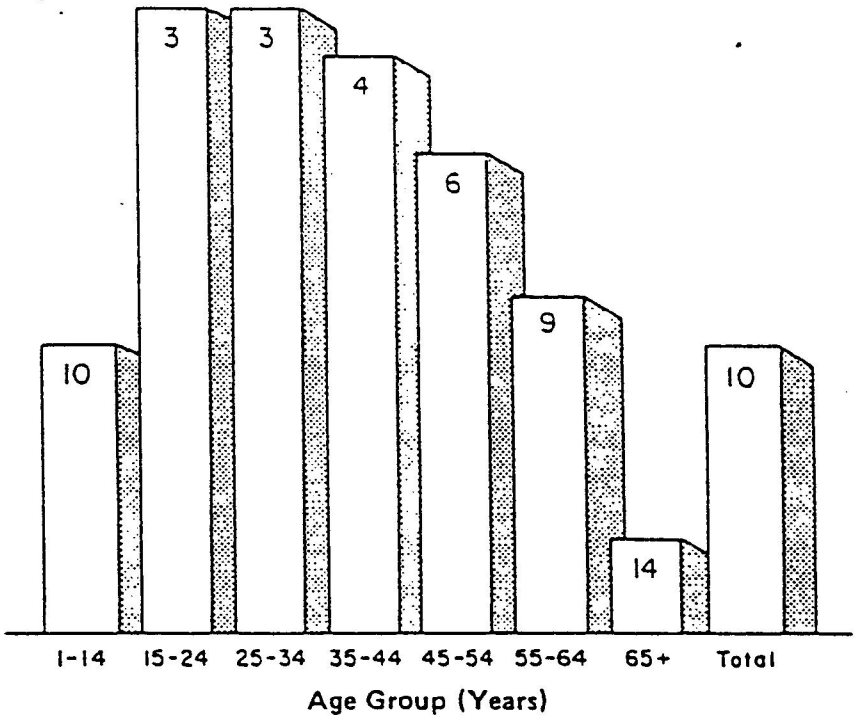
Suicide — Continued

Because of the increase in the suicide rate among young persons over the decade, the U S. Department of Health and Human Services has established a specific health objective focusing on the problem of suicide among young persons The federal objective states, "By 1990, the rate of suicide among people 15 to 24 should be below 11 per 100,000. (In 1978, the suicide rate for this age group was 12.4 per 100,000.)" (2). In an attempt to improve the statistical understanding of this phenomenon, CDC has begun working with appropriate professional organizations and individuals to explore the feasibility of developing and implementing a uniform set of criteria for the classification of suicide.

References

1. CDC. Suicide surveillance. Atlanta, Georgia Centers for Disease Control, 1985
2. U.S Public Health Service. Promoting health preventing disease. objectives for the nation. Washington, D C U S Public Health Service, 1980 85

FIGURE 3. Rank position of suicide among the 15 leading causes of death, by age group — United States, 1980



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Chapter 14

Risk Factors for Suicide

by Robert M.A. Hirschfeld, M.D., and Lucy Davidson, M.D., Ed.S.

Suicide and suicide attempts represent a serious public health problem in the United States. Each year more than 29,000 persons commit suicide, making this the eighth leading cause of death in the United States. The suicide rate for all ages combined remains approximately 12 per 100,000 population, although in recent years suicide rates have decreased for older persons and increased for youth (National Center for Health Statistics, 1986). A moderate estimate of the number of suicide attempts at 10 times the reported number of suicides means that nearly 300,000 persons attempted suicide last year—approximately one person every two minutes (Davidson, 1986).

Identifying characteristics of persons at high risk for attempting or committing suicide expands the psychiatrist's reference base in assessing suicidal potential. The patient who shares characteristics typical of most persons who commit suicide heightens one's estimate of the danger of suicide. On the other hand, one cannot dismiss the possibility of suicide in, say, a thirty-year-old, married black woman simply because she doesn't fit the epidemiologic profile of a high risk patient. Familiarity with risk factors for suicidal behavior helps the physician register the import of the data from the psychiatric interview and make a more cogent appraisal of the possibility of suicide.

This chapter presents current knowledge on major risk factors for suicide and suicide attempts, predominantly in psychiatric patients. Risk factors in general population samples are to be found in Chapter 13. After a section on definitions and data sources, risk factors for suicide in psychiatric patients are described. Following this is a section on risk factors for alcoholic and substance abuse patients. Finally there is a section on suicide attempts, which compares risk factors for completed suicide and attempted suicide.

DEFINITIONS AND DATA SOURCES

Suicide is defined as a self-inflicted, intentional death. A suicide attempt is a nonlethal, self-inflicted act that has death as its intended purpose, or the appearance of willingness to die. The term suicide gesture usually refers to a suicide attempt of low lethality, implemented manipulatively. Suicidal ideation refers to a range of thoughts, from the idea that death would be welcome, to the immediate intent to kill oneself. Ideation shades over into suicidal plans as the person's wish to die assumes a concrete, logistical form.

Data on suicides are ultimately dependent on the official certification of the manner of death as suicide. Each death certificate must have the manner of death specified as either natural, accident, suicide, homicide, or undetermined. The coroner or medical examiner's determination of suicide requires establishing that the death was both self-inflicted and intentional. Intentionality is the more

problematic criterion to establish. The certifier's suspicion of suicide may be blunted by reluctance to stigmatize the deceased's family. An unambiguous suicide note may be required by the certifier, although only about one-third of those who commit suicide leave a note (Litman et al, 1963). Uniform criteria for the classification of suicide have not been implemented by coroners and medical examiners.

The reluctance to classify deaths as suicide and the nonuniformity of the certification guidelines contribute to a major underreporting of suicides. Death certificates that do list suicide as the official manner of death are presumed valid, since the impetus in certifying the manner of death is against suicide, favoring the designations "accidental" or "otherwise." The reporting errors that occur in cases of suicide do not appear to have changed much over time (Brugha and Walsh, 1978).

The majority of data forming the basis of this chapter are derived from studies using three methodological approaches. The first of these is surveillance. The United States suicide statistics compiled annually by the National Center for Health Statistics (NCHS) are the primary source for information about suicide. These data are abstracted from death certificates and are descriptive in nature. Information is available to calculate suicide rates by sex, age, race, marital status, method of suicide, and geographic region. Information is not available for socioeconomic status, educational level, motive, or most psychiatric diagnoses. Although death certificate data are limited, NCHS is the only source of information on all reported suicides in the United States. Analysis of these rates over time illuminates trends in suicidal behavior. No such national reporting system exists for suicide attempts. Thus, data from studies of suicide attempts are much less representative and generalizable.

Retrospective empiric investigations are a second methodological approach. Researchers have used the "psychological autopsy" method to gather information about the decedent's life circumstances, emotional state, and activities. Generally, a consecutive series of suicides is identified from death records and persons close to the decedents are interviewed. Hospital, school, and employment records can provide additional data. The suicide group may be compared with a nonsuicide control group or the general population on some variable of interest. Similar retrospective investigations have been conducted with suicide attempters, although, of course, the subjects can be interviewed directly.

Prospective empirical investigations are the third methodological approach. Most of these studies are based on samples of psychiatric patients who are followed for a specified period of time. Those who subsequently attempt or commit suicide are compared with those who have not on a variety of characteristics, usually clinical. The length of follow-up varies in these studies and is generally short in comparison to a lifetime. Thus, they provide information about the characteristics of persons who attempt or commit suicide relatively soon after their clinical experience.

Both the types and quality of information about risk factors for suicide are limited. The available data sources may be thought of as pieces of a mosaic, which have been collected over time and assembled. They reflect various methodologies, sample populations, and aspects of suicidality. Although the mosaic has quite a few missing pieces, one can describe its salient features, as follows in this chapter.

SUICIDE COMPLETIONS AMONG PSYCHIATRIC PATIENTS

This section describes 11 recent studies on suicide completions among psychiatric patients. The studies range in type from a long-term prospective study of an epidemiologic sample to retrospective reviews of hospital charts (see Table 1). Each of the studies will be briefly described and major findings summarized.

Essen-Moeller and three psychiatric colleagues (1956) conducted psychiatric diagnostic interviews on nearly all the inhabitants in a small community in Sweden in 1947. Reexaminations were done 15 and 25 years later, and Hagnell (Hagnell and Rorsman, 1978) has reported on the suicides. All deaths in the area were registered and causes of death confirmed in parish registers. He found that among the 3,563 persons (1,823 men and 1,730 women), 23 men and 5 women had committed suicide.

The overall rate of suicide among men was 51 per 100,000 person-years (see Table 2). Among those without psychiatric history the rate was 8.3, and among those with a psychiatric disorder other than depression the rate was 10 times that, or 83. Among men with a history of depression, the rate was 650, nearly 80 times that among men without psychiatric history. When the depressions were categorized according to mild, medium, and severe impairment, the rates went from 0 to 220 to 3,900, respectively. For the nondepressed mental disorder group, the respective figures were 0, 110, and 290. Thus the rate of suicide among men who had suffered a severe impairment associated with depression were nearly *500 times* more likely to commit suicide than men without psychiatric diagnosis. Hagnell found that the suicides were preceded by undesirable events such as a blow to self-esteem, object loss, personal sickness, and moving. Humiliating events, particularly in the areas of work and legal problems, were especially ominous. In his overall sample he found that acute psychiatric illness preceded 26 of the 28 suicides.

Alec Roy (1982) identified 90 patients (53 men and 37 women) from the Clarke Institute in Toronto who had committed suicide in the decade beginning in 1968. Each of these patients were individually matched for sex and age with the next psychiatric patient to be admitted.

Many differences were identified between the suicide group and the control group. The average age of the men was 30 at the time of suicide, compared with 38 for the women. Depression and schizophrenia made up nearly 80 percent of the diagnoses of the patients who committed suicide. The social factors that distinguished the suicide from the control group were being unmarried, living alone, and being unemployed. The patients who committed suicide were much more likely to have had previous psychiatric episodes. Among the 15 inpatients who committed suicide, 3 killed themselves while in the hospital. Among the outpatients, over 80 percent committed suicide shortly after changing from inpatient to outpatient status. Forty-seven percent had a history of suicide attempts.

Borg and Stahl (1982) identified 34 psychiatric patients whom they had prospectively followed until their deaths, and matched them on age, sex, diagnosis, and patient status with 34 nonsuicidal psychiatric patients. The suicide group had a significantly higher percentage of nonmarrieds, of those who more often lived alone, and of those who had more often lost a key person by death (but not by divorce or separation).

Table 1. Studies of Suicide among Psychiatric Patients

Principal Investigator	Type of Study	Sample	Follow-up Length	Suicide Rate (per 100,000 person-years)
Hagnell	epidemiologic prospective follow-up	3,563 persons, the entire population of "Lundby" in Sweden	15 and 25 years	nondepressive psychiatric condition (men): 83 depression (men): 650 nonpsychiatric (men): 8.3
Roy	retrospective chart review	90 suicides among psychiatric in- and outpatients, and matched controls	not applicable	not applicable
Evenson	registry	207 patients of Missouri state mental health system	not applicable	148 for men 73 for women
Borg and Stahl	prospective follow-up	34 patients who committed suicide and a matched control group	2 years	not applicable
Pokorny	prospective follow-up	4,800 Veterans Hospital psychiatric inpatients	5 years	279
Beck	prospective follow-up	207 psychiatric inpatients admitted for suicidal ideation, but *not* recent attempts	5 to 10 years	1,000 (estimate)

Table 1. Studies of Suicide among Psychiatric Patients *(continued)*

Principal Investigator	Type of Study	Sample	Follow-up Length	Suicide Rate (per 100,000 person-years)
Black	registry and chart review	5,412 psychiatric inpatients	4 years	314 (estimate)
Egeland	retrospective record review	all suicides ascertained among the Old Order Amish	100 years (1880–1980)	4.3 for men and 3.7 for women
Motto	prospective follow-up	2,753 psychiatric inpatients from a variety of hospitals	2 years	2,500 (estimate)
Barner-Rasmussen	registry	All suicides in Denmark within one year of discharge from a psychiatric hospital between 1971 and 1981	1 year	1,800 (men) 1,400 (women)
Fawcett	prospective follow-up	929 in- and outpatients with affective disorder	4 years	

Table 2. Findings of Studies of Suicide of Psychiatric Patients

Principal Investigator	Diagnosis (%)			Other Findings
	Schizophrenia	Depression	Substance Abuse	
Hagnell				rates among men with severe depression were 3,900 per 100,000 person-years, nearly 80 times the overall rate for men; suicides were nearly 5 times higher in men than women; undesirable life events, especially humiliating experiences
Roy	33	66	?	highest among those with previous suicide attempts, young, unemployed, living alone, and unmarried
Evenson				suicide rates are highest (180 to 220 per 100,000) among young men who are inpatients, depressed, or schizophrenic); male:female ratio lower than among general population
Borg and Stahl				higher in nonmarried and those with loss of a key person
Pokorny	28	27	32	peaks in young (20–29) and middle aged (40–59); 58% within six months of discharge; lower in blacks; least among married
Beck	35	57	?	best predictor was hopelessness score; lower in blacks
Black				first six months postdischarge very high risk for women; low among elderly, highest among middle aged; add diagnosis

Table 2. Findings of Studies of Suicide of Psychiatric Patients *(continued)*

Principal Investigator	Diagnosis (%)			Other Findings
	Schizophrenia	Depression	Substance Abuse	
Egeland	0	92	0	suicide was highly familial and highly associated with affective disorder
Motto				high risk factors include older age, "special" stress, suicidal impulses, history of previous lethal attempts
Barner-Rasmussen				risk factors include history of psychosis, manic-depressive disease, male sex, middle age; did not find increase among young in Denmark
Fawcett				hopelessness, loss of pleasure, fewer prior episodes, delusions of thought insertion, and cycling were predictive; age, affective subtype, and history of suicide attempts were not. Over one-half occurred within one year of discharge

Evenson and colleagues (1982) identified 220 people who had committed suicide between 1972 and 1974 who had received psychiatric treatment according to the Missouri Department of Public Health, which gathered this information by using death certificates and a computerized patient registry. They investigated suicides only among Caucasians because there were too few among nonwhites to permit adequate statistical analysis. Suicide rates were highest among middle aged (30–49) men. The age-adjusted suicide rate for inpatient men was six times higher than that for the male general population, and for women the figure was 11 times higher. In general, the sex ratio for suicides was higher among the general population (ranging from 2:3 for males:females) than among psychiatric patients (1:2 for males:females), except among the 30–39-year-old age group, in which male patients were nearly 7 times more likely than women to commit suicide. Male inpatients were found to commit suicide at a rate 5.7 times more often than men in the general population, and women about 10 times more often than women in the general population.

Evenson reports that patients with major affective disorder were twice as likely as any other diagnostic group to commit suicide. Other high risk patient diagnostic groups include schizophrenia, depressive neuroses, and substance abuse.

An analysis of variance was performed to determine the most important variables. Diagnostic category accounted for more than 57 percent of the variance, followed by sex (14.6 percent), with age surprisingly adding very little.

Pokorny prospectively followed 4,800 inpatients for an average of 5 years at the Houston Veterans Administration Hospital (Pokorny, 1983). There were 67 suicides among this almost exclusively male group, resulting in a suicide rate of 279 per 100,000 per year. This is more than 10 times higher than the age- and sex- adjusted suicide rate for veterans, which is 23 per 100,000 per year.

Pokorny found two peaks in suicide—38 percent between the ages of 20 and 29, and 44 percent between the ages of 40 and 59. The rate was substantially lower in black men. The suicides were almost evenly split among affective disorders, schizophrenia, and substance abuse. Five of the suicides occurred while in the hospital, and nearly 60 percent of the rest occurred within six months of discharge. Less than one-fourth of the patients had made a previous suicide attempt.

Using a number of sophisticated multivariate statistical techniques, Pokorny was not highly successful in identifying those who would commit suicide with sufficient sensitivity and specificity to be useful. He concluded that identification of individuals who would go on to commit suicide was not currently feasible.

Beck and his colleagues (1982) studied 207 patients who had been hospitalized with suicidal ideation but who had not made recent suicide attempts. In the subsequent 5 to 10 years, 14 patients committed suicide. There was a low percentage of blacks among those who committed suicide. Fifty-seven percent had a diagnosis of depression, while 35 percent had a diagnosis of schizophrenia. Beck reported that the best predictor of subsequent suicide was an increase in hopelessness on a self-report scale. Overall severity of depression and amount of suicidal ideation did not predict suicide. In addition, alcohol and drug abuse, and family history of suicide were not good predictors.

Black and colleagues (1985a) cross-referenced all psychiatric inpatients at the University of Iowa Hospital admitted for the decade beginning 1972 with the register of Iowa state death certificates. Of the 5,412 patients, 68 had committed

suicide during the four-year follow-up period. Using a standardized mortality ratio (SMR), defined as the ratio of observed deaths to expected deaths in a particular group, Black found the highest SMRs among women between the ages of 30 and 49, even though overall sex ratio was 37:31 (male:female). The reason for this finding is the much lower expected suicide rate in women compared with men in all age categories (the male:female ratio ranged from 4:10).

Over one-half of the women killed themselves within six months of discharge from the hospital, compared with less than 25 percent of the men during the same period. Affective disorders accounted for approximately one-third of the suicides, schizophrenia for 21 percent, personality disorders for 10 percent, alcohol and drug abuse for 8.8 percent, and acute schizophrenia and depressive neuroses, each, for 7.4 percent.

In a particularly fascinating study, Egeland and Sussex (1985) examined all suicides ascertained among a group of Old Order Amish in Pennsylvania over the course of a century. This group is highly insulated from the outside world, has no alcohol or substance abuse, and regards suicide as an "abominable sin." Twenty-six cases of suicide (21 males and 5 females) were identified by record review.

The most striking finding was the clustering of the suicides and the affective disorders among four primary pedigrees, indicating a strong genetic component. Twenty-four of the 26 suicides met Research Diagnostic Criteria (RDC) for major affective disorder, including 12 who met the criteria for bipolar disorder. Although the suicide victims appeared to have a high rate of affective disorder, there were many families with clustering of affective disorders where suicide was absent. So it is possible that affective disorders may be genetically determined independently of suicide risk.

Motto (1980) prospectively followed 2,753 inpatients who had been admitted for a "depressive or suicidal state" to any of nine mental health facilities around the San Francisco area. Their purpose was to develop a clinical instrument to estimate suicide risk. One hundred and thirty-six subjects (five percent) committed suicide within the two-year follow-up period. Among the best predictors were older age, experiencing a special stress (which was defined as situations "too varied to classify individually—for example, an anticipated amputation or the full realization that a life-long goal must be relinquished"), high suicidal impulses, and highly lethal intent of present suicide attempt.

Other variables that tended to be predictive were having increased financial resources, having a bisexual, gay, or inactive sexual orientation, a history of previous psychiatric hospitalizations, and negative results of previous efforts to obtain help.

All persons who completed suicide and who had a psychiatric history in Denmark between the years 1970 and 1980 were studied by Barner-Rasmussen and colleagues (Barner-Rasmussen, 1986; Barner-Rasmussen et al, 1986). Nearly 3,998 inpatients committed suicide either during hospitalization or up to one year following discharge. Amazingly, more than one in five of these patients committed suicide *during* the hospitalization.

The yearly rates per 100,000 were 1,800 for the men 1,400 for the women. In contrast to the United States, there was no increase for individuals aged 15 to 25 committing suicide. In fact, the total number of suicides among people under 25 years of age actually decreased from 6.5 in the first half of that decade to 5.3

in the second half. The overwhelming majority of suicides were among people in their middle years. There was a sharp rise in the proportion of suicides among the rural population throughout the decade, although the rate was still approximately one-third that of the larger cities in Denmark.

Depressive diagnoses were the most frequent, with 31 percent of the men and 43 percent of the women carrying such a diagnosis. Nearly one-half of both sexes who committed suicide carried a diagnosis of an affective or schizophrenic psychosis. Substance abuse accounted for 19 percent of the men and 8 percent of the women.

In results similar to those found in other studies, suicide occurred close to the time of hospitalization. Among the suicides who had left the hospital, nearly 50 percent had killed themselves within six months.

The highest suicide rates were found among men over the age of 65 with reactive psychoses, and among men between the ages of 45 and 64 suffering from manic depressive or reactive psychoses. These rates were twice as high as the highest among any age–diagnosis specific rate among women. Fawcett and his colleagues in the Clinical Studies of the NIMH Collaborative Study on the Psychobiology of Depression (1987) followed 929 in- and outpatients with moderate to severe affective disorders every six months for a mean of 4 years. Twenty-five patients (14 men and 11 women) had committed suicide. As in other studies, suicide tended to occur early in the follow-up period—32 percent in the first six months, and 52 percent by one year. The mean age of the male suicide completers was 35.5 years, and the women, somewhat older, at 44.6 years. However, their ages were not significantly different from those of the survivors.

The most powerful clinical predictors of suicide, as compared with the survivors, included hopelessness, loss of pleasure or interest, fewer previous episodes of depression (perhaps suicide occurs earlier in the life course of the disorder), loss of reactivity, mood cycling within an episode, and several psychotic delusions. Surprisingly, affective subtype (including bipolar, unipolar, psychotic, endogenous, and primary), history of suicide attempt (although there was a trend), and life stress at entry did not discriminate between the two groups.

ALCOHOL AND SUICIDAL BEHAVIOR

Persons who abuse or are dependent upon alcohol have long been recognized as being at high risk for suicidal behavior (Dahlgren, 1951). Alcohol and suicide can relate in two ways. First, alcohol can be involved in the suicidal act itself, usually as a precipitant. Second, alcoholism itself can be considered a risk factor. Both of these will be discussed. Findings are summarized in Tables 3 and 4.

Alcohol Use Prior to the Act

Alcohol is often consumed just prior to suicide, although various studies reporting the prevalence of consumption have ranged from 21 to 89 percent. Approximately one in five were legally intoxicated (blood alcohol content [BAC] of 0.1g percent or greater) (Centers for Disease Control, 1984; Haberman and Baden, 1978; Crompton, 1985; Dorpat and Ripley, 1960). Part of the large variance in these ranges is attributable to differences among the populations studied: for example, single vehicle fatalities, alcoholics, or self-poisoning patients. Some

Table 3. Descriptive Studies of Alcohol Involvement in Self-Directed Violence

Reference	Data Source	Dimension of Alcohol Use	Population Studied	Results/Findings
Beck et al, 1982	Scale for Suicidal Ideation, Beck Depression Inventory, and Hopelessness Scale	alcoholism, not defined	105 consecutive admissions to the alcoholism program of a large metropolitan community mental health center	—26.7% had made previous suicide attempts —12% had current suicidal ideation
Berglund, 1984	psychiatrists' discharge ratings and death registers	chronic alcohol intoxication indicating a chronic habit of drinking until intoxication and not necessarily social or occupational impairment	all (1,312) first admissions with chronic alcohol intoxication to University Hospital, Lund, Sweden, 1949–1969; followed through 1980	—7% risk of suicide overall —9% if depression or dysphoria also present at admission —18% if had history of peptic ulcer
Centers for Disease Control, 1984	medical examiner's records	BAC intoxicated = 0.1 g% BAC or higher at time of death	persons 15 years or older who died within 8 hours of injury during 1973–1983 in Erie County, New York	—22% of the 655 suicide victims were intoxicated at time of death

BAC = blood alcohol content

Table 3. Descriptive Studies of Alcohol Involvement in Self-Directed Violence *(continued)*

Reference	Data Source	Dimension of Alcohol Use	Population Studied	Results/Findings
Berkelman et al, 1985	medical examiner records	BAC legally intoxicated = 0.1 g% BAC or greater at time of death	368 homicides, suicides, or victims of unintentional fatal injuries who died within 6 hours of injury in 1982	—18% of the suicides were legally intoxicated at the time of death —another 38% of the suicides had consumed alcohol
Cheynoweth et al, 1980	interviews, medical records and coroner's reports	drug dependent group = "evidence of impairment of physical, mental or social functioning as a direct result of the use of sedatives or alcohol"	135 consecutive suicides in Brisbane, Australia from 3–1–73 to 2–28–74	—22% of suicides had principal diagnosis of alcohol dependence —34% had principal or secondary diagnosis of drug dependency
Crompton, 1985	coroners' records	BAC	406 cases of violent accidental death or suicide (228) of persons over 15 years old in London from 1–1–70 to 1–1–81	—21.1% of suicides had positive BAC

BAC = blood alcohol content

Table 3. Descriptive Studies of Alcohol Involvement in Self-Directed Violence *(continued)*

Reference	Data Source	Dimension of Alcohol Use	Population Studied	Results/Findings
Makela, 1983	hospital records	alcoholism and problem drinking, not defined; history of consumption	self-poisoning patients admitted to the ICU or seen in the ER of University Central Hospital of Tampere, Finland in 1970–1971 and 1974–1979	—33% of the male and 7% of the female patients were diagnosed as alcoholic —54% of the male and 32% of the female patients were problem drinkers —54% of the emergency room and 25%–53% of the ICU patients had consumed alcohol
National Institute on Drug Abuse, 1984	emergency room and medical examiner's records	history or BAC	42,294 suicide attempts and 1,097 suicides by the nonmedical use of drugs in 1983	—19.7% of the suicide attempters had consumed alcohol —21% of the suicides had consumed alcohol
Norvig and Nielsen, 1956	patient interviews and death records	chronic alcoholism if patient had psychic or somatic changes secondary to alcohol or abusers spirituosorum otherwise	221 alcohol addicts treated at Sanct. Hans Hospital, Denmark between 7–1–48 and 12–31–50 and followed until 10–53	—6.8% of alcohol addict patients committed suicide during follow-up period

BAC = blood alcohol content

Table 3. Descriptive Studies of Alcohol Involvement in Self-Directed Violence *(continued)*

Reference	Data Source	Dimension of Alcohol Use	Population Studied	Results/Findings
Ojesjo, 1981	personal interviews, agency records, clinic records, and temperance board records	abusers = high quantity/ high frequency drinking plus repeated acute medical and social disabilities; addicts = drinkers with generalized dependence and medical sequelae	96 alcoholic men identified from a population survey in Lundby, Sweden 7–1–47 and followed until 7–1–72	—12% of the decedents were suicides —3.1% committed suicide during follow-up period
Ulmanen, 1983	hospital records	alcohol abuse, not defined	299 self-poisoning patients admitted to the ICU of University Central Hospital of Tampere, Finland during 1976–1977	—31.8% of the self-poisoning attempters were alcohol abusers

BAC = blood alcohol content

Table 4. Studies of Alcohol Involvement in Self-Directed Violence Using Comparison Groups

Reference	Data Source	Dimension of Alcohol Use	Population Studied	Results/Findings
Black et al, 1985b	hospital records and Iowa death certificates	alcohol and oth r drug abuse (ICD–9, 303–305)	5,412 psychiatric patients admitted between 1–1–72 and 12–31–81 compared to Iowa vital statistics mortality tables	—8.8% of suicides in study group had been treated for alcohol —ratio of observed to expected deaths among the alcohol or drug abuse suicides was 11.11 for males ($p < .05$) and 60.00 for females ($p < .01$)
Combs-Orme et al, 1983	death certificates	alcoholism—excessive drinking within 6 months prior to admission and at least 2 problems or symptoms, e.g., tremors, marital difficulties, delirium tremens, job problems	1,289 alcoholics followed 6–9 years after admission in St. Louis compared to St. Louis vital statistics mortality tables	—3.5% of those dying committed suicide —rate ratios for alcoholic suicides were 6.5 overall, 7.5 for whites, 4.6 for blacks, 13.5 for women —0.7% committed suicide during follow-up period

Table 4. Studies of Alcohol Involvement in Self-Directed Violence Using Comparison Groups *(continued)*

Reference	Data Source	Dimension of Alcohol Use	Population Studied	Results/Findings
Goldney, 1981	interviews, hospital records, coroner's records	history, BAC	110 women 18–30 years old admitted after drug overdose and 32 female suicides with BAC determination from the Adelaide, Australia, coroner's office compared with 21 female controls attending a community health center	—28% of the suicides had positive BACs —31.8% of the attempters reported alcohol consumption immediately before their attempted suicide —the proportion consuming alcohol before suicide (28%) was greater than the high-lethality attempters (15%) but less than intermediate (34%) or low-lethality groups (48%), $N = 7.224$, $p < 0.05$

Table 4. Studies of Alcohol Involvement in Self-Directed Violence Using Comparison Groups *(continued)*

Reference	Data Source	Dimension of Alcohol Use	Population Studied	Results/Findings
Motto, 1980	clinical interview	alcohol abuse—"the subject was drinking and did not have control over the amount of alcohol ingested"	978 persons admitted to a hospital for depression or suicidality who abused alcohol, divided into an index group (N = 731; 42 suicides) and a cross-validation group (N = 247; 11 suicides)	high risk categories for suicide were identified: —more than 2 prior suicide attempts —serious present attempt or intent —high intelligence —physical health with minor impairment or getting worse in past year —job change in past 2 years —other than good present health

differences in alcohol consuption rates may also reflect different background rates of consumption in the geographic regions studied.

Alcohol effect can be disinhibiting, allowing an individual to overcome fears or other constraints on committing suicide (Patel et al., 1972). Its effects on higher cortical functions may usurp self-regulatory prohibitions against violence. Whether alcohol releases covert aggressive feelings or whether the consumption of alcohol is an expression of such aggression is controversial (Whitlock and Broadhurst, 1969). Alcohol may also be used as a self-medication that may have the opposite effect, that of mitigating suicidal intent (Goldney, 1985).

It is paradoxical that alcohol consumption preceding suicidal behavior may actually contribute to an underreporting of suicides and attempts. When the BAC exceeds some levels of intoxication, coroners may, as a matter of policy, classify the death as accidental rather than as suicide (Crompton, 1985). The coroner reasons that mental faculties would be impaired to the point that the victim could not appreciate the potentially fatal consequences of the act. Thus, our information regarding alcohol ingestion prior to suicidal behavior is skewed toward lower ranges of BAC.

Alcohol Abuse and Alcoholism

Although the risk of suicide among alcoholics has often been placed at 15 percent, research studies show a range of 0.2 to 11 percent (Choi, 1975; Lemere, 1953). This wide range is mostly due to the varying lengths of follow-up in studies from three years to death. In general, the estimate of suicide risk increases with increasing length of follow-up. Since suicide among alcoholics appears to be a late sequela of the disease, studies with short follow-up periods after admission, especially first admissions, underestimate the risk of suicide. Suicides comprise between 4.8 and 12 percent of deaths during follow-up of alcoholics (Tashiro and Lipscomb, 1963; Ojesjo, 1981).

Alcoholics are at greater risk for suicide than the general population. The ratios of observed deaths among alcoholic samples to expected suicides among age-matched mortality records range from 3.2:1 to 86:1 (Dahlgren, 1951; Kessel and Grossman, 1961).

Alcoholism is often included among variables assessed in many studies of suicide. The percentage diagnosed as alcoholic in studies of consecutive suicide ranges from 15 to 31 percent (Dorpat and Ripley, 1960; Barraclough et al, 1974).

Barraclough and colleagues (1974) compared the alcoholic suicides in their series to a previous survey of living alcoholics in Cambridgeshire, England, highlighting factors which increase the alcoholics' susceptibility to suicide. More of the alcoholic suicides were divorced or widowed. A history of previous suicide attempts was obtained for 67 percent of the alcoholic suicides versus 10 percent of the living Cambridgeshire alcoholics. The alcoholic suicides comprised an older population than their controls. When compared to nonalcoholic suicides in the series, more alcoholic suicides had made an overt suicide threat and more had seen a doctor/psychiatrist in the week before death.

Robins' study underscores the long duration of alcoholic illness before suicide and the very high percentage (77 percent) of alcoholic suicides who had communicated their suicidal intent. In their series, only 40 percent of the alcoholics had received medical or psychiatric care in the year preceding their suicide (Robins, 1981; Robins et al, 1959).

Risk factors for suicide among alcoholics include a history of more than two prior attempts, a recent history of a serious attempt, and poor or failing health (Motto, 1980; Berglund, 1984). Job changes within the past two years and higher intelligence also were shown to increase risk (Motto, 1980).

Disruption of a close interpersonal relationship is a common precipitant of suicide among alcoholics (Murphy et al, 1979). Having a concurrent affective disorder or history of dysphoria also increases the risk of suicide (Murphy et al, 1979; Berglund, 1984). Suicide is more common as a late sequela of alcoholism (Robins et al, 1959).

SUICIDE AMONG MEDICAL AND SURGICAL PATIENTS

Suicide among medical and surgical patients in the general hospital would seem to be especially preventable, since the patient has the opportunity for frequent contact with medical professionals. Studies of self-destructive behavior among hospitalized medical and surgical patients highlight characteristics of those at higher risk and situations likely to be hazardous.

Several diagnostic groups have been associated with higher rates of suicide and suicide attempts. Cancer patients were traced through the Finnish Cancer Registry (Louhivouri and Hakama, 1979). The risk of suicide for male cancer patients was 1.3 and for females 1.9 times that of the general population. Higher relative risk was associated with having a nonlocalized cancer or a gastrointestinal cancer. Patients treated by surgery or radiation therapy were not at increased risk, while those receiving no treatment or other treatment (including chemotherapy) were at significantly higher risk. A design limitation of the study is that the "no treatment" group included those whose cancers were so far advanced that only palliative treatment was offered as well as those who committed suicide before any treatment could be initiated. Thus, one cannot make conclusions regarding suicide and the prognosis of the patient's cancer.

Terminal illnesses raise the spectre of pain, loss of function, alienation, and possible disfigurement. Any of these may precipitate suicide in the vulnerable patient. It may seem natural and inevitable for the terminally ill patient to be depressed. The physician may then miss the opportunity to treat major depression and thereby prevent an untimely death.

Brown and colleagues (1986) have investigated the prevalence of wishes for death among the terminally ill. They studied terminally ill patients on a palliative care service who were aware of their illness and its prognosis and had either pain, severe disfigurement, or severe disability. Of the 44 patients eligible for study, 34 had never been suicidal nor had wished for death. All of the patients desiring death had severe depressive illness either by *Diagnostic and Statistical Manual of Mental Disorders, Third Edition (DSM-III)* (American Psychiatric Association, 1980) criteria or by the criteria of the Beck Depression Inventory (short version). None of the patients without clinical depression had suicidal ideation or wishes for premature death. Although generalizability is limited by the small sample size available, results indicate that clinical depression is not an inevitable feature of terminal illness and that suicidal thoughts in the terminally ill are present only when there is a concurrent depression.

Patients with severe respiratory diseases have been overrepresented among hopsital suicides (Baker, 1984). In this study of the Veterans Administration

medical system, respiratory diseases accounted for 23 percent of the primary diagnoses among suicides in their general medical/surgical population; while that diagnostic group represented only 8 percent of the hospital population. Shapiro and Waltzer (1980) reported a similar overrepresentation of respiratory diseases among suicides and suicide attempters in the general hospital setting. Acute episodes of respiratory insufficiency frequently preceded the suicide attempts and raise the question of how cerebral anoxia may contribute to suicide risk. The authors were concerned with the failure of medical staff to request psychiatric consultation for agitated, medically ill patients, even when body restraints had been necessary.

Hemodialysis patients have characteristics that contribute to their extraordinarily high suicide rates. Whether by ordinary means or through discontinuation of dialysis or intentionally fatal breaches of the treatment regimen, approximately five percent of dialysis patients commit suicide. Suicide is up to 400 times more frequent among dialysis patients than it is in the general population (Abram et al, 1971; Haevel et al, 1980). Suicide and suicide attempts are less common among home dialysis than among center dialysis patients. This may reflect greater family support or the patients feeling more in control of the treatment.

The dialysis patient combines impaired quality of life, the ever present possibility of unintended death, and ready access to lethal methods of suicide. The choice of a method intrinsic to one's illness comprises a statement about its intolerability. The patient can readily disconnect a shunt, binge-induce hyperkalemia, or sever the arteriovenous fistula.

Initiating dialysis occasions many losses—social, occupational, and interpersonal. An even more painful sense of loss may accompany transplant failure when the patient has been sustained by the hope of being "normal" again through transplantation. Psychological problems are nearly universal among dialysis patients, and so, effective suicide prevention requires ongoing psychiatric support instead of treatment initiated at crisis points (Haevel et al, 1980).

Patients in delirium tremens comprise another group of medical/surgical patients at high risk for suicide (Glickman, 1980; Keller et al, 1985). In Glickman's series, suicides were most often enacted within 24 hours of the onset of the delirium tremens and occurred among patients inadequately sedated. Difficulties in eliciting a history of alcohol consumption from emergency patients may contribute to their likelihood of having withdrawal symptoms unanticipated by the physician.

Recent studies summarizing suicides among medical and surgical patients have used the Veterans Administration hospital system; so conclusions are less likely to be generalizable to women patients (Baker, 1984; Farberow and Williams, 1982). However, medical/surgical patients who committed suicide were older than neuropsychiatric patients who did so. Few (3 percent) made nonfatal suicide attempts during the hospitalization, but 16 percent had made prior attempts and 6 percent were admitted as the result of an attempt. Nearly 20 percent were assaultive during their admissions. Respiratory system diseases were common. Most suicides were carried out by cutting, piercing, or jumping (Farberow and Williams, 1982).

RISK FACTORS FOR SUICIDE ATTEMPTS

Despite overlap between two groups, suicide completers and attempters represent distinct populations. Suicide attempts occur much more frequently in the general population than do completed suicides. Conservative estimates place the ratio of attempters to completers at 8:1. (Cross and Hirschfeld, 1985).

Even though only 10 to 20 percent of attempters go on to complete suicide, a history of suicide attempts significantly increases the likelihood of subsequent suicide.

Risk factors for suicide attempts differ from those for suicide completion in some areas, and are quite similar in others (see Table 5). They differ considerably for age and sex. An average of three men commit suicide for every woman. The ratio is reversed for suicide attempts—60 to 70 percent of attempts are made by women (Cross and Hirschfeld, 1985). Similarly, although suicide rates are highest in those over 50 years of age, suicide attempts are much more likely to occur in the young, with approximately 50 percent occurring in those under 30 years of age. The peak period for attempts is between ages 20 and 24 (Cross and Hirschfeld, 1985).

A recent Danish study has reported findings somewhat at variance with the traditional literature (Bille-Brahe et al, 1985; Wang et al, 1985). Ninety-nine psychiatric patients who had attempted suicide were randomly selected from those admitted to the department of psychiatry at a Danish university hospital. Slightly more than one-half of the attempters were men (the male:female ratio was 51:48). The men were typically fairly young (more than three-fourths were under 40, and more than 40 percent were under 30). The women were somewhat older. Nearly three-fourths were aged 30 or older.

Risk factors for completers and attempters are very similar for marital status, employment status, and psychiatric diagnosis. Both are much more frequent among the unmarried (particularly among those who are divorced and living alone), the unemployed, those without a confidant, and those with depression.

The presence of alcoholism in patients with other psychiatric disorders may substantially increase the likelihood of suicidal behavior. For example, in one study 80 percent of alcoholic patients with manic-depressive illness had attempted suicide, versus only 13 percent of the nonalcoholic manic-depressives (Johnson and Hunt, 1979).

Table 5. Risk Factors for Suicide Completers versus Attempters among Psychiatric Patients

Risk Factor	Suicide Completion	Suicide Attempt
Sex	Males	Females
Age	30s and 40s	Under 30
Marital status	Unmarried	Unmarried
Employment status	Unemployed	Unemployed
Psychiatric diagnosis	Depression and Schizophrenia	Depression

One reason for this striking increase is that alcohol intoxication can increase impulsivity and decrease inhibitions. Conn and colleagues (1984) found this to be true in their study of near-lethal suicide attempts by gunshot wound. They found that the attempts occurred when the subject was depressed or perceived threats to a dependent relationship, suggesting that alcohol consumption alone is usually insufficient to precipitate a suicide attempt.

Adverse life events have been associated with both suicide completions and attempts in a number of studies. Paykel's classic 1975 study compared 53 predominantly young female attempters with matched nonsuicidal psychiatric patients and matched normals (Paykel et al, 1975). He found that the attempters had four times as many life events as the normals, and had 1½ times as many as the depressed group, in the six months before the attempt, with a marked peak in the month prior to the attempt. The attempters' events were characterized as undesirable interpersonal, health, and legal problems.

The literature on the relationship between early loss and suicide attempts is somewhat inconsistent, and riddled with methodologic problems. Overall, however, it suggests that individuals who experience loss of a parent through death or divorce are more likely to exhibit suicidal behavior in adulthood (Cross and Hirschfeld, 1986).

Personality features of patients who have attempted suicide have been the subject of several studies. Unfortunately, all of the assessments were made shortly after the attempt, when the patients were in crisis and psychiatrically ill. As Hirshfeld and colleagues have shown, even slight levels of depression greatly affect personality assessment (Hirschfeld et al, 1983), a finding which is very relevant to these investigations. In general, attempters have been characterized by increased locus of control and greater introversion when compared with controls (Cross and Hirschfeld, 1985).

Although only a minority of suicide attempters go on to commit suicide, they represent a significant risk group. An excellent example of this is contained in a recent 10-year follow-up of 262 suicide attempters by Katschnig in Vienna (Katschnig and Fuchs-Robetin, 1985). Fourteen patients (five percent) committed suicide within the follow-up period. Two clusters were identified in which the suicide risk was considerably increased. The first was the "failed suicide" cluster, which was characterized by advanced age, retired employment status, and first admission. The second was the "chronic" cluster, which was characterized by younger age and multiple admissions.

The combination of alcohol abuse and a history of suicide attempts increases the risk for suicide. In the Cambridgeshire study Barraclough and colleagues (1974) reported that a history of previous suicide attempts was obtained for 67 percent of the alcoholic suicides versus 10 percent of the living Cambridgeshire alcoholics.

SUMMARY OF RISK FACTORS FOR SUICIDE IN PSYCHIATRIC PATIENTS

Table 6 summarizes the major risk factors for suicide in psychiatric patients. The most important factor is simply being a psychiatric patient. Rates of suicide in psychiatric patients, particularly inpatients, ranges from 5 to 6 times to nearly

Table 6. Summary of Risk Factors for Suicide in Psychiatric Patients

- Being a psychiatric patient
- Being male: although the gender distinction is less important than among the general population
- Age: middle years, in contrast to the general population
- Race: whites are at much higher risk than blacks
- Diagnosis: depression and schizophrenia
- History of suicide attempts, except among psychotic patients
- Undesirable life events, especially humiliating ones or loss of a key person
- Timing: during hospitalization and in the 6–12 months postdischarge

40 times the comparable rate in the general population. Therefore, simply being a psychiatric patient puts one at a substantially increased risk for suicide.

Men are at higher risk for suicide in psychiatric populations, although the sex ratio is substantially lower among psychiatric patients than it is in the general population. The male:female ratio in all but one of these studies (excluding the VA study) reported a sex ratio below 1.5:1.

Among the general population the sex ratio for suicide in the United States was 2.5:1 (ranging from approximately 2 to 10 for various age groups). Therefore, being a psychiatric patient tends to increase the risk of suicide in women much more so than it does in men.

In the general population, suicide is very much a phenomenon of older white men. This is not nearly as true among psychiatric patients, whose peak suicide rate tends to be in the middle years. Male psychiatric patients tend to commit suicide at a somewhat younger age, perhaps around the ages of 25 to 40, whereas the peak in female patients tends to be between the ages of 35 and 50.

In psychiatric populations, Caucasians kill themselves at a much higher rate than do blacks and other nonwhite groups. Depression, schizophrenia, and substance abuse are also associated with a substantially increased risk of suicide. However, depression, especially psychotic depression or severely incapacitating depression, causes the risk of suicide to soar. Given the high prevalence of depression, its importance as a risk factor puts it at the top of the list. In contrast to most other psychiatric disorders, suicide among alcoholics is often a late sequela of the disease. Therefore, short-term follow-up studies, especially those of first admissions, may vastly underestimate suicidal risk among alcoholics.

A psychiatric history increases one's risk of suicide, and a history of prior suicide attempts substantially increases suicide risk. However, the predictive value of suicide attempts does not hold up among psychotic patients, who are much more likely to kill themselves without any warning.

Finally, the timing during the course of treatment for the disorder is extremely important. Even though patients are being actively administered to and are being observed for suicidal tendencies while in the hospital, a substantial proportion of them nonetheless kill themselves while they are in the hospital. In addition, the period of 6 to 12 months immediately following discharge is one of very high risk. This is particularly true among women in the first six months following hospitalization.

Alcohol is an important consideration in the study of suicide. It may have a disinhibiting effect, breaking down normal constraints on self-destructive behavior. In fact alcohol is often consumed prior to suicides, and one in five suicide victims are intoxicated at the time of death.

Risk factors for suicide among alcoholics are similar to those among other psychiatric patients. In contrast to other patients, however, alcoholics are more likely to kill themselves late in the course of their disease. Alcoholics are especially likely to communicate suicidal wishes prior to suicide. The risk substantially increases if there is a concurrent depression.

Certain medical and surgical patients present special suicidal risks, and bear more intensive psychiatric attention. Patients with respiratory diseases are three times more likely to commit suicide than are other medical patients. Similarly, patients on hemodialysis are a high risk group. Patients with cancer are slightly more likely to kill themselves than the general population, but, if untreated, they may be at very high risk. In this group it is unclear how many of the suicides occurred prior to treatment; so generalizations must be tentative.

Most medical patients who commit suicide, even those with terminal illnesses, have concurrent treatable major depressions. So careful assessment of psychiatric status in these patients can literally be lifesaving, or at least substantially increase the quality of remaining life.

CONCLUSION

All of this information on risk factors might lead some to the conclusion that prediction of suicide should be a fairly straightforward and easy matter at this time. Unfortunately, this is far from the truth, as Pokorny reported in his large follow-up study. He found that any technique that is sufficiently sensitive to identify individuals who will go on to commit suicide will also select an extremely large number of "false positives"; that is, individuals who will not go on to commit suicide. Therefore, we must be conservative and humble in our claims about identification of individuals at risk, and not overestimate our abilities in such matters.

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SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
E950-E959

OTHER MALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	0.45
10-14	10	2.97	4	1.16	13	3.63	7	1.87	8	2.06	5	1.19	5	1.12
15-19	39	11.24	48	13.00	59	15.09	69	16.83	77	18.20	73	17.62	73	17.45
20-24	80	21.33	90	23.30	72	18.05	92	22.04	110	25.35	89	19.32	101	21.06
25-29	70	18.07	74	18.23	71	16.74	89	20.17	88	19.43	89	19.21	73	15.39
30-34	44	11.76	47	11.89	72	17.41	49	11.32	59	13.19	60	12.72	61	12.43
35-39	46	14.77	36	10.82	41	11.49	43	11.33	50	12.61	35	8.28	55	12.31
40-44	24	9.98	31	11.78	20	6.99	23	7.38	34	10.24	36	9.98	37	9.74
45-49	18	9.56	22	10.93	23	10.66	20	8.68	15	6.17	28	10.72	31	10.95
50-54	13	9.05	18	11.64	22	13.15	14	7.78	17	8.96	20	9.80	20	9.34
55-59	15	12.89	12	9.75	11	8.47	8	5.81	19	13.19	25	16.22	13	7.88
60-64	16	15.74	14	13.15	12	10.84	17	14.72	21	17.57	25	19.56	11	8.27
65-69	16	20.84	13	15.63	11	12.27	15	15.70	13	13.08	12	11.44	10	9.16
70-74	12	21.51	13	22.37	7	11.55	13	20.40	8	12.03	15	20.30	11	13.75
75-79	7	18.36	6	14.98	8	19.07	5	11.42	9	19.94	10	20.46	9	17.37
80-84	4	21.31	10	49.03	3	13.51	5	20.85	4	15.81	7	25.95	12	41.25
85+	4	33.94	10	79.51	5	37.38	4	28.01	7	46.26	5	29.51	4	22.22
UNK AGE	1		1		0		0		0		1		0	
TOTAL*	419	10.95	449	11.11	450	10.55	473	10.52	539	11.53	535	10.84	528	10.24
AGEADJ**		(11.06)		(11.20)		(10.53)		(10.52)		(11.54)		(11.16)		(10.31

OTHER FEMALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	1	0.31	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.23
10-14	3	0.94	3	0.91	0	0.00	1	0.28	2	0.54	1	0.25	1	0.23
15-19	13	4.06	13	3.80	14	3.86	22	5.77	18	4.57	15	3.83	20	5.03
20-24	17	4.86	20	5.54	11	2.95	20	5.11	17	4.19	17	3.92	28	6.17
25-29	23	5.80	17	4.12	19	4.43	23	5.17	16	3.50	24	5.13	24	4.98
30-34	20	4.98	15	3.55	19	4.30	18	3.89	29	6.07	22	4.40	21	4.05
35-39	16	4.52	21	5.59	16	4.01	22	5.22	17	3.88	18	3.88	20	4.12
40-44	12	4.55	16	5.50	21	6.58	14	4.00	10	2.67	19	4.64	19	4.42
45-49	8	4.10	14	6.66	8	3.52	10	4.07	7	2.68	13	4.57	15	4.82
50-54	10	6.12	14	8.16	6	3.31	8	4.17	11	5.46	11	5.07	15	6.47
55-59	8	5.51	9	5.91	5	3.14	9	5.41	11	6.41	5	2.77	5	2.63
60-64	5	4.05	8	6.07	0	0.00	11	7.45	6	3.91	12	7.37	10	5.89
65-69	6	6.39	6	5.92	4	3.67	5	4.27	5	4.07	3	2.26	8	5.63
70-74	6	8.97	5	7.00	8	10.57	4	4.98	8	9.52	6	6.46	3	2.97
75-79	3	6.87	1	2.13	0	0.00	5	9.34	4	7.15	8	13.09	6	8.97
80-84	2	8.62	0	0.00	9	34.28	7	25.06	4	13.70	3	9.07	4	11.09
85+	3	17.21	5	26.89	5	25.07	3	13.96	5	22.03	5	19.23	2	7.11
UNK AGE	0		0		0		0		0		0		0	
TOTAL*	156	3.93	167	3.99	145	3.28	182	3.91	170	3.51	182	3.55	202	3.76
AGEADJ**		(3.95)		(4.08)		(3.18)		(3.90)		(3.49)		(3.49)		(3.78

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989
decennial census data are used for 1990. Demo-Detail postcensal population estimates are used for 1991-92

SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
E950-E959

ALL RACES / BOTH SEXES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	5	0.03	1	0.01	6	0.03	4	0.02	6	0.03	1	0.01	10	0.05
10-14	250	1.52	250	1.53	237	1.44	236	1.40	258	1.51	265	1.50	304	1.68
15-19	1896	10.07	1902	10.16	2059	11.12	2009	11.07	1979	11.07	1899	11.06	1847	10.82
20-24	3224	15.49	3022	14.92	2870	14.57	2861	14.84	2890	15.11	2852	14.87	2846	14.94
25-29	3429	15.66	3372	15.42	3355	15.43	3299	15.30	3192	14.97	3086	14.88	2864	14.19
30-34	3282	16.03	3283	15.65	3355	15.69	3266	15.07	3358	15.38	3428	15.46	3308	14.85
35-39	2852	15.34	2799	15.05	2909	15.33	2937	15.11	3098	15.61	3089	15.05	3177	15.06
40-44	2161	15.02	2333	14.94	2296	14.19	2394	14.12	2619	14.89	2678	14.28	2832	15.06
45-49	1895	15.98	1931	15.74	1898	14.68	1954	14.57	2059	14.98	2206	15.65	2251	14.66
50-54	1841	17.09	1776	16.46	1634	14.88	1688	15.08	1659	14.66	1777	15.26	1767	14.66
55-59	1916	17.21	1838	16.76	1720	16.04	1650	15.66	1692	16.13	1613	15.47	1541	14.69
60-64	1866	17.19	1812	16.82	1686	15.62	1692	15.80	1691	15.91	1628	15.38	1564	14.98
65-69	1707	17.92	1757	18.06	1718	17.52	1742	17.49	1666	16.55	1572	15.68	1555	15.59
70-74	1707	22.48	1671	21.72	1578	20.19	1533	19.40	1564	19.60	1512	18.32	1483	17.48
75-79	1433	25.47	1469	25.49	1447	24.56	1349	22.42	1461	23.94	1395	22.19	1387	21.62
80-84	850	24.41	933	25.97	1015	27.42	910	23.82	1032	26.40	1031	25.52	1021	24.61
85+	578	21.13	634	22.53	605	21.02	694	23.47	671	22.21	758	24.02	714	21.90
UNK AGE	12		13		19		14		11		20		13	
TOTAL*	30904	12.87	30796	12.71	30407	12.43	30232	12.25	30906	12.43	30810	12.22	30484	11.95
AGEADJ**		(11.90)		(11.70)		(11.45)		(11.32)		(11.47)		(11.32)		(11.09)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989 and
decennial census data are used for 1990. Demo-Detail postcensal population estimates are used for 1991-92.

SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
E950-E959

ALL RACES / MALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	3	0.03	1	0.01	5	0.05	3	0.03	4	0.04	1	0.01	8	0.09
10-14	196	2.32	198	2.36	176	2.08	181	2.10	191	2.19	207	2.29	224	2.42
15-19	1552	16.12	1525	15.92	1668	17.59	1637	17.60	1656	18.05	1588	18.05	1560	17.80
20-24	2724	25.86	2584	25.19	2475	24.77	2469	25.21	2504	25.70	2485	25.47	2484	25.59
25-29	2825	25.71	2779	25.33	2779	25.47	2742	25.33	2667	24.92	2563	24.62	2435	24.01
30-34	2625	25.79	2591	24.83	2684	25.22	2597	24.08	2672	24.60	2798	25.34	2667	24.01
35-39	2190	23.85	2166	23.57	2279	24.28	2301	23.91	2413	24.54	2418	23.75	2522	24.06
40-44	1552	21.96	1711	22.27	1696	21.29	1802	21.56	2011	23.18	2057	22.21	2158	23.24
45-49	1380	23.79	1392	23.18	1341	21.17	1455	22.14	1583	23.49	1614	23.36	1689	22.40
50-54	1328	25.48	1300	24.86	1212	22.75	1256	23.11	1253	22.81	1365	24.12	1310	22.37
55-59	1417	26.76	1383	26.46	1294	25.30	1222	24.29	1254	25.04	1239	24.85	1183	23.55
60-64	1371	27.29	1375	27.58	1282	25.63	1288	25.90	1309	26.46	1278	25.83	1203	24.60
65-69	1344	31.48	1361	31.17	1361	30.95	1383	30.99	1302	28.88	1218	27.12	1227	27.42
70-74	1368	42.76	1363	41.98	1261	38.09	1292	38.48	1244	36.60	1248	35.28	1205	33.01
75-79	1161	53.39	1215	54.39	1199	52.34	1132	48.20	1237	51.78	1181	47.47	1152	45.13
80-84	695	58.16	778	63.05	851	66.81	763	57.80	862	63.58	878	62.37	850	58.38
85+	484	62.45	539	68.03	498	61.84	567	68.74	554	65.86	614	69.90	571	62.79
UNK AGE	11		11		17		12		8		17		9	
TOTAL*	24226	20.72	24272	20.57	24078	20.21	24102	20.04	24724	20.39	24769	20.14	24457	19.65
AGEADJ**		(19.30)		(19.07)		(18.73)		(18.63)		(18.98)		(18.78)		(18.36)

ALL RACES / FEMALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	2	0.02	0	0.00	1	0.01	1	0.01	2	0.02	0	0.00	2	0.02
10-14	54	0.67	52	0.65	61	0.76	55	0.67	67	0.81	58	0.67	80	0.91
15-19	344	3.74	377	4.12	391	4.33	372	4.21	323	3.71	311	3.72	287	3.45
20-24	500	4.86	438	4.38	395	4.07	392	4.13	386	4.11	367	3.90	362	3.87
25-29	604	5.54	593	5.45	576	5.32	557	5.19	525	4.94	523	5.06	429	4.27
30-34	657	6.38	692	6.56	671	6.24	669	6.14	686	6.25	630	5.66	641	5.74
35-39	662	7.03	633	6.73	630	6.57	636	6.48	685	6.84	671	6.49	655	6.17
40-44	609	8.32	622	7.84	600	7.30	592	6.89	608	6.82	621	6.54	674	7.08
45-49	515	8.50	539	8.60	557	8.45	499	7.30	476	6.80	592	8.24	562	7.19
50-54	513	9.23	476	8.56	422	7.47	432	7.50	406	6.98	412	6.88	457	7.37
55-59	499	8.54	455	7.92	426	7.59	428	7.78	438	7.99	374	6.88	358	6.55
60-64	495	8.49	437	7.55	404	6.97	404	7.04	382	6.73	350	6.21	361	6.50
65-69	363	6.90	396	7.39	357	6.60	359	6.53	364	6.55	354	6.39	328	5.96
70-74	339	7.71	308	6.93	317	7.04	241	5.30	320	6.99	264	5.60	278	5.75
75-79	272	7.88	254	7.20	248	6.89	217	5.91	224	6.03	214	5.63	235	6.08
80-84	155	6.78	155	6.57	164	6.76	147	5.88	170	6.66	153	5.81	171	6.35
85+	94	4.79	95	4.70	107	5.16	127	5.96	117	5.37	144	6.32	143	6.08
UNK AGE	1		2		2		2		3		3		4	
TOTAL*	6678	5.42	6524	5.25	6329	5.05	6130	4.84	6182	4.85	6041	4.68	6027	4.62
AGEADJ**		(5.09)		(4.93)		(4.72)		(4.54)		(4.49)		(4.36)		(4.26)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989
decennial census data are used for 1990; postcensal population estimates are used for 1991-92

SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
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WHITE / BOTH SEXES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	2	0.01	1	0.01	6	0.04	2	0.01	4	0.03	0	0.00	6	0.04
10-14	212	1.60	218	1.65	195	1.47	196	1.45	219	1.60	228	1.61	265	1.84
15-19	1716	11.14	1679	11.02	1819	12.13	1743	11.92	1701	11.85	1628	11.87	1531	11.24
20-24	2875	16.67	2649	15.85	2489	15.37	2399	15.20	2481	15.87	2450	15.69	2404	15.58
25-29	3004	16.37	2940	16.10	2940	16.24	2847	15.91	2731	15.48	2629	15.42	2464	14.92
30-34	2915	16.91	2910	16.52	2904	16.22	2850	15.75	2952	16.23	3045	16.52	2895	15.67
35-39	2572	16.20	2517	15.97	2626	16.40	2628	16.08	2779	16.69	2799	16.30	2845	16.16
40-44	2012	16.25	2157	16.01	2124	15.28	2189	15.09	2404	16.03	2470	15.50	2582	16.28
45-49	1768	17.34	1798	17.06	1761	15.82	1830	15.85	1909	16.14	2033	16.80	2085	15.77
50-54	1736	18.57	1666	17.83	1524	16.05	1588	16.43	1540	15.80	1662	16.59	1649	15.93
55-59	1821	18.56	1764	18.31	1634	17.41	1573	17.12	1595	17.47	1508	16.68	1476	16.27
60-64	1775	18.35	1723	18.00	1612	16.83	1594	16.82	1606	17.12	1527	16.40	1477	16.13
65-69	1615	18.89	1662	19.06	1638	18.67	1642	18.46	1590	17.70	1496	16.77	1485	16.79
70-74	1633	23.84	1593	22.95	1525	21.63	1473	20.67	1493	20.76	1443	19.44	1426	18.71
75-79	1390	27.28	1421	27.24	1401	26.28	1308	24.03	1421	25.75	1335	23.47	1339	23.10
80-84	824	25.88	898	27.35	987	29.19	880	25.24	1008	28.26	995	27.01	980	25.92
85+	559	22.31	610	23.68	588	22.34	670	24.78	642	23.25	734	25.48	691	23.22
UNK AGE	8		11		17		12		11		14		11	
TOTAL*	28437	13.98	28217	13.78	27790	13.48	27424	13.22	28086	13.46	27996	13.27	27611	12.97
AGEADJ**		(12.74)		(12.49)		(12.21)		(12.02)		(12.21)		(12.10)		(11.82)

BLACK / BOTH SEXES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	2	0.08	0	0.00	0	0.00	2	0.07	2	0.07	1	0.04	1	0.04
10-14	25	0.99	25	0.99	29	1.15	32	1.24	29	1.10	31	1.14	33	1.19
15-19	128	4.62	162	5.84	167	6.04	175	6.41	183	6.74	183	6.94	223	8.45
20-24	252	8.87	263	9.42	298	10.89	350	13.02	282	10.62	296	11.10	313	11.66
25-29	332	11.99	341	12.26	325	11.64	340	12.19	357	12.84	344	12.48	303	11.17
30-34	303	12.34	311	12.19	360	13.72	349	12.99	318	11.70	301	10.88	331	11.85
35-39	218	10.60	225	10.55	226	10.21	244	10.64	252	10.68	237	9.62	257	10.02
40-44	113	7.54	129	8.11	131	7.82	168	9.39	171	9.09	153	7.44	194	9.07
45-49	101	7.89	97	7.35	106	7.81	94	6.77	128	9.06	132	9.10	120	7.79
50-54	82	7.34	78	6.96	82	7.20	78	6.73	91	7.73	84	6.94	83	6.61
55-59	72	6.79	53	5.01	70	6.66	60	5.75	67	6.44	75	7.15	47	4.44
60-64	70	7.31	67	6.95	62	6.40	70	7.21	58	5.97	64	6.53	66	6.72
65-69	70	8.64	76	9.23	65	7.76	80	9.40	58	6.75	61	7.02	52	5.92
70-74	56	9.00	60	9.60	38	6.06	43	6.80	55	8.62	48	7.24	43	6.31
75-79	33	7.35	41	8.91	38	8.09	31	6.48	27	5.58	42	8.59	33	6.61
80-84	20	7.82	25	9.47	16	5.89	18	6.40	16	5.55	26	8.76	25	8.27
85+	12	5.97	9	4.35	7	3.30	17	7.80	17	7.64	14	6.05	17	7.13
UNK AGE	3		1		2		2		0		5		2	
TOTAL*	1892	6.53	1963	6.68	2022	6.80	2153	7.14	2111	6.93	2097	6.75	2143	6.77
AGEADJ**		(6.58)		(6.69)		(6.83)		(7.15)		(7.02)		(6.84)		(6.85)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates; intercensal data are used for 1984-1989
decennial census data are used for 1990. Demo Detail postcensal population estimates are used for 1991-92.

SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
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OTHER / BOTH SEXES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	1	0.15	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	0.34
10-14	13	1.98	7	1.04	13	1.86	8	1.09	10	1.31	6	0.73	6	0.68
15-19	52	7.79	61	8.58	73	9.68	91	11.50	95	11.63	88	10.92	93	11.40
20-24	97	13.38	110	14.72	83	10.75	112	13.85	127	15.13	106	11.85	129	13.82
25-29	93	11.87	91	11.12	90	10.55	112	12.63	104	11.43	113	12.13	97	10.14
30-34	64	8.25	62	7.58	91	10.63	67	7.48	88	9.51	82	8.44	82	8.13
35-39	62	9.32	57	8.05	57	7.54	65	8.11	67	8.03	53	5.98	75	8.04
40-44	36	7.14	47	8.48	41	6.78	37	5.59	44	6.23	55	7.14	56	6.92
45-49	26	6.79	36	8.75	31	7.00	30	6.30	22	4.36	41	7.52	46	7.74
50-54	23	7.49	32	9.81	28	8.03	22	5.92	28	7.16	31	7.36	35	7.84
55-59	23	8.79	21	7.62	16	5.53	17	5.59	30	9.50	30	8.97	18	5.07
60-64	21	9.33	22	9.23	12	4.79	28	10.64	27	9.90	37	12.73	21	6.93
65-69	22	12.89	19	10.30	15	7.55	20	9.41	18	8.10	15	6.31	18	7.17
70-74	18	14.67	18	13.89	15	11.00	17	11.80	16	10.63	21	12.59	14	7.74
75-79	10	12.22	7	8.04	8	8.67	10	10.28	13	12.86	18	16.36	15	12.63
80-84	6	14.29	10	22.20	12	24.76	12	23.12	8	14.68	10	16.65	16	24.56
85+	7	23.96	15	48.12	10	30.01	7	19.57	12	31.72	10	23.29	6	13.01
UNK AGE	1		1		0		0		0		1		0	
TOTAL*	575	7.38	616	7.49	595	6.85	655	7.15	709	7.45	717	7.12	730	6.93
AGEADJ**		(7.40)		(7.55)		(6.79)		(7.16)		(7.45)		(7.23)		(6.98

TOTAL / BOTH SEXES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	5	0.03	1	0.01	6	0.03	4	0.02	6	0.03	1	0.01	10	0.05
10-14	250	1.52	250	1.53	237	1.44	236	1.40	258	1.51	265	1.50	304	1.68
15-19	1896	10.07	1902	10.16	2059	11.12	2009	11.07	1979	11.07	1899	11.06	1847	10.82
20-24	3224	15.49	3022	14.92	2870	14.57	2861	14.84	2890	15.11	2852	14.87	2846	14.94
25-29	3429	15.66	3372	15.42	3355	15.43	3299	15.30	3192	14.97	3086	14.88	2864	14.19
30-34	3282	16.03	3283	15.65	3355	15.69	3266	15.07	3358	15.38	3428	15.46	3308	14.85
35-39	2852	15.34	2799	15.05	2909	15.33	2937	15.11	3098	15.61	3089	15.05	3177	15.06
40-44	2161	15.02	2333	14.94	2296	14.19	2394	14.12	2619	14.89	2678	14.28	2832	15.06
45-49	1895	15.98	1931	15.74	1898	14.68	1954	14.57	2059	14.98	2206	15.65	2251	14.66
50-54	1841	17.09	1776	16.46	1634	14.88	1688	15.08	1659	14.66	1777	15.26	1767	14.66
55-59	1916	17.21	1838	16.76	1720	16.04	1650	15.66	1692	16.13	1613	15.47	1541	14.69
60-64	1866	17.19	1812	16.82	1686	15.62	1692	15.80	1691	15.91	1628	15.38	1564	14.98
65-69	1707	17.92	1757	18.06	1718	17.52	1742	17.49	1666	16.55	1572	15.68	1555	15.59
70-74	1707	22.48	1671	21.72	1578	20.19	1533	19.40	1564	19.60	1512	18.32	1483	17.48
75-79	1433	25.47	1469	25.49	1447	24.56	1349	22.42	1461	23.94	1395	22.19	1387	21.62
80-84	850	24.41	933	25.97	1015	27.42	910	23.82	1032	26.40	1031	25.52	1021	24.61
85+	578	21.13	634	22.53	605	21.02	694	23.47	671	22.21	758	24.02	714	21.90
UNK AGE	12		13		19		14		11		20		13	
TOTAL*	30904	12.87	30796	12.71	30407	12.43	30232	12.25	30906	12.43	30810	12.22	30484	11.95
AGEADJ**		(11.90)		(11.70)		(11.45)		(11.32)		(11.47)		(11.32)		(11.09)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates; intercensal estimates are used for 1984-1989
decennial census data are used for 1990. Demo-Detail postcensal population estimates are used for 1991-92.

SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
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WHITE MALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	2	0.03	1	0.01	5	0.07	1	0.01	3	0.04	0	0.00	5	0.07
10-14	166	2.43	173	2.55	146	2.14	151	2.18	162	2.31	175	2.41	191	2.58
15-19	1414	17.93	1352	17.30	1473	19.14	1424	18.95	1422	19.27	1351	19.15	1289	18.39
20-24	2427	27.66	2265	26.61	2145	25.97	2074	25.72	2147	26.81	2125	26.59	2103	26.60
25-29	2471	26.61	2419	26.17	2438	26.61	2368	26.14	2279	25.53	2191	25.38	2097	25.05
30-34	2336	26.97	2291	25.88	2308	25.63	2254	24.77	2346	25.65	2472	26.64	2332	25.05
35-39	1953	24.65	1940	24.64	2048	25.58	2062	25.20	2164	25.94	2190	25.42	2251	25.47
40-44	1441	23.47	1573	23.51	1581	22.87	1647	22.81	1844	24.66	1895	23.83	1968	24.85
45-49	1283	25.50	1287	24.73	1244	22.62	1361	23.84	1468	25.09	1477	24.67	1569	23.94
50-54	1254	27.46	1220	26.70	1130	24.32	1188	25.10	1162	24.34	1282	26.11	1222	24.07
55-59	1354	28.77	1324	28.58	1228	27.18	1167	26.34	1186	26.93	1152	26.37	1133	25.80
60-64	1309	29.04	1309	29.34	1222	27.32	1217	27.41	1242	28.17	1200	27.29	1139	26.28
65-69	1269	32.96	1283	32.60	1298	32.82	1304	32.52	1247	30.81	1156	28.76	1177	29.47
70-74	1313	45.34	1301	44.24	1221	40.69	1239	40.72	1188	38.57	1196	37.38	1158	35.11
75-79	1129	57.41	1175	58.15	1157	55.80	1100	51.70	1203	55.56	1132	50.14	1113	48.04
80-84	674	62.05	746	66.52	834	72.06	744	62.02	843	68.42	849	66.34	815	61.57
85+	468	66.79	520	72.61	486	66.79	547	73.40	534	70.28	597	75.26	555	67.58
UNK AGE	7		9		16		10		8		12		9	
TOTAL*	22270	22.41	22188	22.17	21980	21.81	21858	21.53	22448	21.98	22452	21.73	22126	21.20
AGEADJ**		(20.50)		(20.17)		(19.82)		(19.64)		(20.04)		(19.86)		(19.41

WHITE FEMALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	0	0.00	0	0.00	1	0.01	1	0.01	1	0.01	0	0.00	1	0.01
10-14	46	0.71	45	0.70	49	0.76	45	0.69	57	0.86	53	0.77	74	1.05
15-19	302	4.02	327	4.40	346	4.74	319	4.49	279	4.00	277	4.16	242	3.66
20-24	448	5.29	384	4.68	344	4.34	325	4.21	334	4.38	325	4.26	301	4.00
25-29	533	5.88	521	5.78	502	5.61	479	5.42	452	5.19	438	5.20	367	4.50
30-34	579	6.75	619	7.07	596	6.69	596	6.62	606	6.70	573	6.26	563	6.14
35-39	619	7.79	577	7.32	578	7.22	566	6.93	615	7.40	609	7.11	594	6.78
40-44	571	9.15	584	8.61	543	7.77	542	7.44	560	7.44	575	7.21	614	7.74
45-49	485	9.39	511	9.58	517	9.19	469	8.04	441	7.38	556	9.10	516	7.74
50-54	482	10.08	446	9.34	394	8.13	400	8.11	378	7.60	380	7.44	427	8.09
55-59	467	9.14	440	8.79	406	8.34	406	8.53	409	8.65	356	7.62	343	7.33
60-64	466	9.02	414	8.10	390	7.64	377	7.48	364	7.32	327	6.65	338	7.01
65-69	346	7.37	379	7.92	340	7.06	338	6.92	343	6.95	340	6.94	308	6.35
70-74	320	8.09	292	7.30	304	7.51	234	5.73	305	7.42	247	5.85	268	6.20
75-79	261	8.34	246	7.70	244	7.49	208	6.28	218	6.50	203	5.92	226	6.49
80-84	150	7.15	152	7.03	153	6.88	136	5.95	165	7.07	146	6.07	165	6.71
85+	91	5.04	90	4.84	102	5.35	123	6.28	108	5.40	137	6.56	136	6.31
UNK AGE	1		2		1		2		3		2		2	
TOTAL*	6167	5.93	6029	5.76	5810	5.52	5566	5.25	5638	5.29	5544	5.15	5485	5.05
AGEADJ**		(5.50)		(5.34)		(5.09)		(4.86)		(4.83)		(4.75)		(4.60)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates: intercensal data are used for 1984-1989
decennial census data are used for 1990; postcensal population estimates are used for 1991-92

SUICIDE DEATHS AND RATES PER 100,000, FOR YEARS 1986-1992
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BLACK MALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.0
5-9	1	0.08	0	0.00	0	0.00	2	0.15	1	0.07	1	0.07	1	0.0
10-14	20	1.57	21	1.65	17	1.33	23	1.76	21	1.58	27	1.96	28	1.9
15-19	99	7.11	125	8.96	136	9.76	144	10.45	157	11.46	164	12.31	198	14.8
20-24	217	15.70	229	16.83	258	19.34	303	23.10	247	19.01	271	20.77	280	21.2
25-29	284	21.60	286	21.64	270	20.34	285	21.48	300	22.68	283	21.54	265	20.4
30-34	245	21.44	253	21.27	304	24.80	294	23.43	267	21.03	266	20.58	274	20.9
35-39	191	20.17	190	19.33	190	18.59	196	18.47	199	18.19	193	16.84	216	18.0
40-44	87	12.68	107	14.69	95	12.35	132	16.04	133	15.32	126	13.27	153	15.4
45-49	79	13.61	83	13.83	74	11.97	74	11.68	100	15.51	109	16.49	89	12.6
50-54	61	12.13	62	12.26	60	11.69	54	10.35	74	13.95	63	11.58	68	12.0
55-59	48	10.14	47	9.99	55	11.79	47	10.16	49	10.65	62	13.39	37	7.9
60-64	46	11.07	52	12.46	48	11.47	54	12.90	46	11.00	53	12.56	53	12.5
65-69	59	17.24	65	18.71	52	14.75	64	17.90	42	11.65	50	13.66	40	10.7
70-74	43	17.40	49	19.76	33	13.27	40	15.95	48	18.97	37	14.02	36	13.1
75-79	25	14.70	34	19.65	34	19.40	27	15.23	25	13.99	39	21.53	30	16.2
80-84	17	18.92	22	23.90	14	14.88	14	14.51	15	15.25	22	21.79	23	22.3
85+	12	19.19	9	14.16	7	10.88	16	24.46	13	19.62	12	17.61	12	17.1
UNK AGE	3		1		1		2		0		4		0	
TOTAL*	1537	11.21	1635	11.77	1648	11.71	1771	12.41	1737	12.05	1782	12.11	1803	12.03
AGEADJ**		(11.53)		(12.09)		(11.91)		(12.60)		(12.40)		(12.49)		(12.33

BLACK FEMALES

AGE (IN YRS)	1986 NO.	1986 RATE	1987 NO.	1987 RATE	1988 NO.	1988 RATE	1989 NO.	1989 RATE	1990 NO.	1990 RATE	1991 NO.	1991 RATE	1992 NO.	1992 RATE
0-4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
5-9	1	0.08	0	0.00	0	0.00	0	0.00	1	0.07	0	0.00	0	0.00
10-14	5	0.40	4	0.32	12	0.96	9	0.70	8	0.61	4	0.30	5	0.36
15-19	29	2.11	37	2.69	31	2.26	31	2.29	26	1.93	19	1.45	25	1.92
20-24	35	2.40	34	2.37	40	2.85	47	3.41	35	2.58	25	1.84	33	2.42
25-29	48	3.30	55	3.77	55	3.75	55	3.76	57	3.91	61	4.23	38	2.68
30-34	58	4.42	58	4.26	56	4.00	55	3.84	51	3.52	35	2.38	57	3.84
35-39	27	2.43	35	3.04	36	3.02	48	3.90	53	4.19	44	3.34	41	3.00
40-44	26	3.20	22	2.55	36	3.97	36	3.73	38	3.75	27	2.44	41	3.57
45-49	22	3.14	14	1.95	32	4.33	20	2.65	28	3.64	23	2.91	31	3.70
50-54	21	3.42	16	2.60	22	3.52	24	3.77	17	2.63	21	3.15	15	2.17
55-59	24	4.09	6	1.02	15	2.57	13	2.24	18	3.10	13	2.22	10	1.69
60-64	24	4.43	15	2.75	14	2.55	16	2.90	12	2.17	11	1.97	13	2.32
65-69	11	2.35	11	2.31	13	2.68	16	3.24	16	3.21	11	2.19	12	2.37
70-74	13	3.47	11	2.92	5	1.32	3	0.79	7	1.82	11	2.76	7	1.71
75-79	8	2.87	7	2.44	4	1.36	4	1.33	2	0.66	3	0.97	3	0.95
80-84	3	1.81	3	1.75	2	1.13	4	2.17	1	0.53	4	2.04	2	1.00
85+	0	0.00	0	0.00	0	0.00	1	0.66	4	2.56	2	1.22	5	2.97
UNK AGE	0		0		1		0		0		1		2	
TOTAL*	355	2.32	328	2.12	374	2.38	382	2.40	374	2.33	315	1.92	340	2.04
AGEADJ**		(2.37)		(2.10)		(2.46)		(2.44)		(2.36)		(1.94)		(2.04)

* Total number and crude rate include unknown age.
** Age-adjusted rate excludes unknown age. Standard population is 1940 U.S. all races / both sexes.
Data Sources: National Center for Health Statistics Mortality Data Tapes for number of deaths;
U.S. Bureau of Census population estimates; intercensal data are used for 1984-1989
decennial census data. Annual postcensal population estimates are used for 1991-92

CHAPTER 8. SUICIDE
(Patrick W. O'Carroll, Mark L. Rosenberg, and James A. Mercy)

VIOLENCE IN AMERICA

A Public Health Approach

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MARK L. ROSENBERG
MARY ANN FENLEY

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8

Suicide

PATRICK W. O'CARROLL, MARK L. ROSENBERG, AND JAMES A. MERCY

As the eighth leading cause of death in the United States, suicide accounted for 30,796 deaths in 1987. Although the highest rates still occur among the elderly, the ranking of suicide as the fifth leading cause of premature death reflects an increasing incidence of suicide among adolescents and young adults. Men of all age and race groups are more likely than women to commit suicide, and white men are at highest risk.

Firearms are the most frequently used method of suicide for both men and women; from 1970 to 1984, the proportion of suicides committed with firearms increased 17 percent for men and 59 percent for women. The second method of choice for men is by hanging, and the third, poisoning by gas. The second choice for women is ingestion of an overdose of drugs.

The epidemiologic information concerning attempted suicide is meager and there is no uniformly accepted definition of suicide attempt. In one large multisite survey of U.S. adults, approximately three out of every 1,000 reported that they had "attempted suicide in the preceding year." The results of this survey (8) parallel other smaller surveys and suggest that there are approximately 25 suicide attempts for every completed suicide and that there are 750,000 adults who attempt suicide each year.

Data on suicide mortality are derived from death certificates. As a cause of death, suicide has been succinctly defined as death from intentionally self-inflicted injury. Yet applying this definition can be very difficult because determination of intention may require a retrospective collection of information regarding the decedent's state of mind prior to death. The quality and amount of this information as well as the ability of the official who is responsible for the certification varies greatly from case to case. In addition, the social stigma associated with suicide may make some coroners and

medical examiners reluctant to certify suicide as the cause of death. Because of these limitations, it is highly likely that official suicide statistics substantially underestimate the true suicide rate. There are no national data sources for the magnitude of the physical and mental health consequences of attempted suicide or for the incidence of attempted suicide among persons under 18 years of age.

Risk factors for suicide include certain psychiatric illnesses, personality disorders (particularly borderline and antisocial personality disorders), alcoholism, family history of suicide, and low concentrations of certain neurotransmitter metabolites (particularly, serotonin metabolite 5-hydroxyindoleacetic acid (5-HIAA) in cerebrospinal fluid). Anecdotal evidence seems to indicate that among teenagers and young adults, suicide may be influenced by exposure to suicide or suicidal behavior by others. Although this hypothesis has not been formally tested many believe that it warrants recognition and that communities and health officials should have in place a plan to minimize potential contagion before an apparent suicide cluster occurs.

There are a variety of situational risk factors for suicide including stressful life events (e.g., death of a loved one, loss of employment), loss or disruption of normal social support mechanisms (e.g., divorce, moving from one place to another), and absent or inadequate social networks support; these are most dangerous when they interact with other suicide risk factors. Another important situational risk factor is the ready accessibility of firearms. Because a suicide attempt with a firearm is often immediately lethal and very little time is needed to plan for suicide if the firearm is available, suicide with a firearm may be committed impulsively, with little or no time to reconsider the action. Some risk factors for suicide are not "causal" but serve as markers of individuals at high risk: being male, elderly, or having a past history of attempted suicide.

The outcomes of suicide include tremendous economic costs as well as emotional trauma suffered by the family members and friends of the suicide victims. In 1984 suicide of those younger than 65 years of age resulted in a loss of over 645,000 years of potential life. For survivors the emotional trauma is particularly difficult because of the unexpectedness of the event, possible feelings of guilt, the social stigma associated with suicide, and possible withdrawal of the usual social support because of the social stigma.

Interventions for suicide prevention can be divided into five major categories:

1. Improving the identification, referral, and treatment of persons at high risk.
2. Treatment of underlying risk factors, such as clinical depression or alcoholism.
3. Decreasing individual vulnerability to suicide through education of the general population.

5. Limiting access to lethal means of suicide, such as firearms, prescription drugs, and high places.

A public health priority must be to assess the effectiveness of these interventions so that policy makers can make the best use of limited suicide prevention resources.

STATEMENT OF THE PROBLEM

In 1987 there were 30,796 deaths from suicide in the United States, making suicide the eighth leading cause of death in this country (1). Unlike the rates for many diseases, suicide rates are substantial among both young and old people. As a result, suicide is the fifth leading cause of premature death, as defined by years of potential life lost before age 65 (2). In past decades, the rate of suicide was relatively low among adolescents and young adults but increased steadily with increasing age. However, suicide rates among younger age groups have increased dramatically in the last three to four decades (3). In particular, the suicide rate among persons 15–24 years of age has almost tripled: in 1950 the suicide rate for this age group was 4.5 per 100,000; in 1988, this rate was 12.8 (4,5). Suicide has been the second or third leading cause of death among persons 15–24 years of age in recent years. Although most suicides occur among persons less than forty years of age, the highest rates occur among the elderly (3).

In general, men are three to five times more likely to commit suicide than women. Furthermore, men are at higher risk than women across all age and race groups. White men are at the highest risk of suicide, followed by men of races other than white, white women, and women of races other than white. White men have also experienced the greatest increase in suicide rates among persons 15–24 years of age. In 1987 the rate of suicide in this race-sex-age group was almost twice the overall national suicide rate (6).

For both men and women, firearms are the most frequently used method of suicide; overall, approximately 60 percent of all suicides are committed with firearms. Among men, hanging is the second most common method of suicide, followed by poisoning by gases (chiefly carbon monoxide). Among women, ingestion of an overdose of drugs is the second most common method. The predominance of firearms as a method of suicide is increasing among men, whereas it is new for women. In 1970 for example, more women committed suicide by drug ingestion than by firearms. In recent years, firearm suicides have accounted for an increasingly large proportion of all suicides among persons 15–24 years of age. From 1970 to 1984, the proportion of suicides committed with firearms increased 17 percent and 59 percent for men and women, respectively (7).

Reliable information regarding morbidity from attempted (as opposed to completed) suicide is sparse. In one large, multi-site survey of adults in the United States, approximately three out of every 1,000 reported having attempted suicide at some point during the preceding year (8). This estimate, which is in line with previous smaller surveys, suggests that approximately 750,000 adults attempt suicide each year in the United States, and that there are approximately 25 suicide attempts for each completed suicide.

DATA SOURCES

Suicide mortality data ultimately derive from death certificate data. The determination of suicide as a cause of death, however, is not always a straightforward process. Suicide has been defined fairly succinctly as death from intentionally self-inflicted injury (9), but it can be very difficult to apply this definition. In particular, determining whether a decedent intended to commit suicide necessarily involves retrospective collection of data regarding the decedent's state of mind prior to the death. The amount and quality of such information varies greatly from case to case. Moreover, until recently there were no published guidelines explicitly describing what type of data ought to be collected in a death investigation in order to make an informed determination of manner of death (9). The great variability across the United States in the qualifications of the coroner or official responsible for medicolegal certification presents additional questions about the validity and reliability of death certificate information (10).

Against the backdrop of these structural problems in suicide certification, there is also the social stigma associated with suicide. For religious, financial, and even political reasons, coroners and medical examiners may sometimes be reluctant to certify suicide as a cause of death. Given these limitations in the way suicide is determined as a cause of death, it is not surprising that many investigators believe official suicide statistics substantially underestimate the true suicide rate. Estimates of the true suicide rate range from a low of 1.01 to 1.8 times the official rate, but it is likely that the true rate of suicide is no more than 1.25 times the offical rate (11).

There is essentially no information at the national level concerning the magnitude of the physical and mental health consequences of attempted suicide. Indeed, the incidence estimates from surveys of adults cited above are quite limited in what they tell us about attempted suicide. Because attempted suicide was self-defined in these surveys, for example, it is unclear what proportion of these "suicide attempts" resulted in injury, in a visit to an emergency health facility, or in subsequent attempted or completed suicide. There are also no national estimates of the incidence of attempted suicide among persons less than 18 years of age, although there are indications that the attempted suicide rate in this group may be even higher than in the adult population. Without such information on a national, longitudinal basis, it is difficult to accurately estimate suicide attempt morbidity and trends, or to assess the efficacy of suicide prevention programs.

CAUSES AND RISK FACTORS

Even though it is common to hear people say that a person committed suicide because he or she was mentally ill or could not cope with stressful events, in reality there are many factors that contribute to the causal mechanism of any given suicide. Certain psychiatric illnesses are, of course, both extremely important and well recognized as risk factors for suicide. In particular, affective disorders have been clearly shown in both retrospective case-control studies and prospective cohort studies to markedly increase the risk of suicide (12). For example, in a population-based cohort study of 3,563 men in Sweden followed for 15 to 25 years, the suicide rate among men with an initial diagnosis of any mental illness was almost 39 times higher than the rate for men with no mental disorder. Men with an initial diagnosis of a depressive disorder had a suicide rate 80 times higher than men with no mental disorder (13).

After clinical depression, alcoholism is the most commonly reported mental illness associated with suicide (14–17). In many studies, however, no control group was used in assessing the contribution of alcohol use to suicide risk (18–20). In addition, the independent effect of alcoholism on the suicide rate is rarely estimated; rather, the diagnosis of alcoholism among the case series is often reported along with the prevalence of affective illness, social isolation, and other factors that might themselves account for any observed increase in the risk of suicide. Most of the studies have been done using special populations, such as psychiatric inpatients (21–23) or hospitalized alcoholics (24–26), and the findings of these studies are not necessarily applicable to alcoholics in general. Finally, very little work has been done to separately assess the effects of acute exposure to alcohol (i.e., alcohol intoxication) and alcohol abuse on the risk of suicide. More research is needed to elucidate the mechanism(s) underlying the observed association between alcoholism and suicide.

Certain personality disorders (in particular, borderline and antisocial personality disorders) have also been shown to be correlated with suicidal behavior (27). The interpretation of this correlation is problematic, however, since suicidal behavior is inherently part of the definition of certain personality disorders, such as borderline personality disorder. The strength and the predictive value of personality disorders as risk factors for suicide, as well as the mechanisms explaining the observed association between certain personality disorders and suicide, must be determined in future research.

There is an increasing body of literature addressing putative genetic and biologic risk factors for suicide. Suicide has long been observed to "run in families," but such a phenomenon might either be caused by common exposure among family members to environmental-sociocultural risk factors for suicide, or by genetic factors shared by family members. Meta-analysis of twin studies, however, strongly suggests a genetically based risk for mental illness and suicide. Moreover, several Danish-American adoption studies suggest that this genetic risk may be inherited independently of major psychiatric illness, perhaps as an inability to control impulsive behavior (28).

Certain neurotransmitter metabolites have been convincingly associated with an increased risk of suicide (29). In particular, a clear relationship has been demonstrated between low concentrations of the serotonin metabolite 5-hydroxyindoleacetic acid (5-HIAA) in cerebrospinal fluid (CSF) and an increased incidence of attempted and completed suicide in psychiatric patients. Most of the evidence for this relationship is based on studies of patients with major affective illness (particularly unipolar depression), but there is some evidence this relationship may hold for other diagnostic categories as well, particularly for personality disorders (30) and possibly for schizophrenia (31). The mechanism that accounts for the relationship between a disturbed or inadequate serotonin system and suicidal behavior is not clear.

Recent suicide clusters among teenagers and young adults have suggested that suicides may sometimes be caused by "contagion," i.e., by exposure to the suicide or suicidal behavior of others (32,33). There is ample anecdotal evidence to suggest that, in any given suicide cluster, suicides occurring later in the cluster often appear to have been influenced by suicides occurring earlier in the cluster (34,35). This contagion hypothesis has never been formally tested at the individual level, and the strength and public health importance of contagion as a risk factor for suicide remain to be determined. In general, contagion in the context of suicide clusters has been conceptualized as being mediated through an amalgam of imitation, identification, grief, and the highly charged emotional atmosphere common in many communities that have experienced suicide clusters. Despite uncertainty about contagion as a risk factor for suicide, many believe it is prudent to recognize the possibility of a contagious effect of suicide and to institute measures to minimize potential contagion in the context of an apparent suicide cluster (36).

Suicide contagion may not be limited to geographically localized clusters of suicides. A number of ecologic studies have been done to assess whether the incidence of suicide in the general population is increased by exposure to television news stories and movies about suicide. Some investigators have reported an increase in suicide following such exposure (37,38), but this finding has not been found in all studies (39,40) and has been challenged in others (41,42). Both the nature of the exposure to suicide and the hypothesized induction period from exposure to outcome in these studies are quite different than is hypothesized for geographically localized suicide clusters. In the former, the exposure is to stories, fictional or otherwise, of suicides by persons unknown to the study subjects; the induction period applied in the study designs is one to two weeks. In the case of geographically localized suicide clusters, however, the suicides to which victims of the suicide cluster were exposed were frequently those of close or intimate friends; reported suicide clusters have typically occurred

over the course of one to four months (43), but have ranged from several weeks to over one year (44).

There are a variety of situational risk factors for suicide. Stressful life events, such as the death of a loved one or recent loss of employment, often appear to be clear precipitants of suicide (45). In general, stressful life events may elevate the background risk of suicide by a factor of five to 10, although the duration of time after exposure to these stressful events during which suicide risk remains elevated has not been well characterized (46). A loss or disruption of normal social support mechanisms also increases the risk of suicide. Divorce, unemployment, and migration from one community to another are but three examples of factors that may lead to some disruption of social support networks; all three have been shown to be related to increased suicide rates (12,47). Absent or inadequate social support networks presumably increase the risk of suicide through interaction with other suicide risk factors, such as clinical depression and recent stressful life events.

Another situational risk factor of potentially great importance is the ready accessibility of firearms. Unlike drug ingestions, carbon monoxide poisoning, and many other suicide methods, a suicide attempt with a firearm is often immediately lethal, leaving little or no opportunity for post-attempt rescue. Moreover, if a firearm is readily accessible, very little planning and time are required between the moment a person decides to commit suicide and the execution of the attempt. The accessibility of a firearm may both limit the preattempt opportunity for intervention by others and facilitate impulsive suicidal acts (48,49). Theoretically, at least some proportion of impulsive decisions to commit suicide might never be acted on if substantial efforts were necessary to arrange for a suicide method. However, the factors that determine choice of suicide method are complex, and careful research is needed to determine whether accessibility to firearms increases the risk of suicide.

Finally, there are several risk factors for suicide that are useful for delineating high risk groups, although these factors do not appear to be "causal" in the traditional sense. Being male, for example, or being elderly, identifies one as belonging to a high risk group. Having a past history of attempted suicide has also been clearly shown to increase the risk of future completed suicide (12). These markers for increased suicide risk presumably correlate with other, causal risk factors for suicide. A past history of attempted suicide, for example, may correlate with impulsivity or with a vulnerability to affective illness.

OUTCOMES

In human and economic terms, the cost of suicide in the United States is enormous. In 1984 alone, suicide among those younger than 65 years of age resulted in the loss of over 645,000 years of potential life (50). Weinstein and Saturno (51) estimate that in 1980, suicide among persons 15–24 years of

age alone resulted in the loss of 276,000 years of potential life and economic costs of $2.26 billion. Adding in attempted suicide among persons in this age group brought the estimated economic costs to $3.19 billion.

The emotional trauma experienced by the "survivors" of suicide—family members and friends of suicide victims—is enormous (52). The process of grief and bereavement over the death of a loved one is always painful and difficult, but when the decedent committed suicide, this process is even more difficult and traumatic. Death from suicide is usually sudden and unexpected. Suicide may engender feelings of guilt or rejection in the survivors. Because of the social stigma associated with suicide, traditional mourning rituals may be avoided, and the usual social supports for the decedent's family and friends may be withdrawn or attenuated. All of these factors increase the risk of disturbed or unresolved grief reactions among the survivors (53).

INTERVENTIONS

Although a wide variety of suicide prevention programs have been devised, the strategies underlying these programs may be consideted under five broad conceptual categories. The first such strategy is to improve the identification, referral, and treatment of persons at high risk of suicide by various caretakers and "gatekeepers" in the community. Increased training of primary care physicians in the recognition and treatment or referral of patients with clinical depression is one example of this approach; school-based screening programs designed to identify suicidal youth in the context of an evolving suicide cluster is another. A second suicide prevention strategy focuses on the treatment of underlying risk factors for suicide. Clinical depression, for example, is addressed through psychotherapeutic and pharmacologic treatment of patients with this illness. Alcohol rehabilitation programs, though not traditionally thought of in terms of suicide prevention, may contribute to the prevention of suicide by addressing one of the most important risk factors for suicide—alcoholism.

A third general suicide prevention strategy is to decrease individual vulnerability to suicide through education of the general population. Affective education programs, for example, seek to help individuals understand and cope with the types of problems that can lead to suicide (54). Other programs are designed to increase public awareness of helping resources in the community to facilitate help-seeking behavior by suicidal persons. A fourth, related suicide prevention strategy is to provide or expand the accessibility of self-referral resources for suicidal persons. Hot lines and walk-in crisis centers are the best-known examples of this strategy.

A final strategy for suicide prevention seeks to limit access to lethal means of suicide, such as high places, prescription drugs, or firearms (55). This strategy derives from the hypothesis that if substantial efforts are required by an individual to arrange for a lethal suicide method, of if a less lethal

method is substituted in its stead, the likelihood of a completed suicide will be diminished.

The above strategies have differing strengths and weaknesses, and each may be important in the prevention of suicide. Unfortunately, the effectiveness of many of these strategies has yet to be established. Eddy and colleagues (54) surveyed 15 suicide experts as to their judgments of the effectiveness of a variety of existing and proposed youth suicide prevention strategies. On the average, these experts estimated that approximately 10 percent of potential youth suicides were being averted by existing prevention programs, and that each of the proposed strategies to improve prevention might reduce the incidence of youth suicide by 6–16 percent, depending on the strategy. Even if all of the proposed strategies were simultaneously implemented, the expected reduction in youth suicide was estimated to range from 15 percent to no more than 50 percent. The uncertainty regarding program effectiveness, and the relatively modest nature of the reduction in mortality that may be expected from our present array of interventions, is not limited to youth suicide prevention programs but extends to suicide prevention in general. There is clearly an urgent need to develop a better empirical base of information regarding the effectiveness of various prevention strategies so that policy makers can make the best use of limited suicide prevention resources.

Approaching Suicide as a Public Health Problem

As we move from continuing research on risk factors and evaluating strategies to actually developing programs and interventions, it is important to consider the role of public health in suicide prevention and how the multisectorial collaboration necessary for successful suicide prevention program can be achieved. It is important to emphasize that suicide be addressed as a public health problem and not solely a mental health problem.

Suicide is not Solely Determined by Mental Illness

Mental illness is not the only relevant risk factor in the causal mechanism leading to suicide. Research has consistently pointed to the importance of many other factors unrelated to mental illness as important determinants of suicide such as accessibility to firearms, geographic mobility, parental loss, family disruption, being a friend or family member of a suicide victim, alcohol and drug use, and social isolation. If suicide prevention efforts focus solely on mental illness and ignore the contribution of other factors that contribute to suicide, many lives may be lost that could otherwise have been saved.

For Those Suicides for which Mental Illness is the Key Risk Factor, It is Inappropriate to Confine Prevention Efforts to the Mental Health Sector

Mental health practitioners can only accomplish the important clinical work they do when patients come to see them. There are many factors, however, that determine whether suicidal patients seek help from mental health professionals. The most striking example of progress in this area is the training of "gatekeepers" across a variety of disciplines (e.g., education, general medicine). These gatekeepers often play a critical role in facilitating proper care by mental health professionals—but training these gatekeepers is a task that is in large part beyond the scope of mental health systems.

An Effective Approach to Suicide Prevention Requires the Collaboration of Individuals in Public Health, Mental Health, Medicine, Education, and Social Services in Both the Public and Private Sector

One of the most important developments in the field of suicidology in the last 30 years has been the recognition that suicide prevention cannot be accomplished solely through the efforts of one societal sector. This realization was clearly recognized by the Secretary's Task Force on Youth Suicide and highlighted among the major recommendations of this body. The characterization of suicide itself as directly a mental health problem (as opposed to depression, for example, which is an important risk factor for suicide) undermine efforts to engender multidisciplinary and intersectorial efforts to prevent suicide.

Although Mental Illness is an Important Risk Factor for Suicide Across All Age Groups, Mental Illness Plays its Least Important Role in the Etiology of the Suicide among Youth Ages 15-24, the Group in which Suicide Rates have been Increasing Most Rapidly.

Research conducted by David Shaffer and his colleagues has shown that mental illness, particularly depression, a common antecedent to suicide in adults, may be less frequently associated with suicide among young people (personal communication). In fact, Shaffer has concluded that uncomplicated depression, without any associated behavior problems, is uncommon among youths who commit suicide and that only a small proportion of teen suicides occur among teenagers with manic depressive or schizophrenic psychosis because these conditions are relatively rare. Consequently, prevention strategies that focus on mental illness would appear to be insufficient for the prevention of youth suicide.

For These Reasons, State and Local Public Health Agencies and other Interested Groups Should Play Key Roles in Suicide Prevention Efforts

Mental health professionals and mental health agencies have a large and very important role to play in suicide prevention; however, their efforts will be enhanced by a broader view of the nature of suicide and how we may best prevent it.

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