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13. ABSTRACT (Maximum 200 words) This paper reports on all deaths (i.e., accidents, illnesses, suicides, homicides, hostile actions, and deaths of undetermined cause) among active duty service members between 1980 and 1995. Data from the Directorate for Information Operations and Reports (DIOR) and casualty offices for each service are used to describe trends in injury deaths and compare injury deaths to other causes of death. The overall casualty rate declined 41% during this time, largely due to decreases in accidental deaths. The accidental casualty rate declined 52%, but remained the single greatest cause of death, accounting for 54% of casualties in 1993. Taken together, accidental deaths, suicides, and homicides accounted for 80% of casualties between 1980 and 1995. Motor vehicle accidents accounted for the greatest proportion of all casualties in 1994 in the Army (32%), the Navy (32%) and the Marine Corps (41%); in the Air Force, suicide accounted for the greatest proportion (30%). Although the 16-year period under study was characterized by relatively few hostile actions, deaths from hostile actions never accounted for more than 9% of all deaths in any given year between 1980 and 1995. These data demonstrate the enormous impact that accidental injury has on the U.S. Armed Forces.					
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CHAPTER 2

DEATHS DUE TO INJURIES: CASUALTY OFFICE DATA

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Section I. Description of Service Casualty Office Databases

2-1. Introduction

The Director, Washington Headquarters Services, Directorate for Information Operations and Reports (WHS/DIOR), Office of the Secretary of Defense, tracks all active duty deaths* from hostile and nonhostile actions (e.g., accidents, illnesses, suicides, homicides, and deaths that have a pending or undetermined cause). In addition, each service maintains a service casualty office as the focal point on all casualty matters.

2-2. Mission

The Washington Headquarters Services, Directorate for Information Operations and Reports.

- Maintains and operates the DoD Worldwide Casualty System (WCS) database.
- Captures hostile and nonhostile casualty information on all service personnel who die while on active duty.
- Consolidates casualty information from all services on a fiscal-year basis.

The Casualty Office for Each Service.

- Acts as the focal point on all casualty matters.
- Maintains the capability to provide casualty notification, casualty assistance, and individual casualty recording and reporting.
- Verifies that the casualty information is documented and provided to the WHS/DIOR within prescribed time constraints.

* The terms "death," "casualty," and "fatality" are defined the same and used interchangeably throughout the atlas.

2-3. Purpose of the Casualty Databases

The casualty databases capture all active duty deaths caused by accidents, illnesses, suicides, homicides, hostile actions, and deaths that have a pending or undetermined cause. The databases are used to:

- Track and update reportable deaths.
- Generate required reports.
- Compile mailing labels.
- Produce required correspondence and develop statistical models and information.

Each service uses its own database to document and provide casualty information to WHS/DIOR, as required by DoDI 1300.18. The databases are:

- Army Casualty Information Processing System (ACIPS).
- Navy Automated Casualty Monitoring Program (ACMP).
- Marine Corps Casualty Assistance Information System (CAIS).
- Air Force Casualty Accountability System.

2-4. Authority

The basic implementing DoDI is the Military Personnel Casualty Matters, Policies and Procedures Instruction (DoDI 1300.18), from which all services generate appropriate directives. Each service may have additional requirements as outlined in their own governing instructions, manuals, or orders:

- Army—Casualty Operations/Assistance/Insurance (AR 600-8-1).
- Navy—Personnel Casualty Reports (MILPERSMAN 4210100).
- Marine Corps—Casualty Procedures Manual (MCO P3040.4).
- Air Force—Casualty Service Program (AFINST 36-3002).

2-5. Comparison of the Minimum Basic Data Set Variables and Service Casualty Databases

Each service identified their database's casualty variables for *unintentional injuries* using the questionnaire discussed in Chapter 1 (see pages 1-23 through 1-27). These variables were compared to the MBDS for unintentional injury surveillance recommended by Lund, Holder, and Smith.* A comparison is presented in Table 2-1.

The services were not asked to identify their database's casualty variables for *intentional injuries*.† Additional data required to satisfy the MBDS for intentional injuries include circumstances or motive surrounding injury event, drugs or alcohol involved, weapon(s) involved, relationship and demographics of victim and perpetrator, and source of data.

* Lund J., Y. Holder, and R.J. Smith. Minimum Basic Data Set, Unintentional Injuries. *Proceedings of the International Collaborative Effort on Injury Statistics*, 1:34-1 to 34-4, 1994.

† Powell, K. and J. Kraus. Minimum Basic Data Set, Intentional Injuries. *Proceedings of the International Collaborative Effort on Injury Statistics*, 1:35-1 to 35-2, 1994.

Table 2-1. Comparison of the Recommended Elements from the Minimum Basic Data Set Variables for Unintentional Injury Surveillance and Their Availability from the Service Casualty Databases

Variables	All Services Worldwide Casualty System (WCS)	Army Casualty Information Processing System (ACIPS)	Navy Automated Casualty Monitoring Program (ACMP)	Marine Corps Casualty Assistance Information System (CAIS)	Air Force Casualty Accountability System
Intent*	Y	Y	Y	Y	Y
Age of Injured*	Y	Y	U	Y	Y
Gender*	Y	Y	Y	Y	Y
Race*	Y	Y	U	Y	Y
Place of Residence *	NS	NS	NS	NS	NS
Date of Injury Event*	Y	Y	Y	Y	Y
Place of Occurrence (home, work, etc.)*	Y	Y	N	Y	Y
Address of Place of Occurrence*	NS	NS	NS	NS	NS
Activity When Injury Occurred*	Y	Y	N	Y	Y
Mechanism of Accident/Event*	N	Y	N	Y	Y
Type of Injury/Body Location*	Y	Y	Y	Y	Y
Outcome of Injury					
Type of Treatment†	N	N	U	N	Y
Dates of Treatment†	N	N	U	N	Y
Date Admitted to Hospital†	N	N	U	N	Y
Date Discharged from Hospital†	N	N	U	N	Y

Table 2-1.—Continued

Variables	All Services Worldwide Casualty System (WCS)	Army Casualty Information Processing System (ACIPS)	Navy Automated Casualty Monitoring Program (ACMP)	Marine Corps Casualty Assistance Information System (CAIS)	Air Force Casualty Accountability System
Nature of Disability†	N	N	U	Y	N
Degree of Disability (fit for duty, temporary disability retired list, etc.)†	N	N	U	Y	N
Severity of Injury†	N	N	U	Y	N
Days of Limited Duty†	N	N	U	N	N
Days in Hospital†	N	N	U	N	N
Cost of Treatment†	N	N	U	N	N

Y = available in database.

N = not in database.

U = unknown; response not provided on questionnaire.

NS = not solicited on questionnaire.

* Recommended variables for databases designed for unintentional injury surveillance (Lund J., Y. Holder, and R.J. Smith. Minimum Basic Data Set, Unintentional Injuries. *Proceedings of the International Collaborative Effort on Injury Statistics*, 1:34-1 to 34-4, 1994).

† Example of an outcome variable deemed appropriate for databases with potential for surveillance of unintentional injuries to U.S. active duty military personnel.

Section II. Service Casualty Office Data

2-6. Department of Defense (All Services)

The DoD casualty data for active duty personnel are presented in three parts:

- The DoD Summary. The DoD casualty data presented in this section are summarized in two tables.
 - The overall summary is presented in Table 2-2.
 - The data in figures 2-1 through 2-4 and 2-6 through 2-8 are summarized in Table 2-3.
- Magnitude of the Injury Problem Relative to Other Causes of Death.
 - The distribution of deaths for FY 1993 and 1994 are displayed in figures 2-1 and 2-2, respectively.
 - The gender rates for CY 1993 are displayed in figures 2-3 and 2-4.
- Trends of Military Injury-Related Deaths Relative to Other Causes Over Time.
 - The rates of death for FY 1980-1995 are displayed in figures 2-5 and 2-6.
 - The gender rates for CY 1980-1993 are displayed in figures 2-7 and 2-8.

The DoD Summary.

Table 2-2 displays an overall summary of DoD casualty data for active duty personnel from all services by:

- Gender.
- Year.
- Total deaths.
- Rates and trends of deaths.

Table 2-3 displays the summary of DoD casualty data for active duty personnel by:

- Casualty types.
- Distribution (%) of deaths.
- Rates and trends of deaths.

Tables 2-2 and 2-3 also display conclusions drawn from these casualty data.

Table 2-2. Overall Summary of DoD Casualty (Fatality) Data for Active Duty Personnel

Year	Total DoD Population	Deaths		Rates and Trends of Deaths			Conclusion
		Total	n/100,000 Personnel/Year	n/100,000 Personnel/Year		Trend, % Change (FY 1980-1995)	
All	—	—	—	117 (FY80)	69 (FY95)	Down 41%	Overall casualty rates for the military declined greatly from FY 1980 to FY 1995 due largely to decreases in accidental deaths.
FY80-95	1,705,103	1,245	73	—	—	—	
FY93	1,610,490	1,108	69	—	—	—	
FY94	1,464,113	1,143	78	—	—	—	
Men	196,707	67	34	—	—	—	
CY93							
Women							
CY93							

Table 2-3. Summary of DoD Casualty (Fatality) Data for Active Duty Personnel by Type of Casualty—Distribution, Rates, and Trends of Deaths

Casualty Types	Distribution (%) of Deaths				Rates and Trends of Deaths			Conclusions
	Men and Women		Men	Women	n/100,000 Personnel/Year		Trend, % Change	
	FY 1993 n = 1,705,103	FY 1994 n = 1,610,490	CY 1993 n = 1,464,113	CY 1993 n = 196,707				
Accidents								Death Rates - Death rates are so low that a single event such as the Gander, Newfoundland, crash or the Beirut bombing can distort the trends. - Death rates among women exhibited some wide variations due largely to fluctuations in low numbers of annual deaths in cause-specific categories. Accidents - About half of deaths are accidental, and another quarter are caused by violent injuries (suicides and homicides combined). - Accidental injury trends are downward and influence overall downward trends for all deaths. - Although accident rates declined, accidental deaths continued to be greater than any other cause of death. Suicides and Homicides - Violent injuries (suicides and homicides combined) are the second leading cause of death. - Homicide rates for women are only slightly higher than those for men, but they account for a much greater percentage of total deaths. Illnesses - Illness rates declined, while other rates remained fairly steady. - Illnesses are almost as important a cause of death for women as accidental injuries; this is not true for men. - In recent years, male and female illness rates are similar. Hostile Actions - In any given year, hostile actions never accounted for more than 10 injuries per 100,000 personnel, or less than 9% of all deaths.
All					77 (FY80)	37 (FY95)	Down 52%	
Men					81 (CY80)	41 (CY93)	Down 49%	
Women					33 (CY80)	12 (CY93)	Down 64%	
Suicides								
All								
Men								
Women								
Illnesses								
All								
Men								
Women								
Homicides								
All								
Men								
Women								
Hostile Actions								
All								
Men								
Women								
Other*								
All								
Men								
Women								

* Deaths that have a pending or undetermined cause.

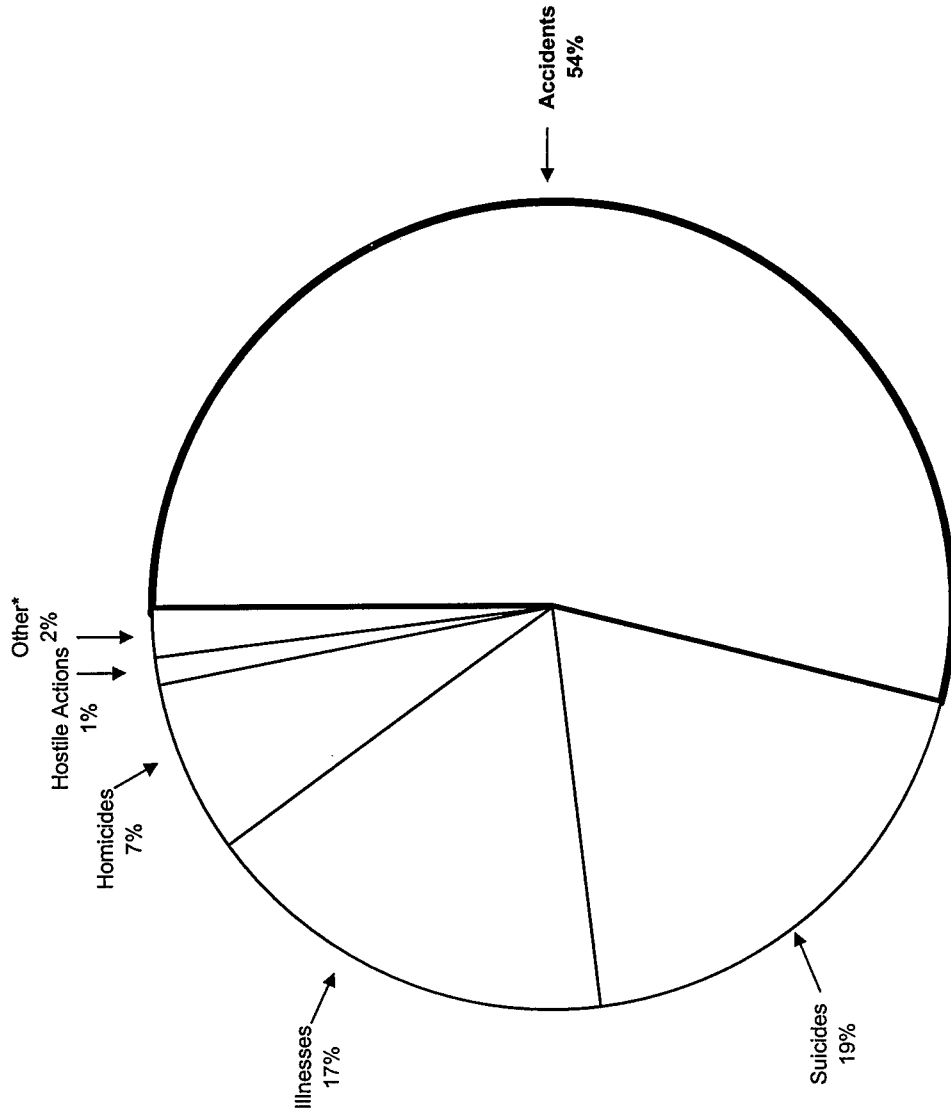
Magnitude of the Injury Problem Relative to Other Causes of Death.

Figure 2-1 illustrates the distribution of deaths by casualty type for active duty personnel from all services for FY 1993:

- Accidents—54%.
- Suicides—19%.
- Illnesses—17%.
- Homicides—7%.
- Hostile actions—1%.
- Other (deaths that have a pending or undetermined cause)—2%.

Accidents, the leading cause of death, occur more than two and a half times as often as suicides, the second leading cause of death. The total number of deaths for FY 1993 was 1,245 out of a population of 1,705,103, or 73 deaths per 100,000 personnel.

DoD - Distribution (%) of Deaths by Casualty Type for Active Duty Personnel, FY 1993



n (deaths) = 1,245.
 population = 1,705,103.
 * Deaths that have a pending or undetermined cause.

Source: DoD Worldwide U.S. Active Duty Military Personnel Casualties, Oct 79-Dec 95. Prepared by DoD, Washington Headquarters Services, Directorate for Information Operations and Reports (DTIC# DIOR/M07-96/01).

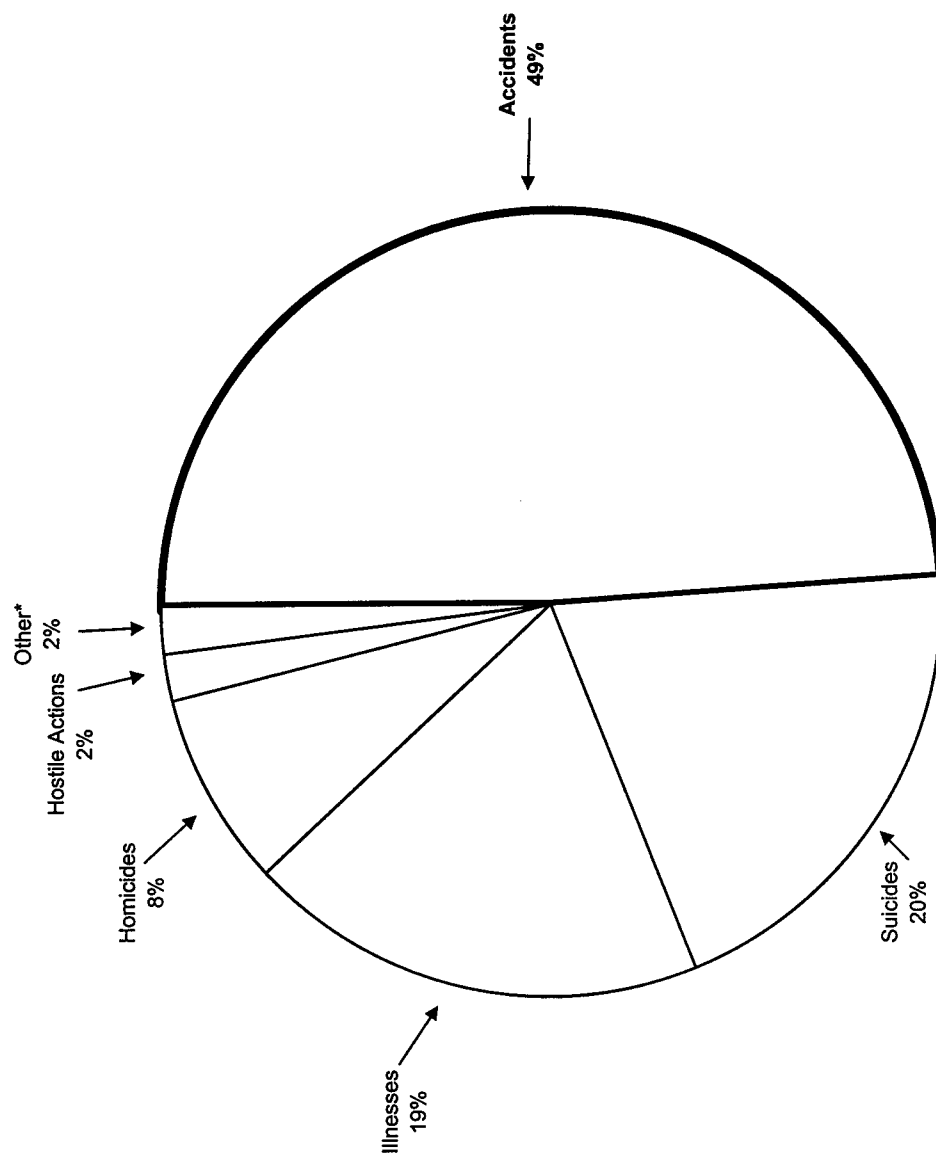
Figure 2-1

Figure 2-2 illustrates the distribution of deaths by casualty type for active duty personnel from all services for FY 1994:

- Accidents—49%.
- Suicides—20%.
- Illnesses—19%.
- Homicides—8%.
- Hostile actions—2%.
- Other (deaths that have a pending or undetermined cause)—2%.

Accidents, the leading cause of death, occur almost two and a half times as often as suicides, the second leading cause of death. The total number of deaths for FY 1994 was 1,108 out of a population of 1,610,490, or 69 deaths per 100,000 personnel.

DoD - Distribution (%) of Deaths by Casualty Type for Active Duty Personnel, FY 1994



n (deaths) = 1,108.
 population = 1,610,490.
 * Deaths that have a pending or undetermined cause.

Source: DoD Worldwide U.S. Active Duty Military Personnel Casualties, Oct 79-Dec 95. Prepared by DoD, Washington Headquarters Services, Directorate for Information Operations and Reports (DTIC# DIOR/M07-96/01).

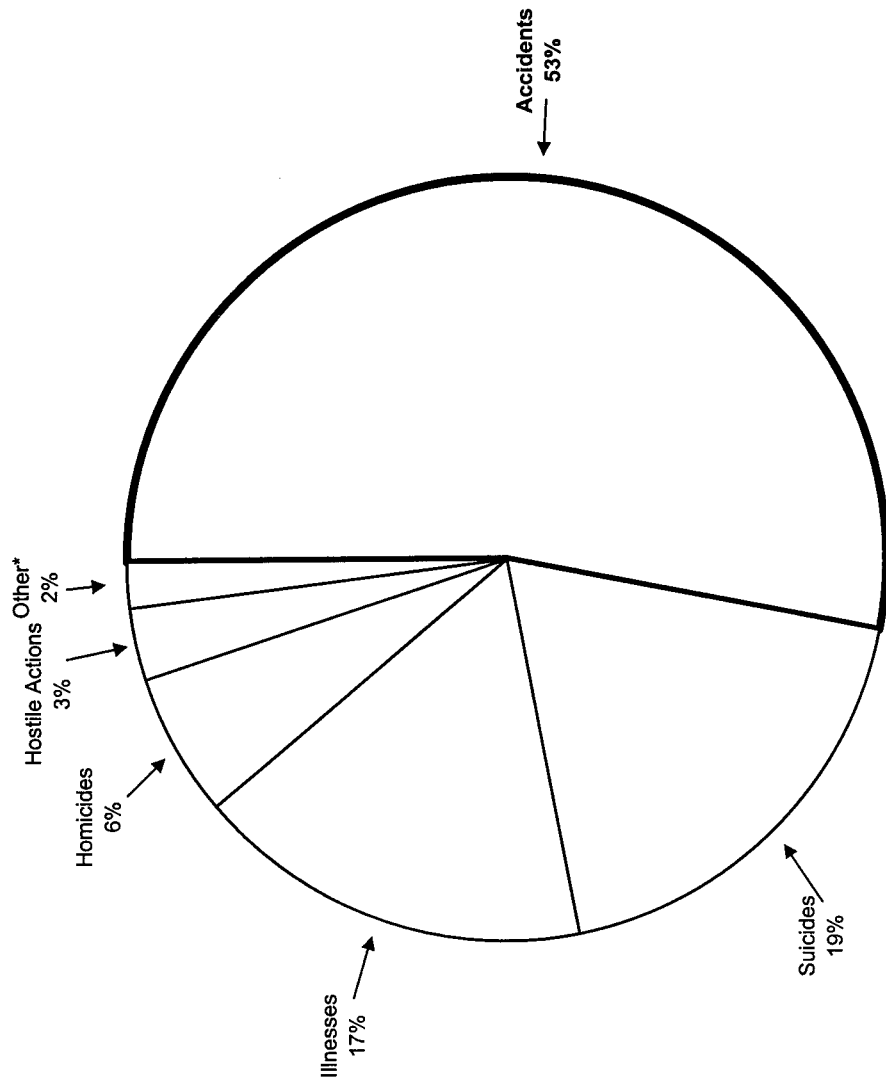
Figure 2-2

Figure 2-3 illustrates the distribution of deaths by casualty type for active duty men from all services for CY 1993:

- Accidents—53%.
- Suicides—19%.
- Illnesses—17%.
- Homicides—6%.
- Hostile actions—3%.
- Other (deaths that have a pending or undetermined cause)—2%.

Accidents, the leading cause of death, occur more than two and a half times as often as suicides, the second leading cause of death. The total number of male deaths for CY 1993 was 1,143 out of a population of 1,464,431, or 78 deaths per 100,000 personnel.

DoD - Distribution (%) of Deaths by Casualty Type for Active Duty Men, CY 1993



n (deaths) = 1,143.
 population (men) = 1,464,431.

* Deaths that have a pending or undetermined cause.

Source: Obtained from the Defense Manpower Data Center by CDR James Helmkamp, U.S. Navy, for the *National Mortality Profile of Active Duty Personnel in the U.S. Armed Forces, 1980-1994*, a NIOSH report (Pub 96-103).

Figure 2-3

Figure 2-4 illustrates the distribution of deaths by casualty type for active duty women from all services for CY 1993:

- Accidents—35%.
- Illnesses—32%.
- Homicides—16%.
- Suicides—13%.
- Other (deaths that have a pending or undetermined cause)—4%.

Accidents, the leading cause of death, occur only slightly more often than illnesses, the second leading cause of death. The total number of female deaths for CY 1993 was 67 out of a population of 196,708, or 34 deaths per 100,000 personnel.

DoD - Distribution (%) of Deaths by Casualty Type for Active Duty Women, CY 1993

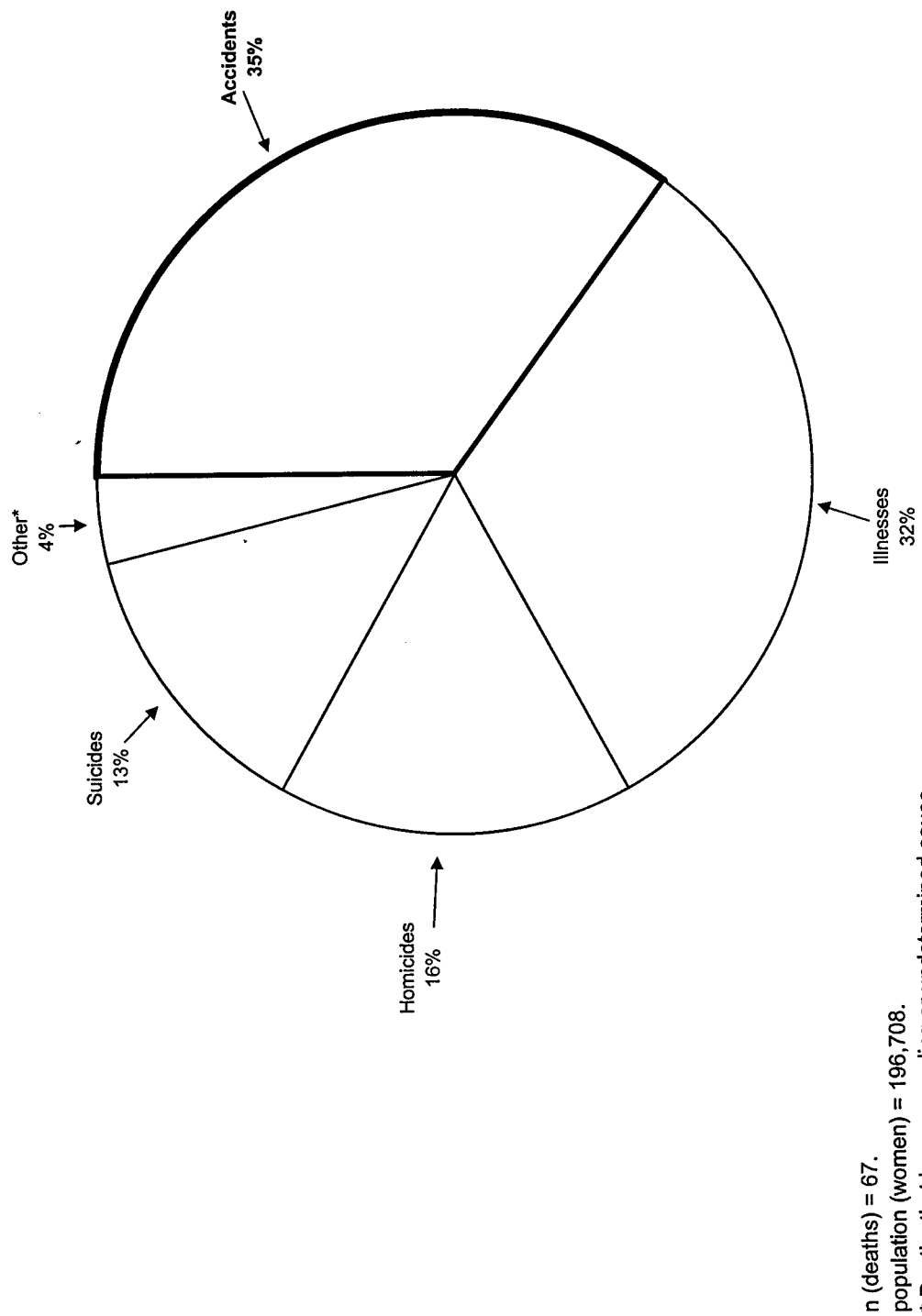


Figure 2-4

Source: Obtained from the Defense Manpower Data Center by CDR James Helmkamp, U.S. Navy, for the *National Mortality Profile of Active Duty Personnel in the U.S. Armed Forces, 1980-1994*, a NIOSH report (Pub 96-103).

Trends of Military Injury-Related Deaths Relative to Other Causes Over Time.

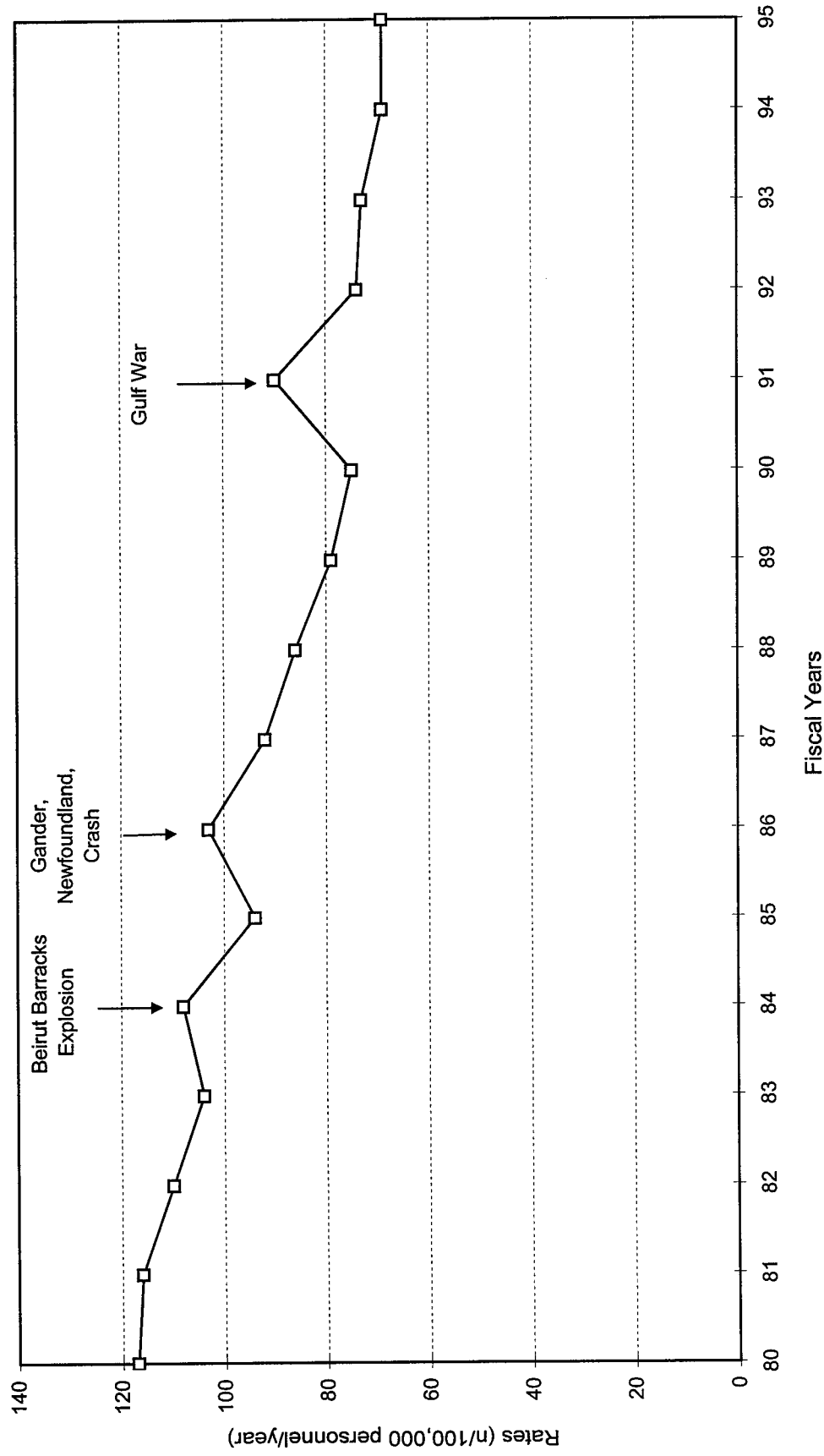
Figure 2-5 illustrates the overall rates of death for active duty personnel from all services for FY 1980-1995. Casualties decreased 41% from 117 per 100,000 personnel in FY 1980 to 69 per 100,000 personnel in FY 1995.

Worksheet Data for Figure 2-5

		DoD - Rates of Death by Fiscal Year*													
1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
117	116	110	104	108	94	103	92	86	79	75	90	74	73	69	69

* Rates per 100,000 personnel calculated using denominator data in Table 1-7.

DoD - Overall Rates of Death for Active Duty Personnel, FY 1980-1995



Source: DoD Worldwide U.S. Active Duty Military Personnel Casualties, Oct 79-Dec 95. Prepared by DoD, Washington Headquarters Services, Directorate for Information Operations and Reports (DTIC# DIOR/M07-96/01).

Figure 2-5

Figure 2-6 illustrates the rates of death by casualty type for active duty personnel from all services from FY 1980-1995. Accident and illness rates declined for all services, while other rates remained fairly steady for the period:

- Accident casualty rates decreased 52% from 77 per 100,000 personnel in FY 1980 to 37 per 100,000 personnel in FY 1995.
- Illness casualty rates decreased 45% from 20 per 100,000 personnel in FY 1980 to 11 per 100,000 personnel in FY 1995.

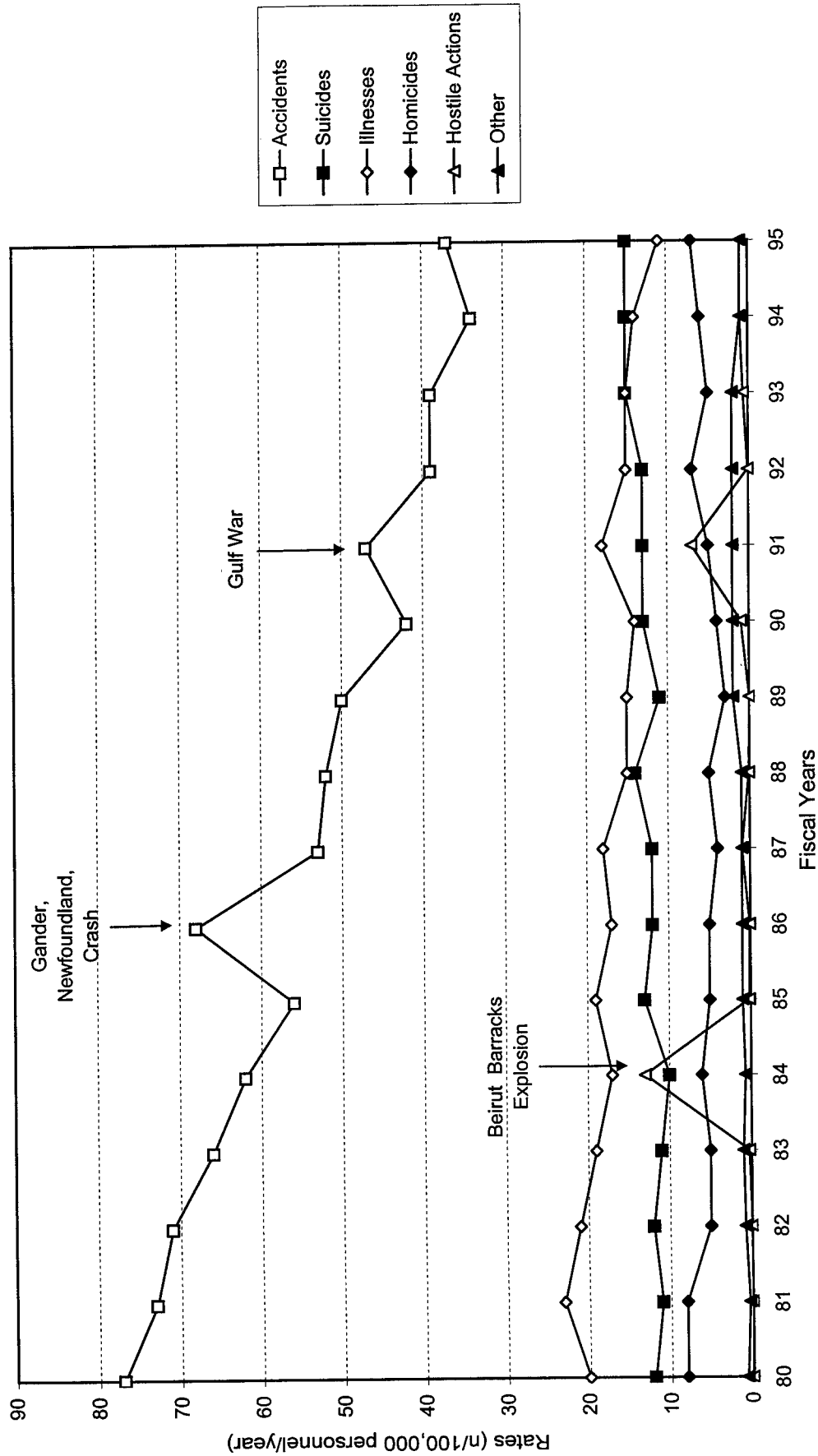
In spite of a substantial decrease in the rate of accidental deaths since CY 1980, the accident rates are still greater than all other causes combined.

Worksheet Data for Figure 2-6

Casualty Types	DoD - Rates of Death by Fiscal Year*															
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
(Rank Based on 1995 Data)																
Accidents	77	73	71	66	62	56	68	53	52	50	42	47	39	39	34	37
Suicides	12	11	12	11	10	13	12	12	14	11	13	13	13	15	15	15
Illnesses	20	23	21	19	17	19	17	18	15	15	14	18	15	15	14	11
Homicides	8	8	5	5	6	5	5	4	5	3	4	5	7	5	6	7
Hostile Actions	0.05	0	0	0.3	13	0.2	0.09	1	0.1	0	1	7	0.05	0.6	1	1
Other	0.7	0.4	0.8	1	0.7	1	1	1	1	2	2	2	2	2	1	1

* Rates per 100,000 personnel calculated using denominator data in Table 1-7.

DoD - Rates of Death by Casualty Type for Active Duty Personnel, FY 1980-1995



Source: Obtained from the Defense Manpower Data Center by CDR James Helmkamp, U.S. Navy, for the *National Mortality Profile of Active Duty Personnel in the U.S. Armed Forces, 1980-1994*, a NIOSH report (Pub 96-103).

Figure 2-6

Figure 2-7 illustrates the rates of death by casualty type for active duty men from all services for CY 1980-1993:

- Male accident casualty rates decreased 49% from 81 per 100,000 personnel in CY 1980 to 41 per 100,000 personnel in CY 1993.
- Male suicide casualty rates increased 25% from 12 per 100,000 personnel in CY 1980 to 15 per 100,000 personnel in CY 1993.
- Male illness casualty rates decreased 33% from 21 per 100,000 personnel in CY 1980 to 14 per 100,000 personnel in CY 1993.
- Male homicide casualty rates decreased 38% from 8 per 100,000 personnel in CY 1980 to 5 per 100,000 personnel in CY 1993.

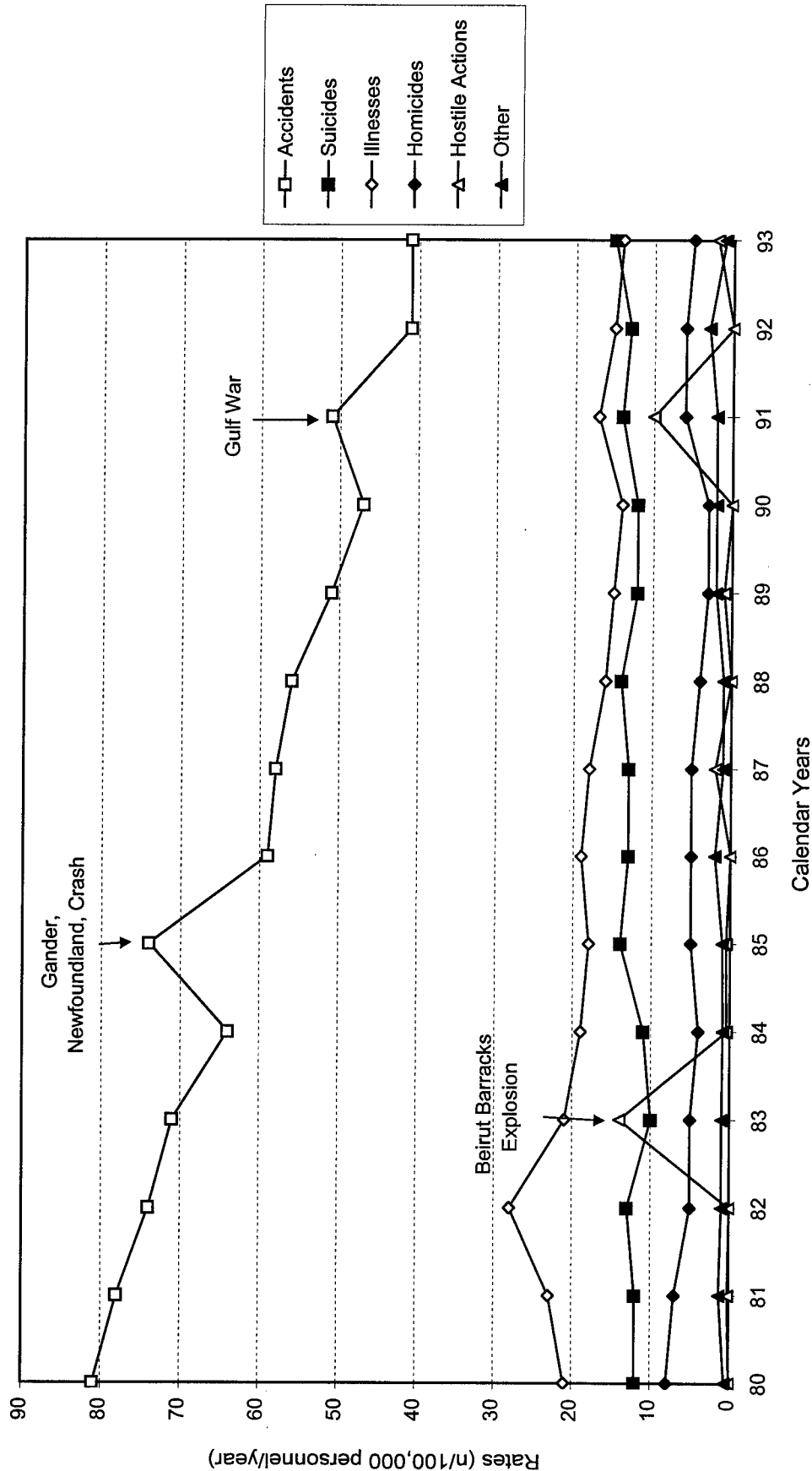
Despite sharp decreases in accidental injury death rates since CY 1980, the accident rates are still higher than all other causes combined.

Worksheet Data for Figure 2-7

Casualty Types (Rank Based on 1993 Data)	DoD - Rates of Death for Men by Calendar Year*													
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Accidents	81	78	74	71	64	74	59	58	56	51	47	51	41	41
Suicides	12	12	13	10	11	14	13	13	14	12	12	14	13	15
Illnesses	21	23	28	21	19	18	19	18	16	15	14	17	15	14
Homicides	8	7	5	5	4	5	5	5	4	3	3	6	6	5
Hostile Actions	0	0.2	0	14	0.4	0.5	0	2	0	1	0	10	0	2
Other	0.6	1.3	1	1	0.9	1	2	1	1	2	2	2	3	1

* Rates per 100,000 personnel calculated using denominator data in Table 1-8.

DoD - Rates of Death by Casualty Type for Active Duty Men, CY 1980-1993



Source: Obtained from the Defense Manpower Data Center by CDR James Helmkamp, U.S. Navy, for the *National Mortality Profile of Active Duty Personnel in the U.S. Armed Forces, 1980-1994*, a NIOSH report (Pub 96-103).

Figure 2-7

Figure 2-8 illustrates the rates of death by casualty type for active duty women from all services for CY 1980-93:

- Female accident casualty rates decreased 64% from 33 per 100,000 personnel in CY 1980 to 12 per 100,000 personnel in CY 1993.
- Other female casualty rates were quite variable and showed no significant trend in either direction.

Death rates among women exhibited some wide variations from year to year. This variability was mostly due to the low number of deaths observed annually in a given cause-specific category. Also, the female population increased steadily through CY 1989 and then decreased steadily through CY 1993. Variability is due primarily to small numbers.

Comparing Figure 2-7 to Figure 2-8, the rate of fatal accidents among men averaged 2.7 times higher than the rate of accidents among women.

Worksheet Data for Figure 2-8

Casualty Types	DoD - Rates of Death for Women by Calendar Year*													
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Accidents	33	27	34	27	26	22	23	27	22	20	15	25	14	12
Illnesses	10	11	11	11	7	10	8	11	10	6	8	8	6	11
Homicides	9	4	7	9	7	9	6	7	5	4	6	6	7	6
Suicides	5	6	7	9	4	5	6	4	7	4	5	4	5	5
Hostile Actions	0	0	0	0	0	0	0	0	1	0	0	6	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	1	2	2

* Rates per 100,000 personnel calculated using denominator data in Table 1-8.

DoD - Rates of Death by Casualty Type for Active Duty Women, CY 1980-1993

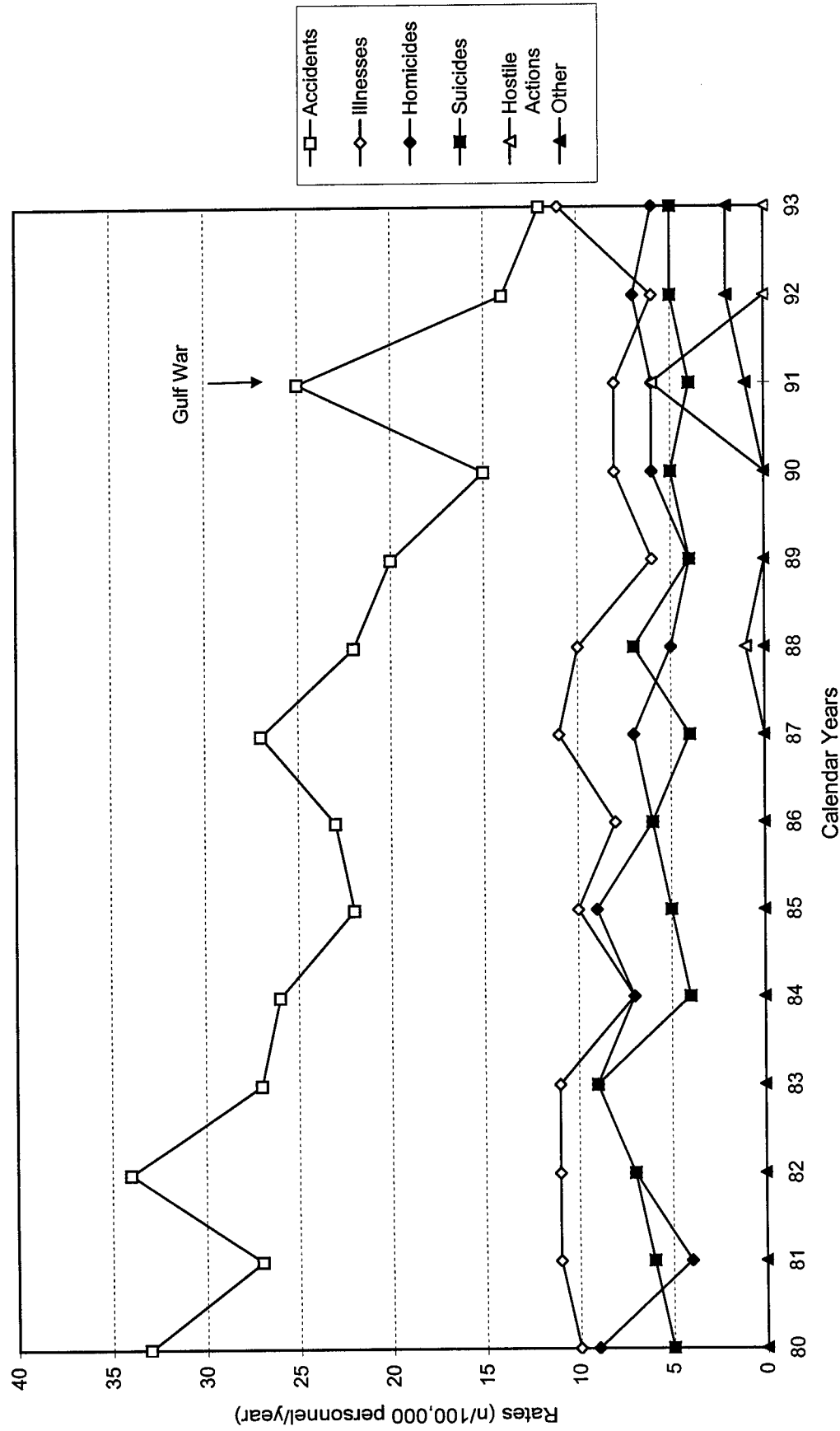


Figure 2-8

Source: Obtained from the Defense Manpower Data Center by CDR James Helmkamp, U.S. Navy, for the *National Mortality Profile of Active Duty Personnel in the U.S. Armed Forces, 1980-1994*, a NIOSH report (Pub 96-103).

2-7. Army

The Army casualty data for active duty personnel are presented in three parts:

- The Army Summary. The Army casualty data presented in this section are summarized in two tables.
 - The overall summary is presented in Table 2-4.
 - The data in figures 2-9, 2-10, and 2-12 are summarized in Table 2-5.
- Magnitude of the Injury Problem Relative to Other Causes of Death.
 - The distribution of deaths by casualty type for FY 1994 are displayed in Figure 2-9.
 - The distribution of deaths by specific causes for CY 1994 are displayed in Figure 2-10.
- Trends of Military Injury-Related Deaths Relative to Other Causes Over Time.
 - The overall rates of death for FY 1980-1995 are displayed in Figure 2-11.
 - The rates of death by casualty type for FY 1980-1995 are displayed in Figure 2-12.

The Army Summary.

Table 2-4. Overall Summary of Army Casualty (Fatality) Data for Active Duty Personnel

Year	Total Army Population	Deaths		Rates and Trends of Deaths		Conclusion
		Total	n/100,000 Personnel/Year	n/100,000 Personnel/Year	Trend, % Change (FY 1980-1995)	
FY80-95	—	—	—	115 (FY80)	76 (FY95)	Overall deaths decreased substantially, due primarily to decreases in accidental deaths.
FY94	541,343	492	91	—	—	
CY94	529,442	473	89	—	—	

Table 2-5. Summary of Army Casualty (Fatality) Data for Active Duty Personnel by Type of Casualty—Distribution, Rates, and Trends of Deaths

Casualty Types	Distribution (%) of Deaths		Rates and Trends of Deaths			Conclusions
	FY 1994 (n = 541,343)	CY 1994 (n = 529,442)	n/100,000 Personnel/Year		Trend, % Change (FY 1980-1995)	
			FY 1980	FY 1995		
Accidents	49%	—	74	40	Down 46%	Distribution of Deaths - Accidental injuries, suicides, and homicides account for 76% of all deaths. Accidents - Accidental injuries are still the leading cause of death, even though accident rates declined steadily. - Accidents occurred almost 2½ times as often as illnesses, the second leading cause of death. Hostile Actions - In the past 15 years, hostile actions never accounted for more than 15% of all deaths in any given year. Vehicle Accidents - Vehicle accidents are the leading cause of death. - Vehicle accidents occurred 1½ times as often as gunshots, the second leading specific cause of death.
Illnesses	20%	—	21	17	Down 19%	
Suicides	18%	—	11	14	Up 27%	
Homicides	9%	—	8	4	Down 50%	
Hostile Actions	4%	—	.12	.39	Insignificant	
Top Five Specific Causes of Death						
Vehicle Accidents	—	32%	—	—	—	
Gunshots*	—	21%	—	—	—	
Heart Attacks	—	10%	—	—	—	
Fires and Burns	—	5%	—	—	—	
Training-related Accidents	—	5%	—	—	—	

* Includes all accidents, suicides, homicides, and hostile actions in which a gunshot was the causative factor.

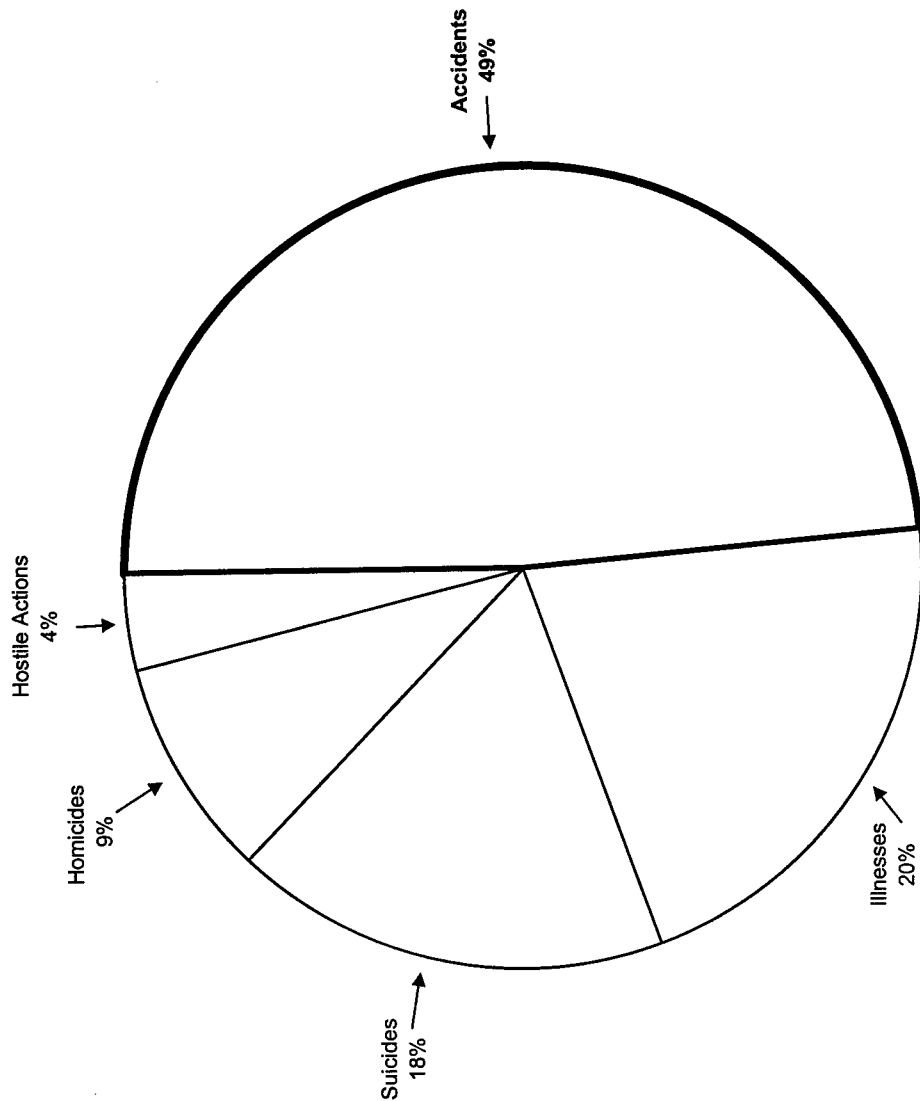
Magnitude of the Injury Problem Relative to Other Causes of Death.

Figure 2-9 illustrates the distribution of deaths by casualty type for active duty Army personnel for FY 1994:

- Accidents—49%.
- Illnesses—20%.
- Suicides—18%.
- Homicides—9%.
- Hostile actions—4%.

Accidents, the leading cause of death, occur almost two and a half times as often as illnesses, the second leading cause of death. The total number of deaths for FY 1994 was 492 out of a population of 541,343, or 91 deaths per 100,000 personnel.

Army - Distribution (%) of Deaths by Casualty Type for Active Duty Personnel, FY 1994



n (deaths) = 492.
population = 541,343.

Source: DoD Worldwide U.S. Active Duty Military Personnel Casualties, Oct 79-Dec 95. Prepared by DoD, Washington Headquarters Services, Directorate for Information Operations and Reports (DTIC# DIOR/M07-96/01).

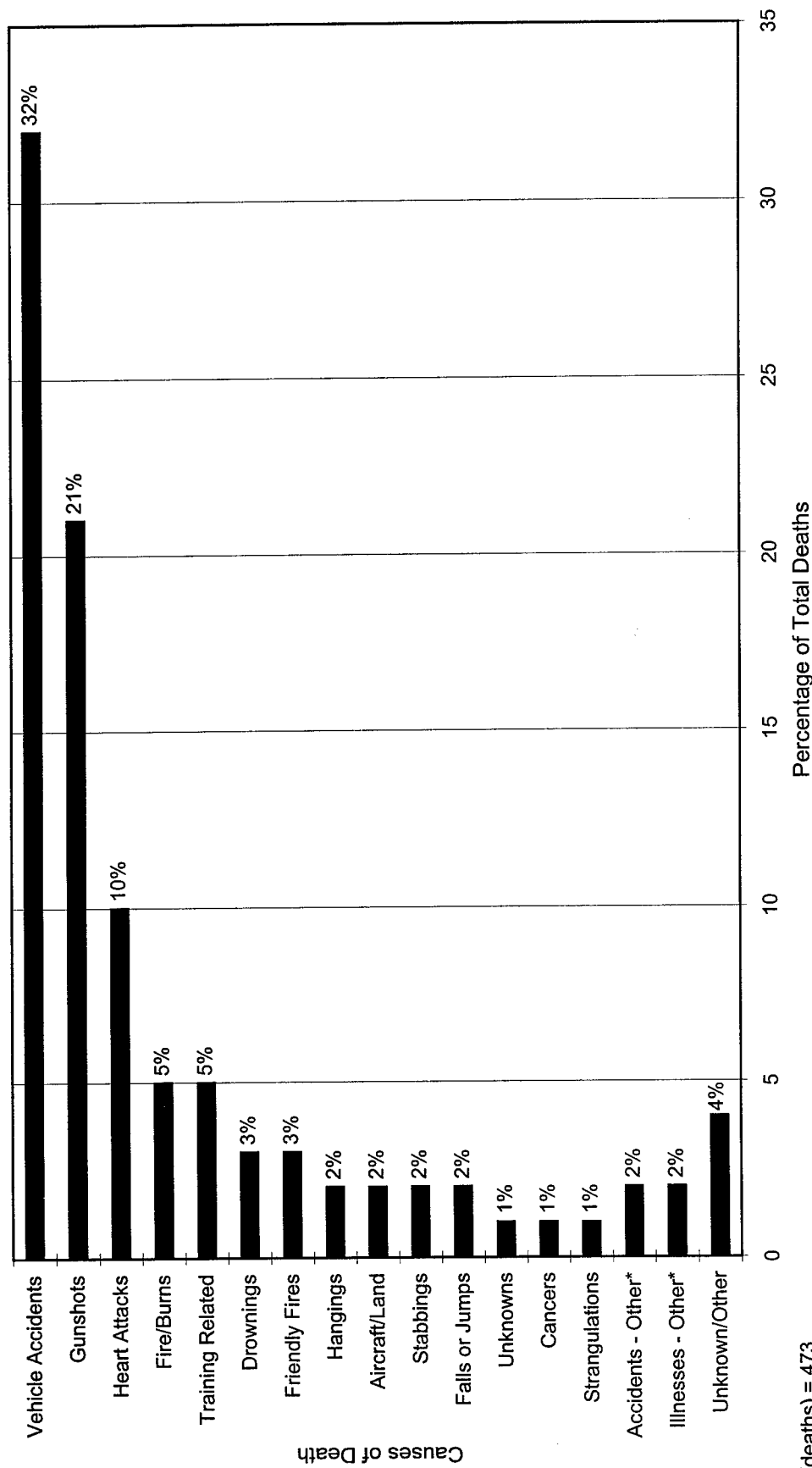
Figure 2-9

Figure 2-10 illustrates the distribution of deaths by more specific causes for active duty Army personnel for CY 1994. The top five specific causes of death were:

- Vehicle accidents—32%.
- Gunshots—21% (including all accidents, suicides, homicides, and hostile actions in which a gunshot was the causative factor).
- Heart attacks—10%.
- Fires and burns—5%.
- Training-related accidents—5%.

Vehicle accidents, the leading specific cause of death, occur one and a half times as often as deaths by gunshot, the second leading specific cause of death. The total number of deaths for CY 1994 was 473 out of a population of 529,442, or 89 deaths per 100,000 personnel.

Army - Distribution (%) of Deaths by Specific Cause for Active Duty Personnel, CY 1994



n (deaths) = 473.

population = 529,442.

* Includes causes accounting for only 1 or 2 deaths.

Source: Army Casualty Information Processing System, 1995, as reported to the DoD Injury Surveillance and Prevention Work Group and previously presented in the Armed Forces Epidemiological Board, *Injuries in the Military: A Hidden Epidemic*, 1996.

Figure 2-10

Trends of Army Injury-Related Deaths Relative to Other Causes Over Time.

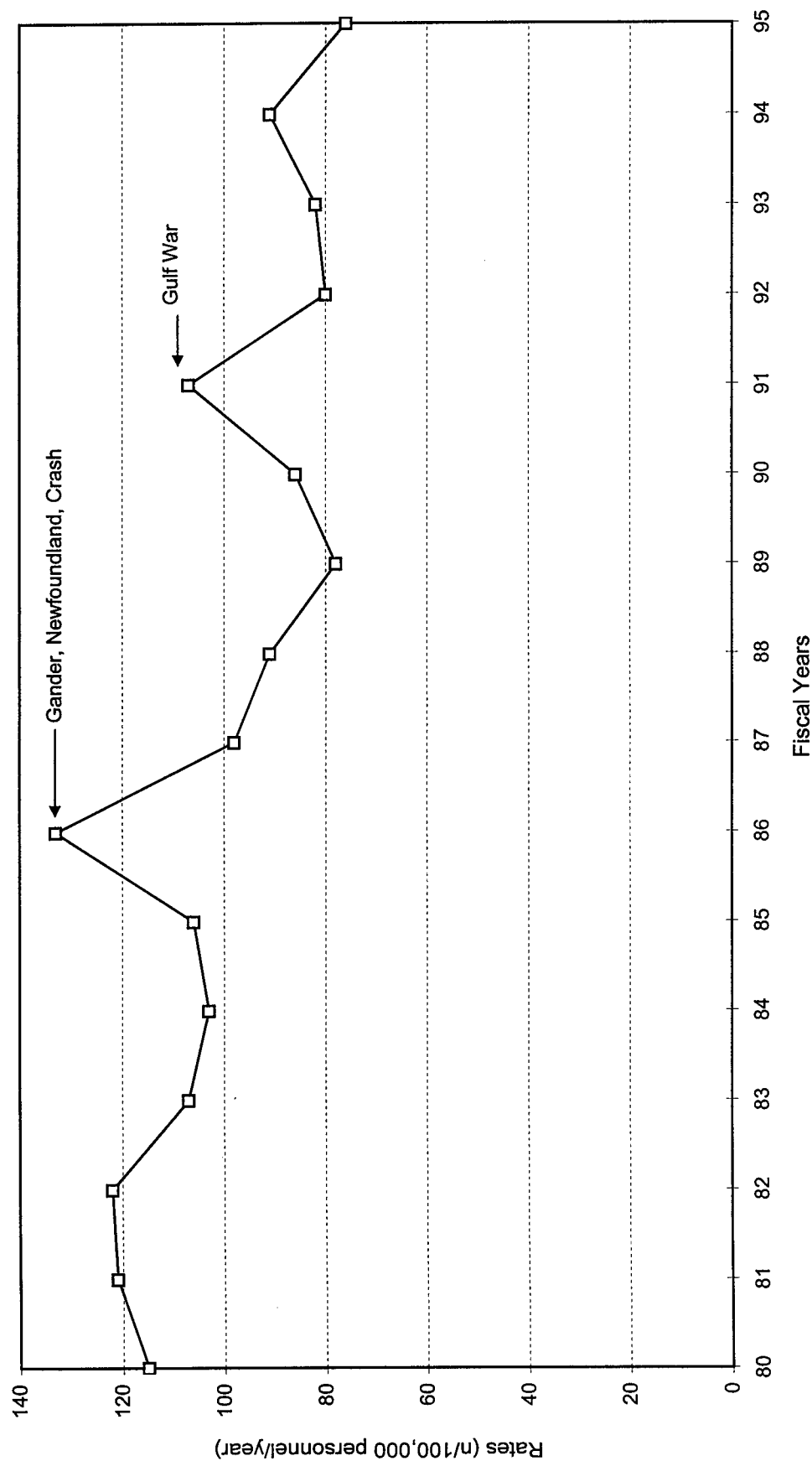
Figure 2-11 illustrates the overall rates of death for active duty Army personnel for FY 1980-1995. Death rates decreased 34% from 115 per 100,000 personnel in FY 1980 to 76 per 100,000 personnel in FY 1995. Since death rates are so low, single events like the Gander, Newfoundland, crash in 1986 and the Gulf War in 1991 strongly influence the overall rates.

Worksheet Data for Figure 2-11

Army - Rates of Death by Fiscal Year*														
1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994 1995
115	121	122	107	103	106	133	98	91	78	86	107	80	82	91 76

* Rates per 100,000 personnel calculated using denominator data in Table 1-7.

Army - Overall Rates of Death for Active Duty Personnel, FY 1980-1995



Source: DoD Worldwide U.S. Active Duty Military Personnel Casualties, Oct 79-Dec 95. Prepared by DoD, Washington Headquarters Services, Directorate for Information Operations and Reports (DTIC# DIOR/M07-96/01).

Figure 2-11

Figure 2-12 illustrates the rates of deaths by casualty type for active duty Army personnel for FY 1980-1995.

- Accident casualty rates decreased 46% from 74 per 100,000 personnel in FY 1980 to 40 per 100,000 personnel in FY 1995.
- Illness, suicide, homicide, and hostile action casualty rates tended to vary slightly with no significant trends during the same period.

Worksheet Data for Figure 2-12

Casualty Types	Army - Rates of Death by Fiscal Year*															
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
(Ranks Based on 1995 Data)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Accidents	74	73	76	66	69	62	92	60	55	49	49	52	40	43	44	40
Illnesses	21	26	28	22	21	21	19	21	18	14	17	21	17	15	19	17
Suicides	11	11	13	10	10	16	14	10	13	10	14	14	14	15	16	14
Homicides	8	10	7	7	5	7	6	7	5	3	3	6	8	8	8	4
Hostile Actions	0.12	0	0	0	2.2	0	0	0.12	0	0	2.4	13.8	0.16	1.4	3.5	0.39

* Rates per 100,000 personnel calculated using denominator data in Table 1-7.

Army - Rates of Death by Casualty Type for Active Duty Personnel, FY 1980-1995

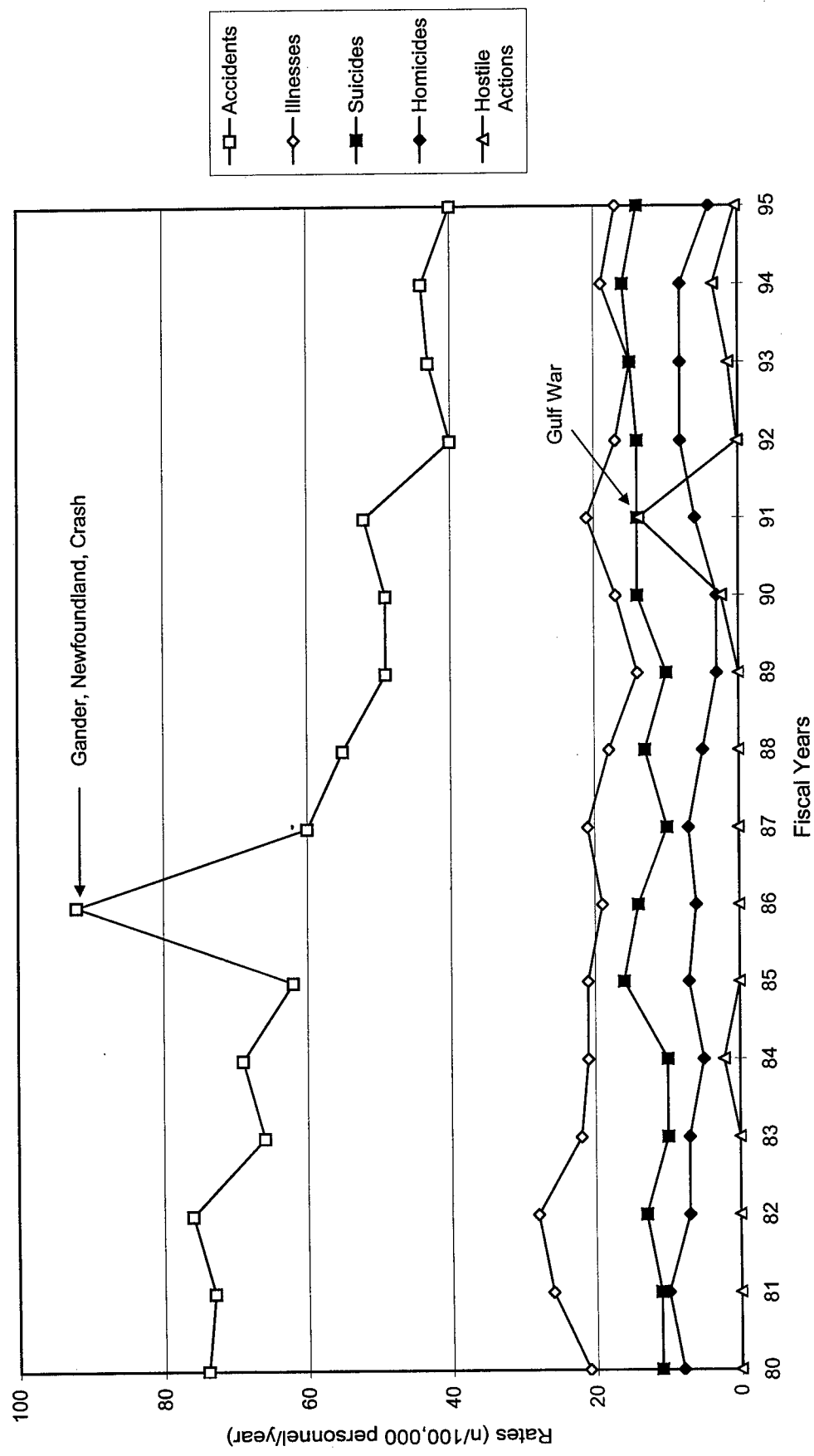


Figure 2-12

Source: DoD Worldwide U.S. Active Duty Military Personnel Casualties, Oct 79-Dec 95. Prepared by DoD, Washington Headquarters Services, Directorate for Information Operations and Reports (DTIC# DIOR/M07-96/01).

2-8. Navy

The Navy casualty data for active duty personnel are presented in three parts:

- The Navy Summary. The Navy casualty data presented in this section are summarized in two tables.
 - The overall summary is presented in Table 2-6.
 - The data in figures 2-13, 2-14, and 2-16 are summarized in Table 2-7.
- Magnitude of the Injury Problem Relative to Other Causes Over Death.
 - The distribution of deaths by casualty type for FY 1994 are displayed in Figure 2-13.
 - The distribution of deaths by specific causes for CY 1994 are displayed in Figure 2-14.
- Trends of Military Injury-Related Deaths Relative to Other Causes of Time.
 - The overall rates of death for FY 1980-1995 are displayed in Figure 2-15.
 - The rates of death by casualty type for FY 1980-1995 are displayed in Figure 2-16.

The Navy Summary.

Table 2-6. Overall Summary of Navy Casualty (Fatality) Data for Active Duty Personnel

Table 2-6. Overall Command of Navy Casualty (Weekly) Data for Active Duty Personnel						
Year	Total Navy Population	Deaths		Rates and Trends of Deaths		Conclusion
		Total	n/100,000 Personnel/Year	n/100,000 Personnel/Year	Trend, % Change (FY 1980-1995)	
FY80-95	—	—	—	130 (FY80)	63 (FY95)	Overall deaths decreased substantially, due primarily to decreases in accidental deaths.
FY94	468,662	274	58	—	—	
CY94	453,026	275	61	—	—	

Table 2-7. Summary of Navy Casualty (Fatality) Data for Active Duty Personnel by Type of Casualty—Distribution, Rates, and Trends of Deaths

Casualty Types	Distribution (%) of Deaths		Rates and Trends of Deaths			Conclusions
	FY 1994 (n = 468,662)	CY 1994 (n = 453,026)	n/100,000 Personnel/Year		Trend, % Change (FY 1980-1995)	
			FY 1980	FY 1995		
Accidents	48%	—	90	29	Down 68%	Distribution of Deaths - Accidental injuries, suicides, and homicides account for 76% of all deaths. Accidents - Accidental injuries continued to be the leading cause of death, although accident rates have declined. - Accidents occurred almost 2½ times as often as suicides, the second leading cause of death. Vehicle Accidents - Vehicle accidents occurred over 1½ times as often as deaths by gunshot, the second leading specific cause of death.
Suicides	20%	—	12	14	Up 17%	
Illnesses	18%	—	19	7	Down 63%	
Homicides	8%	—	9	7	Down 22%	
Other*	6%	—	2	4	Up 100%	
Top Five Specific Causes of Death						
Vehicle Accidents	—	32%	—	—	—	
Gunshots	—	19%	—	—	—	
Heart Attacks	—	12%	—	—	—	
Aircraft Accidents at Sea/	—	5%	—	—	—	
Aircraft Landings	—	3%	—	—	—	
Drownings	—					

* Deaths that have a pending or undetermined cause.

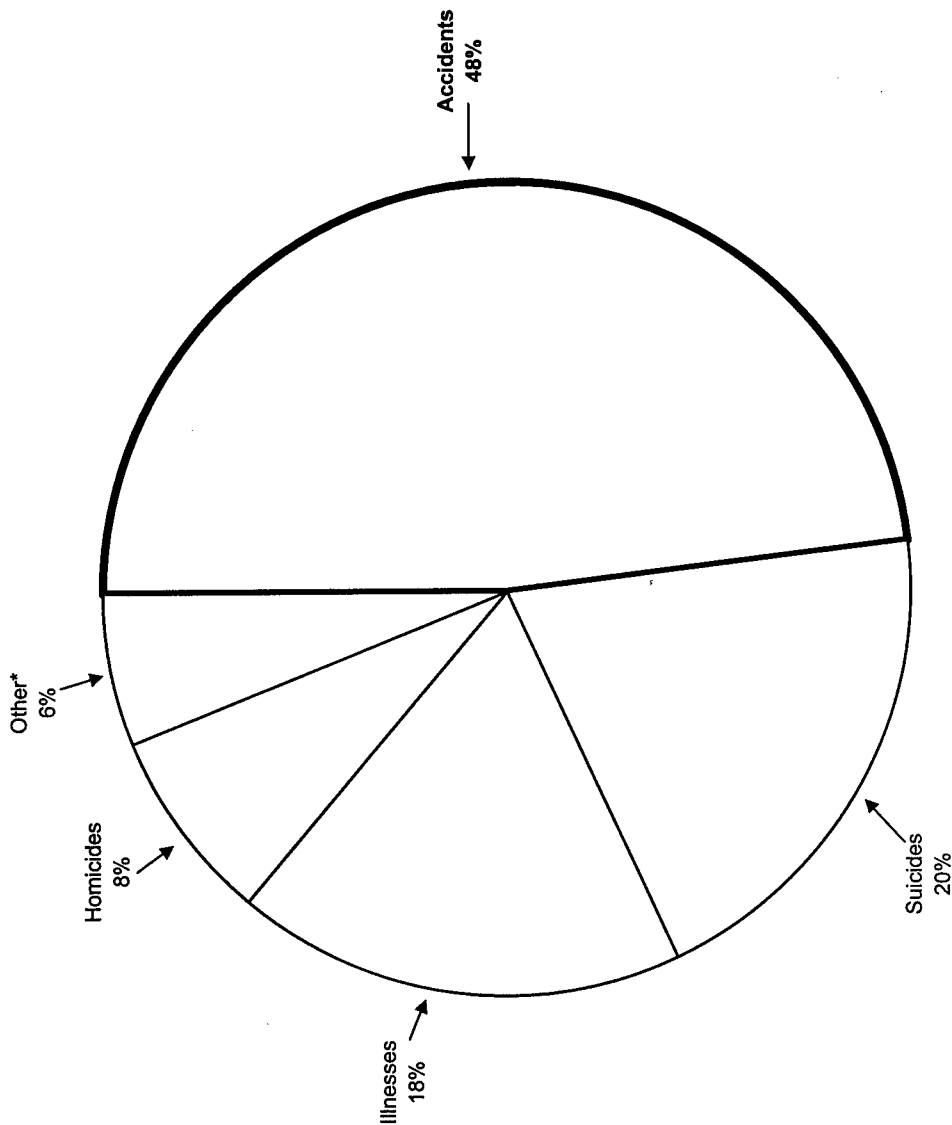
Magnitude of the Injury Problem Relative to Other Causes of Death.

Figure 2-13 illustrates the distribution of deaths by casualty type for active duty Navy personnel for FY 1994:

- Accidents—48%.
- Suicides—20%.
- Illnesses—18%.
- Homicides—8%.
- Other (deaths that have a pending or undetermined cause)—6%.

Accidents, the leading cause of death, occur almost two and a half times as often as suicides, the second leading cause of death. The total number of deaths for FY 1994 was 274 out of a population of 468,662, or 58 deaths per 100,000 personnel.

Navy Distribution (%) of Deaths by Casualty Type for Active Duty Personnel, FY 1994



n (deaths) = 274.
 population = 468,662.
 * Deaths that have a pending or undetermined cause.

Source: DoD Worldwide U.S. Active Duty Military Personnel Casualties, Oct 79-Dec 95. Prepared by DoD, Washington Headquarters Services, Directorate for Information Operations and Reports (DTIC# DIOR/M07-96/01).

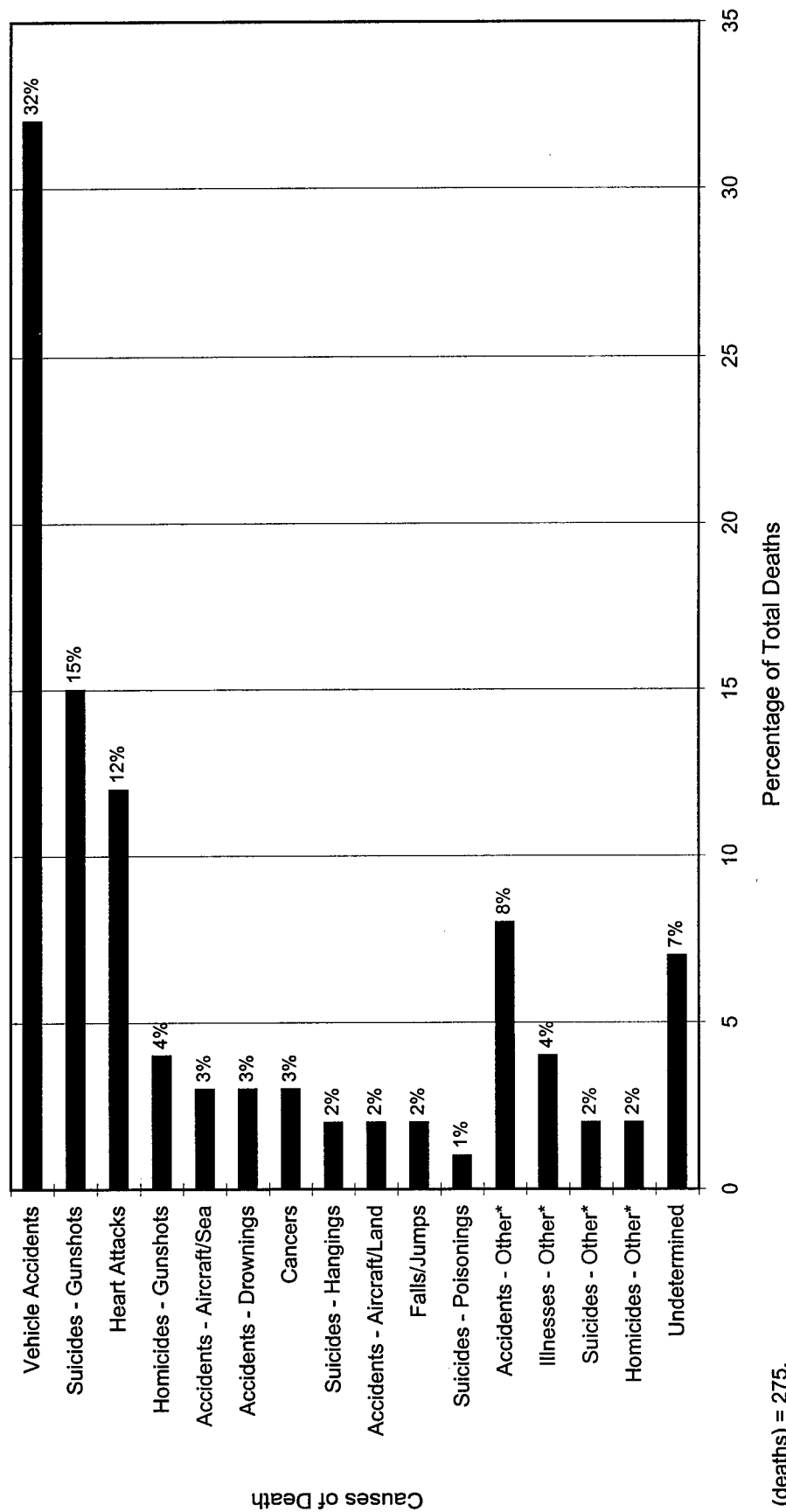
Figure 2-13

Figure 2-14 illustrates the distribution of deaths by more specific causes for active duty Navy personnel for CY 1994. The top five specific causes of death were:

- Vehicle accidents—32%.
- Gunshots—19% (suicides—15%, and homicides—4%).
- Heart attacks—12%.
- Aircraft accidents—5% (sea—3%; land—2%).
- Drownings and cancer—3% each.

Vehicle accidents, the leading specific cause of death, occur over one and a half times as often as deaths by gunshot, the second leading specific cause of death. The total number of deaths was 275 for CY 1994 out of a population of 453,026, or 61 deaths per 100,000 personnel.

Navy - Distribution (%) of Deaths by Specific Cause for Active Duty Personnel, CY 1994



n (deaths) = 275.

population = 453,026.

* Includes causes accounting for only 1 or 2 deaths each.

Source: Worldwide Casualty System Database, as reported to the DoD Injury Surveillance and Prevention Work Group and previously presented in *the Armed Forces Epidemiological Board Injuries in the Military: A Hidden Epidemic*, 1996.

Figure 2-14

Trends of Military Injury-Related Deaths Relative to Other Causes Over Time.

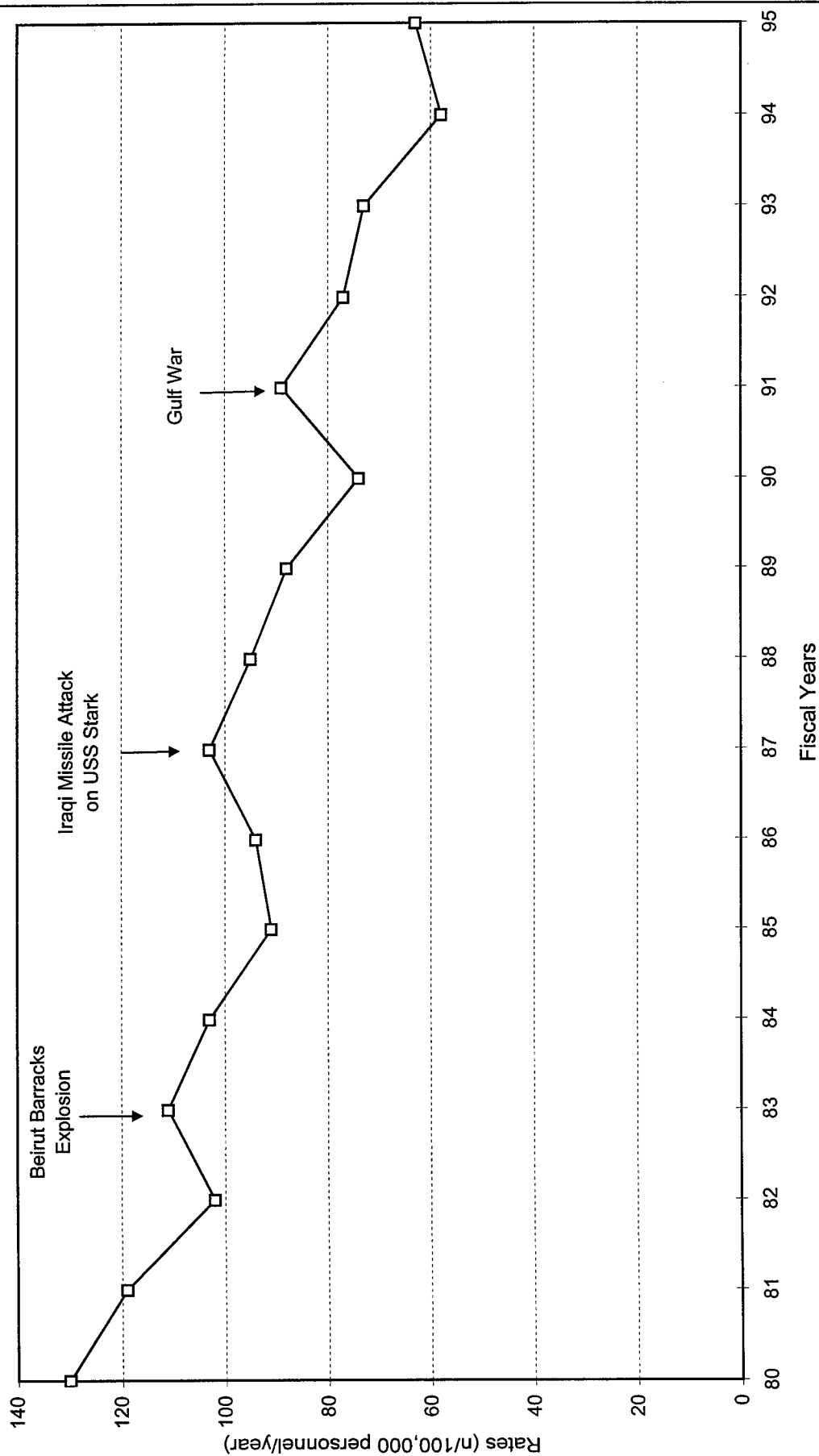
Figure 2-15 illustrates the overall rates of death for active duty Navy personnel for FY 1980-1995. Casualties decreased 52% from 130 per 100,000 personnel in FY 1980 to 63 per 100,000 personnel in FY 1995.

Worksheet Data for Figure 2-15

Navy - Rates of Death by Fiscal Year*														
1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994 1995
130	119	102	111	103	91	94	103	95	88	74	89	77	73	58 63

* Rates per 100,000 personnel calculated using denominator data in Table 1-7.

Navy - Overall Rates of Death for Active Duty Personnel, FY 1980-1995



Source: DoD Worldwide U.S. Active Duty Military Personnel Casualties, Oct 79-Dec 95. Prepared by DoD, Washington Headquarters Services, Directorate for Information Operations and Reports (DTIC# DIOR/M07-96/01).

Figure 2-15

Figure 2-16 illustrates the rates of death by casualty type for active duty Navy personnel for FY 1980-1995.

- Accident casualty rates decreased 68% from 90 per 100,000 personnel in FY 1980 to 29 per 100,000 personnel in FY 1995.
- Illness casualty rates decreased 63% from 19 per 100,000 personnel in FY 1980 to 7 per 100,000 personnel in FY 1995.
- The remaining casualty types changed little for the period.

In spite of a drastic decrease in the rate of accidental deaths, the rate for accidents was still greater than any other cause.

Worksheet Data for Figure 2-16

Casualty Types (Rank Based on 1995 Data)		Navy - Rates of Death by Fiscal Year*															
		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Accidents		90	79	71	72	64	57	58	56	59	58	42	51	41	38	28	29
Suicides		12	12	10	12	10	10	12	14	12	10	10	9	11	11	12	14
Illnesses		19	22	17	18	19	19	16	20	16	14	13	15	13	12	10	7
Homicides		9	6	4	6	4	9	5	4	3	4	4	7	4	3	4	7
Hostile Actions		0	0	0	0.1	4	0.1	0	6	0.5	0	0.7	1	0	0	0	0
Other		2	0.7	2	2	1	3	3	3	3	3	6	5	4	3	4	4

* Rates per 100,000 personnel calculated using denominator data in Table 1-7.

Navy - Rates of Death by Casualty Type for Active Duty Personnel, FY 1980-1995

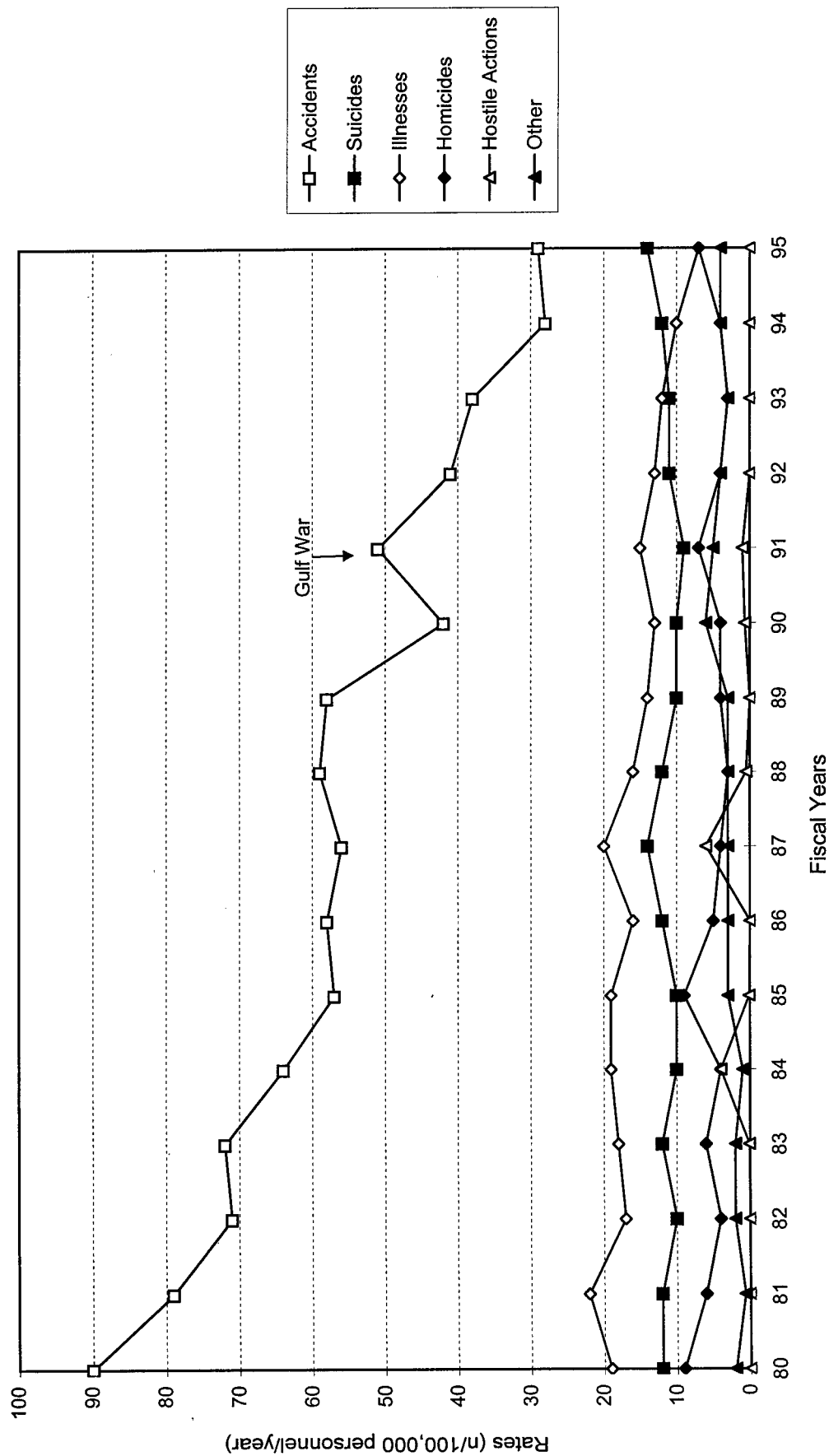


Figure 2-16
Source: DoD Worldwide U.S. Active Duty Military Personnel Casualties, Oct 79-Dec 95. Prepared by DoD, Washington Headquarters Services, Directorate for Information Operations and Reports (DTIC# DIOR/M07-96/01).

2-9. Marine Corps

The Marine Corps casualty data for active duty personnel are presented in three parts:

- The Marine Corps Summary. The Marine Corps casualty data presented in this section are summarized in two tables.
- The overall summary is presented in Table 2-8.
- The data in figures 2-17, 2-18, and 2-20 are summarized in Table 2-9.
- Magnitude of the Injury Problem Relative to Other Causes of Death.
 - The distribution of deaths by casualty type for FY 1994 are displayed in Figure 2-17.
 - The distribution of deaths by specific causes for CY 1994 are displayed in Figure 2-18.
- Trends of Military Injury-Related Deaths Relative to Other Causes Over Time.
 - The overall rates of death for FY 1980-1995 are displayed in Figure 2-19.
 - The rates of death by casualty type for FY 1980-1995 are displayed in Figure 2-20.

The Marine Corps Summary.

Table 2-8. Overall Summary of Marine Corps Casualty (Fatality) Data for Active Duty Personnel

Year	Total Marine Corps Population	Deaths		Rates and Trends of Deaths		Conclusion
		Total	n/100,000 Personnel/Year	n/100,000 Personnel/Year	Trend, % Change (FY 1980-1995)	
FY80-95	—	—	—	153 (FY80)	81 (FY95)	Overall deaths decreased substantially, primarily due to decreases in accidental deaths.
FY94	174,158	120	69	—	—	
CY94	180,819	128	71	—	—	

Table 2-9. Summary of Marine Corps Casualty (Fatality) Data for Active Duty Personnel by Type of Casualty—Distribution, Rates, and Trends of Deaths

Casualty Types		Distribution (%) of Deaths		Rates and Trends of Deaths			Conclusions
				n/100,000 Personnel/Year		Trend, % Change (FY 1980-1995)	
		FY 1994 (n = 174,158)	CY 1994 (n = 180,819)	FY 1980	FY 1995		
Accidents	57%	—	109	50	Down 54%	Distribution of Deaths - Accidental injuries, suicides, and homicides account for 86% of all deaths. Accidents - Accidental injuries are the leading cause of death, although accident rates have declined. - Accidents occurred nearly 3 times as often as suicides, the second leading cause of death. Illnesses - Illnesses account for less than 15% of all deaths. Homicides - Homicides account for less than 10% of all deaths. Vehicle Accidents - Vehicle accidents occurred two times as often as deaths by gunshot, the second leading specific cause of death.	
Suicides	20%	—	15	14	Down 7%		
Illnesses	13%	—	11	2	Down 82%		
Homicides	9%	—	16	5	Down 69%		
Other*	1%	—	2	8	Up 300%		
Top Five Specific Causes of Death							
Vehicle Accidents	—	41%	—	—	—		
Gunshots	—	20%	—	—	—		
Heart Attacks	—	6%	—	—	—		
Aircraft landings	—	6%	—	—	—		
Drownings	—	4%	—	—	—		

* Deaths that have a pending or undetermined cause.

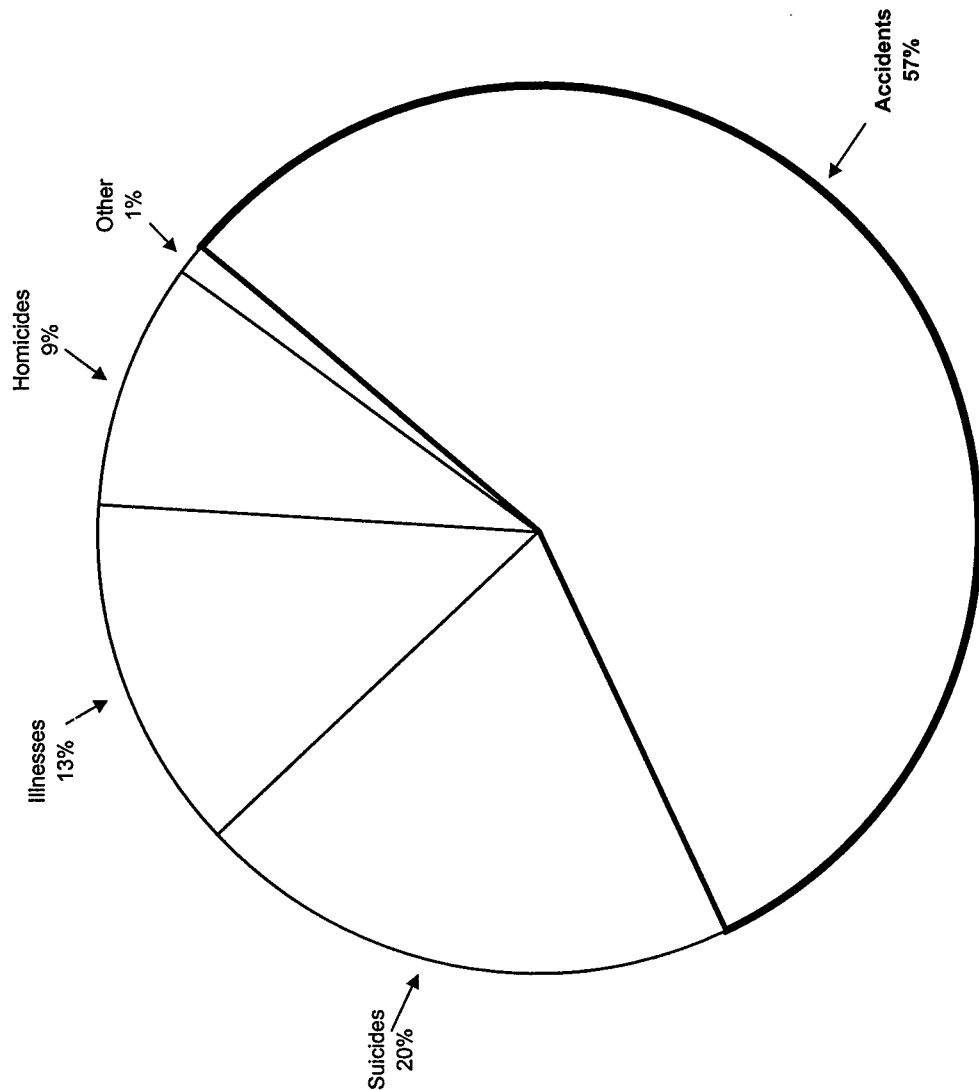
Magnitude of the Injury Problem Relative to Other Causes of Death.

Figure 2-17 illustrates the distribution of deaths by casualty type for active duty Marine Corps personnel for FY 1994:

- Accidents—57%.
- Suicides—20%.
- Illnesses—13%.
- Homicides—9%.
- Other (deaths that have a pending or undetermined cause)—1%.

Accidents, the leading cause of death, occur more than two and a half times as often as suicides, the second leading cause of death. The total number of deaths for FY 1994 was 120 out of a population of 174,158, or 69 deaths per 100,000 personnel.

Marine Corps - Distribution (%) of Deaths by Casualty Type for Active Duty Personnel, FY 1994



n (deaths) = 120.
population = 174,158.
* Deaths that have a pending or undetermined cause.

Source: DoD Worldwide U.S. Active Duty Military Personnel Casualties, Oct 79-Dec 95. Prepared by DoD, Washington Headquarters Services, Directorate for Information Operations and Reports (DTIC# DIOR/M07-96/01).

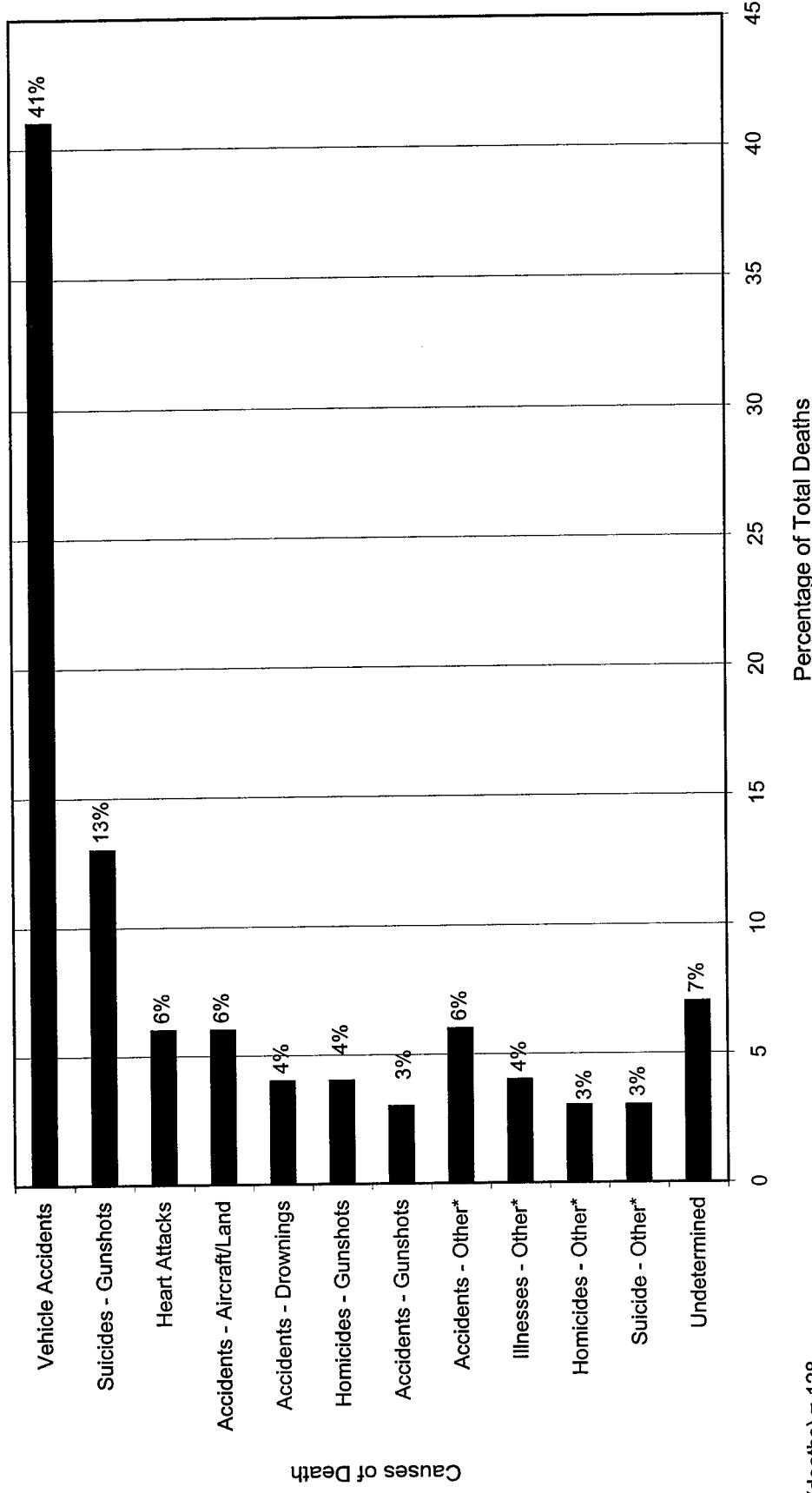
Figure 2-17

Figure 2-18 illustrates the distribution of deaths by more specific causes for active duty Marine Corps personnel for CY 1994. The top five specific causes of death were:

- Vehicle accidents—41%.
- Gunshots—20% (suicides—13%, homicides—4%, and accidents—3%).
- Heart attacks—6%.
- Aircraft landings—6%.
- Drownings—4%.

Vehicle accidents, the leading specific cause of death, occurs more than two times as often as deaths by gunshot, the second leading specific cause of death. The total number of deaths for CY 1994 was 128 out of a population of 180,819, or 71 deaths per 100,000 personnel.

Marine Corps - Distribution (%) of Deaths by Specific Cause for Active Duty Personnel, CY 1994



n (deaths) = 128.
population = 180,819.
* Includes causes accounting for only 1 or 2 deaths.

Source: Worldwide Casualty System Database, as reported to the DoD Injury Surveillance and Prevention Work Group and previously presented in the Armed Forces Epidemiological Board, *Injuries in the Military: A Hidden Epidemic*, 1996.

Figure 2-18

Trends of Military Injury-Related Deaths Relative to Other Causes Over Time.

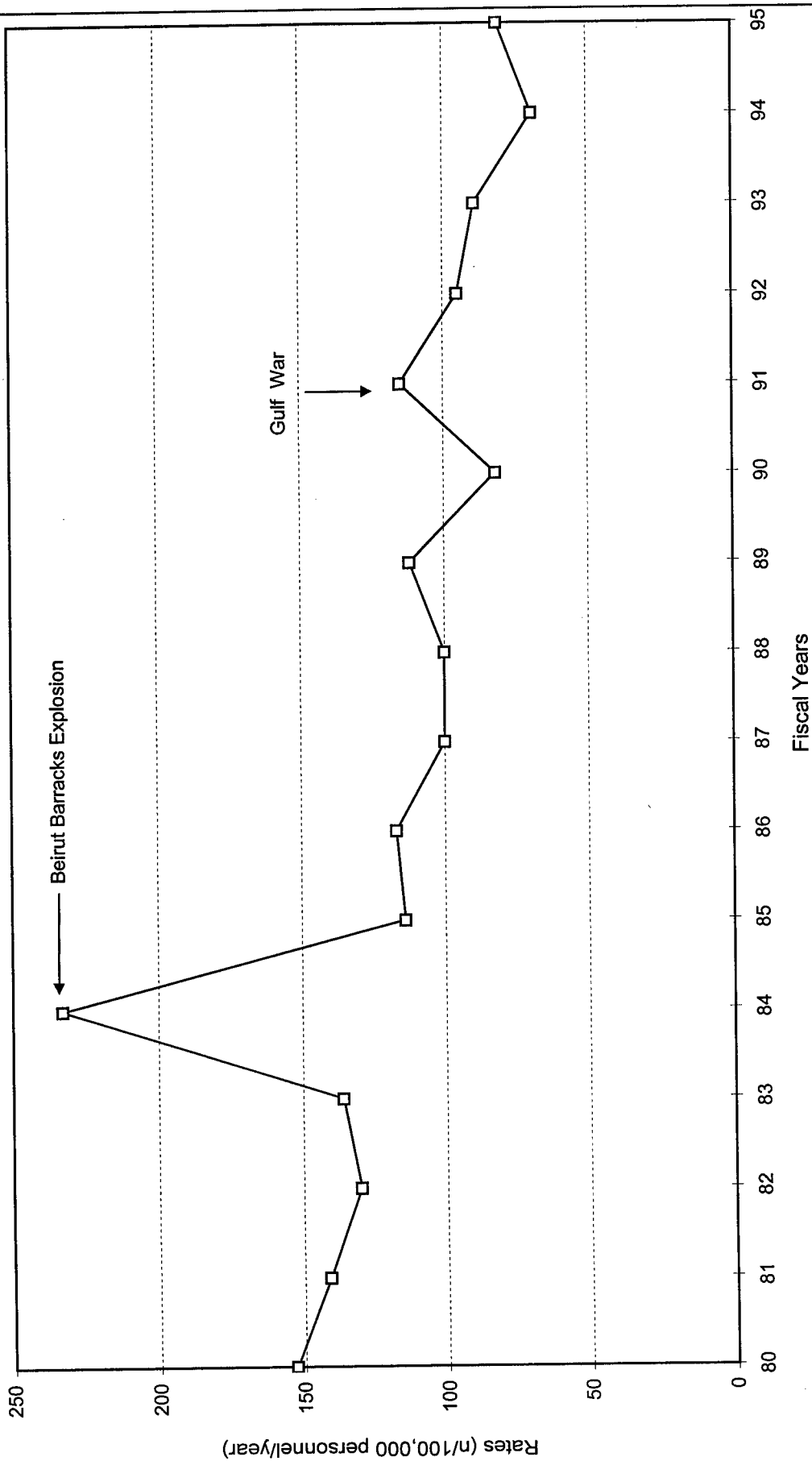
Figure 2-19 illustrates the overall rates of death for active duty Marine Corps personnel for FY 1980-1995. Casualties decreased 47% from 153 per 100,000 personnel in FY 1980 to 81 per 100,000 personnel in FY 1995.

Worksheet Data for Figure 2-19

Marine Corps - Rates of Death by Fiscal Year*															
1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
153	141	130	136	233	114	117	100	100	112	82	115	95	89	69	81

* Rates per 100,000 personnel calculated using denominator data in Table 1-7.

Marine Corps - Overall Rates of Death for Active Duty Personnel, FY 1980-1995



Source: Armed Forces Epidemiological Board, *Injuries in the Military: A Hidden Epidemic*, 1996.

Figure 2-19

Figure 2-20 illustrates the rates of death by casualty type for active duty Marine Corps personnel for FY 1980-1995.

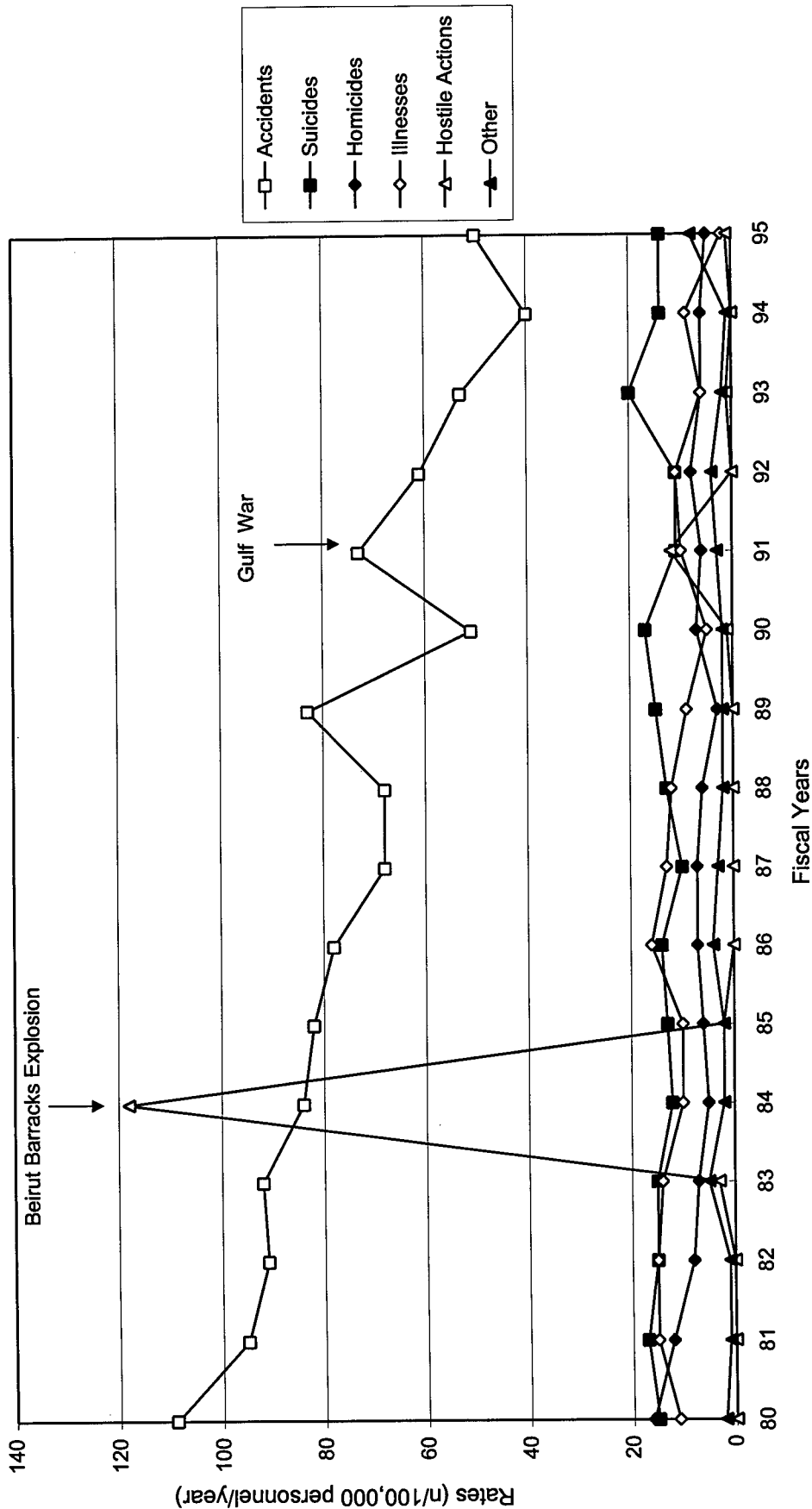
- Accident casualty rates decreased 54% from 109 per 100,000 personnel in FY 1980 to 50 per 100,000 in FY 1995.
- Homicide casualty rates decreased 69% from 16 per 100,000 personnel in FY 1980 to 5 per 100,000 personnel in FY 1995.
- Illness casualty rates decreased 82% from about 11 per 100,000 personnel in FY 1980 to 2 per 100,000 personnel in FY 1995.

Worksheet Data for Figure 2-20

Casualty Types	Marine Corps - Rates of Death by Fiscal Year*															
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Accidents	109	95	91	92	84	82	78	68	68	83	51	73	61	53	40	50
Suicides	15	17	15	15	12	13	14	10	13	15	17	11	11	20	14	14
Homicides	16	12	8	7	5	6	7	7	6	3	7	6	8	6	6	5
Illnesses	11	15	15	14	10	10	16	13	12	9	5	10	11	6	9	2
Hostile Actions	0	0	0	3	118	2	0	0	0	0	1	12	0	1	0	1
Other	2	1	1	5	2	2	4	3	2	2	2	3	4	2	1	8

* Rates per 100,000 personnel calculated using denominator data in Table 1-7.

Marine Corps - Rates of Death by Casualty Type for Active Duty Personnel, FY 1980-1995



Source: DoD Worldwide U.S. Active Duty Military Personnel Casualties, Oct 79-Dec 95. Prepared by DoD, Washington Headquarters Services, Directorate for Information Operations and Reports (DTIC# DIOR/M07-96/01).

Figure 2-20

2-10. Air Force

The Air Force casualty data for active duty personnel are presented in three parts:

- The Air Force Summary. The Air Force casualty data presented in this section are summarized in two tables.
- The overall summary is presented in Table 2-10.
- The data in figures 2-21, 2-22, and 2-24 are summarized in Table 2-11.
- Magnitude of the Injury Problem Relative to Other Causes of Death.
- The distribution of deaths by casualty type for FY 1994 are displayed in Figure 2-21.
- The distribution of deaths by specific causes for CY 1994 are displayed in Figure 2-22.
- Trends of Military Injury-Related Deaths Relative to Other Causes Over Time.
- The overall rates of death for FY 1980-1995 are displayed in Figure 2-23.
- The rates of death by casualty type for FY 1980-1995 are displayed in Figure 2-24.

The Air Force Summary.

Table 2-10. Overall Summary of Air Force Casualty (Fatality) Data for Active Duty Personnel

Year	Total Air Force Population	Deaths		Rates and Trends of Deaths			Conclusion
		Total	n/100,000 Personnel/Year	n/100,000 Personnel/Year	Trend, % Change (FY 1980-1995)		
FY80-95	—	—	—	93 (FY80)	52 (FY95)	Overall deaths decreased substantially, due primarily to decreases in accidental deaths.	
FY94	426,327	222	52	—	—		
CY94	412,523	227	55	—	—		

Table 2-11. Summary of Air Force Casualty (Fatality) Data for Active Duty Personnel by Type of Casualty—Distribution, Rates, and Trends of Deaths

Casualty Types	Distribution (%) of Deaths		Rates and Trends of Deaths			Conclusions
	FY 1994 (n = 426,327)	CY 1994 (n = 412,523)	n/100,000 Personnel/Year		Trend, % Change	
Accidents	47%	—	58 (FY80) 24 (FY94)	24 (FY94) 34 (FY95)	Down 59% Up 42%	Distribution of Deaths • Accidental injuries, suicides, and homicides account for 77% of all deaths. Accidents • Accidental injuries are the leading cause of death, although accident rates have declined. • Accidents occurred almost twice as often as suicides, the second leading cause of death.
Suicides	26%	—	11 (FY80)	16 (FY95)	Up 45%	Illnesses • Illnesses account for less than one quarter of all deaths. Homicides • Homicide rates are very low, accounting for only 4% of all deaths.
Illnesses	21%	—	20 (FY80)	8 (FY95)	Down 60%	Vehicle Accidents • Vehicle accidents, the leading specific cause of death, occurred only slightly more often than suicides, the second leading specific cause of death.
Homicides	4%	—	4 (FY80)	2 (FY95)	Down 50%	
Other*	2%	—	—	—	—	
Top Five Specific Causes of Death						
Vehicle accidents†	—	31%	—	—	—	
Suicides	—	30%	—	—	—	
Heart attacks	—	12%	—	—	—	
GOV aircraft accidents	—	9%	—	—	—	
Other illnesses (not heart attacks)	—	5%	—	—	—	

* Deaths that have a pending or undetermined cause.

† Vehicle accidents become the leading specific cause of accidents (31%) when you combine POV accidents (23%), POV motorcycles (5%), POV others (1%), POV pedestrian (1%), and POV aircraft (1%).

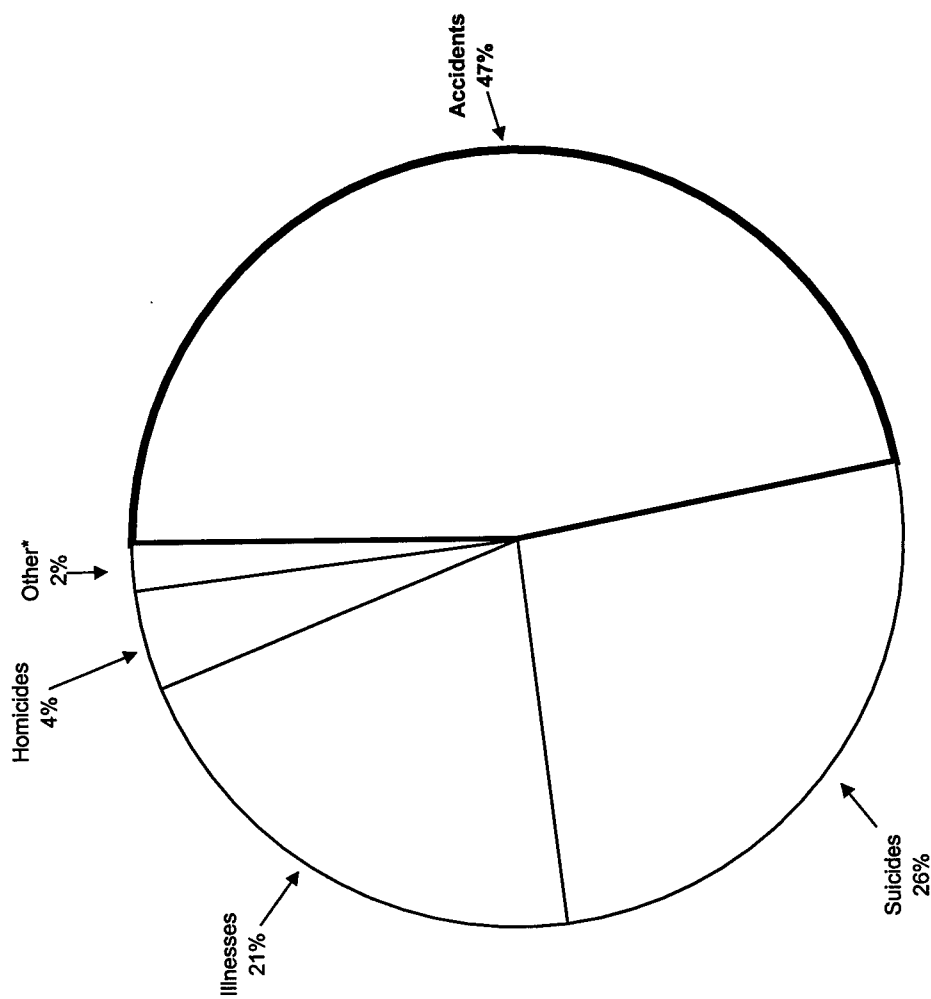
Magnitude of the Injury Problem Relative to Other Causes of Death.

Figure 2-21 illustrates the distribution of deaths by casualty type for active duty Air Force personnel for FY 1994:

- Accidents—47%.
- Suicides—26%.
- Illnesses—21%.
- Homicides—4%.
- Other (deaths that have a pending or undetermined cause)—2%.

Accidents, the leading cause of death, occur almost twice as often as suicides, the second leading cause of death. The total number of deaths for FY 1994 was 222 out of a population of 426,327, or 52 deaths per 100,000 personnel.

Air Force - Distribution (%) of Deaths by Casualty Type for Active Duty Personnel, FY 1994



n (deaths) = 222.
population = 426,327.
* Deaths that have a pending or undetermined cause.

Source: DoD Worldwide U.S. Active Duty Military Personnel Casualties, Oct 79-Dec 95. Prepared by DoD, Washington Headquarters Services, Directorate for Information Operations and Reports (DTIC# DIOR/M07-96/01).

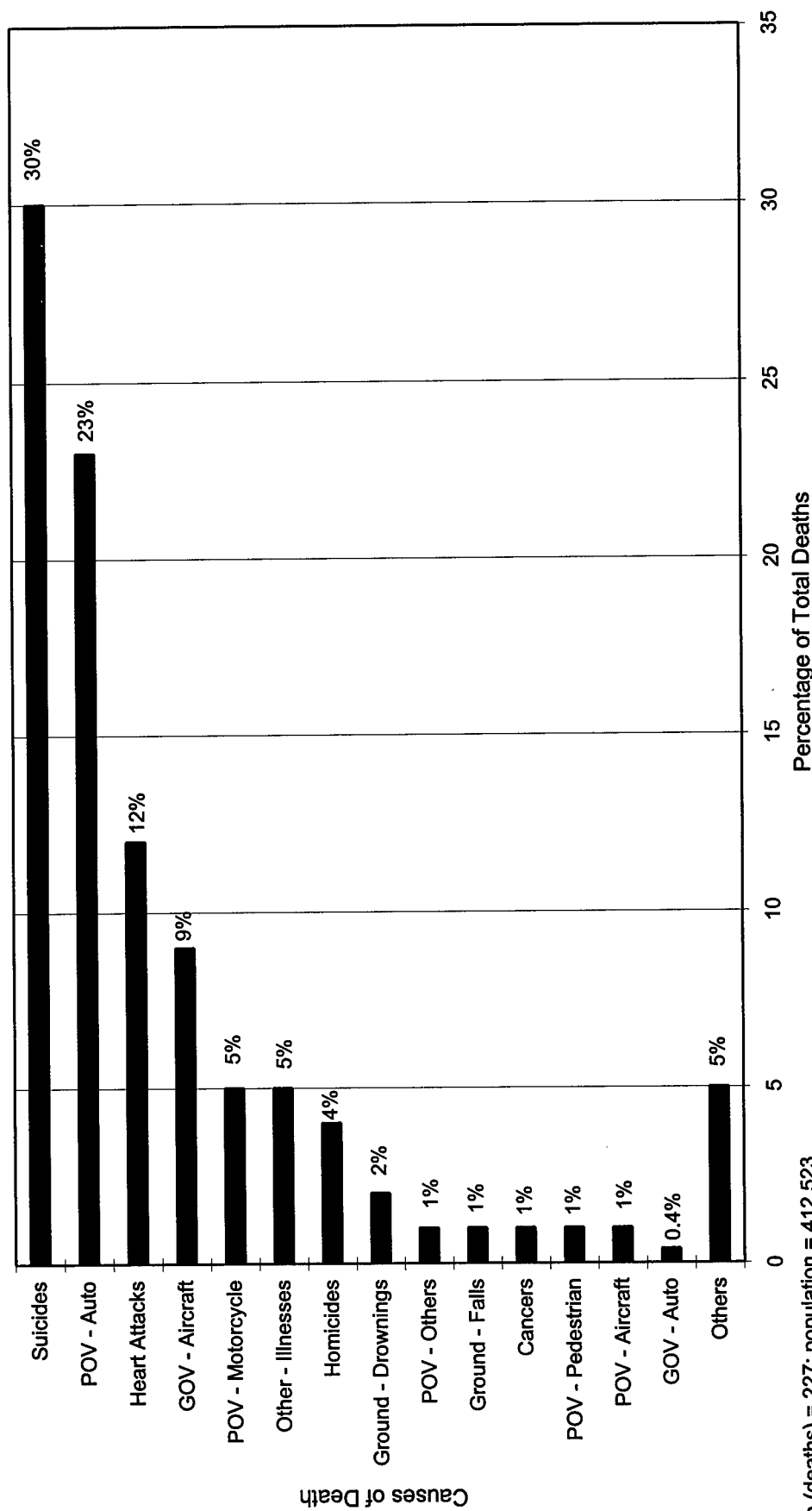
Figure 2-21

Figure 2-22 illustrates the distribution of deaths by specific cause for active duty Air Force personnel for CY 1994. The top five specific causes of death were:

- Suicides—30%.
- POV-auto accidents—23%.
- Heart attacks—12%.
- GOV aircraft accidents—9%.
- POV motorcycle accidents—5%.

Suicides, the leading specific cause of death, occur one and a quarter times as often as deaths by POVs, the second leading specific cause of death. The total number of deaths for CY 1994 was 227 out of a population of 412,523, or 55 deaths per 100,000 personnel.

Air Force - Distribution (%) of Deaths by Specific Cause for Active Duty Personnel, CY 1994



n (deaths) = 227; population = 412,523.

POV = privately owned vehicle.

GOV = government owned vehicle.

Source: U.S. Air Force Armstrong Labs/Aerospace Medicine Directorate, Program and Operations Division (AL/AOP), 1995, as reported to the DoD Injury Surveillance and Prevention Work Group and previously presented in the Armed Forces Epidemiological Board, *Injuries in the Military: A Hidden Epidemic*, 1996.

Figure 2-22

Trends of Military Injury-Related Deaths Relative to Other Causes Over Time.

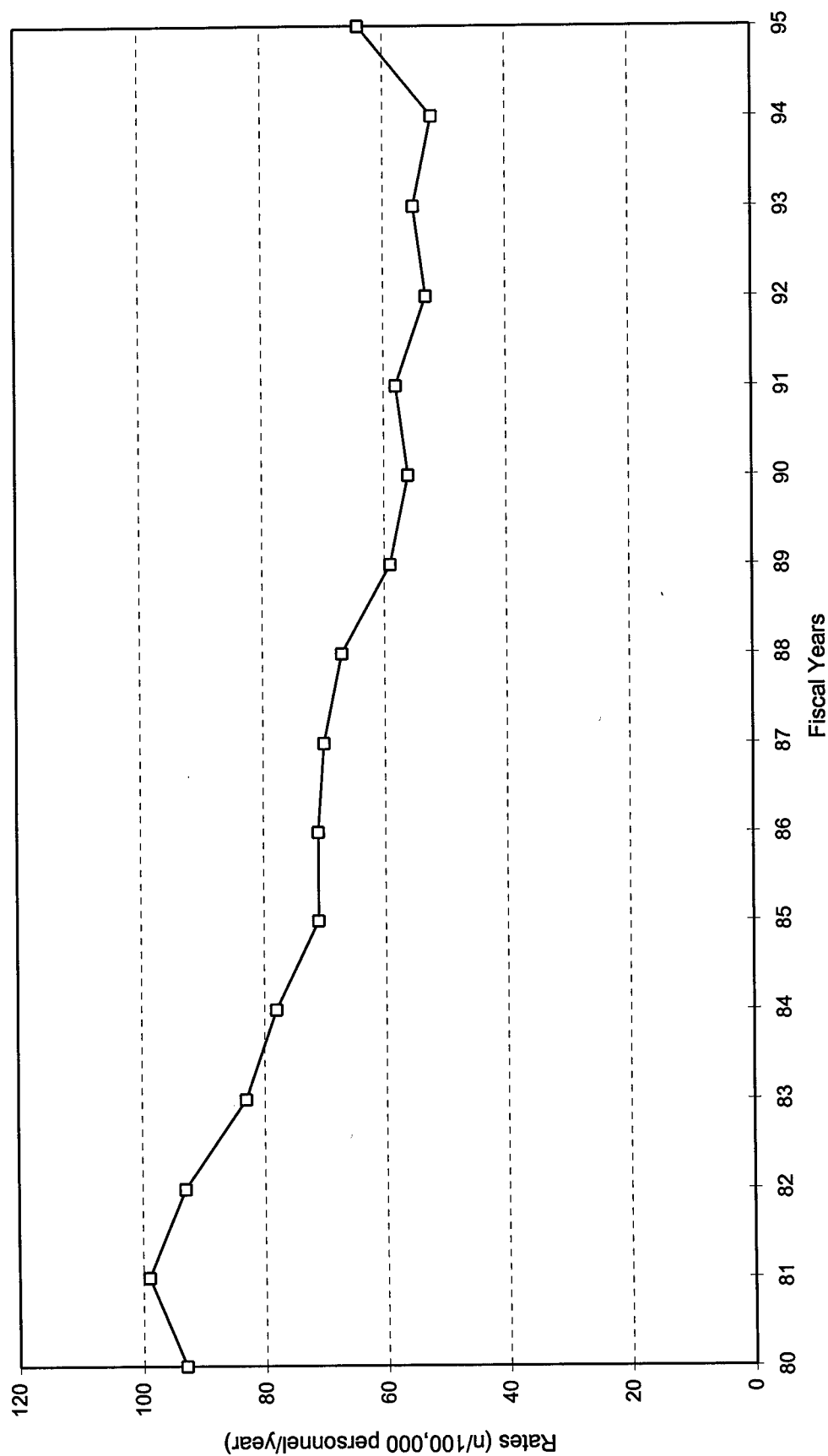
Figure 2-23 illustrates the overall rates of death for active duty Air Force personnel for FY 1980-1995. Casualties decreased 44% from 93 per 100,000 personnel in FY 1980 to 52 per 100,000 personnel in FY 1994, followed by a 23% rise to 64 per 100,000 personnel in FY 1995.

Worksheet Data for Figure 2-23

		Air Force - Rates of Death by Fiscal Year*													
1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
93	99	93	83	78	71	71	70	67	59	56	58	53	55	52	64

* Rates per 100,000 personnel calculated using denominator data in Table 1-7.

Air Force - Overall Rates of Death for Active Duty Personnel, FY 1980-1995



Source: DoD Worldwide U.S. Active Duty Military Personnel Casualties, Oct 79-Dec 95. Prepared by DoD, Washington Headquarters Services, Directorate for Information Operations and Reports (DTIC# DIOR/M07-96/01).

Figure 2-23

Figure 2-24 illustrates the rates of death by casualty type for active duty Air Force personnel for FY 1980-1995.

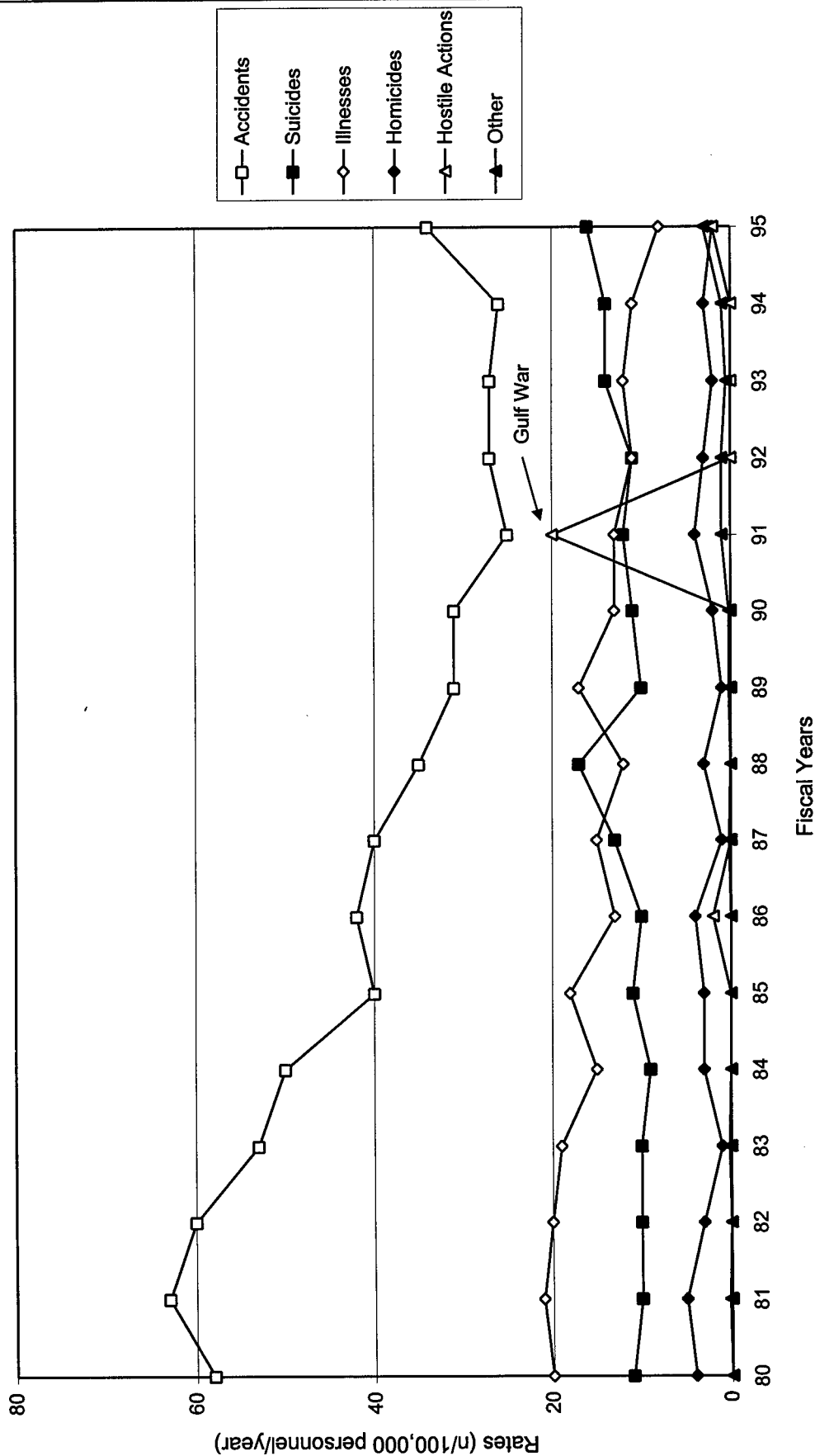
- Accident casualty rates decreased almost 60% from 58 per 100,000 personnel in FY 1980 to 26 per 100,000 personnel in FY 1994, followed by a 42% rise to about 34 per 100,000 personnel in FY 1995. This rate increase in the last reportable year accounts for the observed increase in overall death rates noted in Figure 2-23.
- Suicide casualty rates increased 45% from 11 per 100,000 personnel in FY 1980 to 16 per 100,000 personnel in FY 1995.
- Illness casualty rates decreased 60% from 20 per 100,000 personnel in FY 1980 to 8 per 100,000 personnel in FY 1995.

Worksheet Data for Figure 2-24

Casualty Types (Rank Based on 1995 Data)	Air Force - Rates of Death by Fiscal Year*															
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Accidents	58	63	60	53	50	40	42	40	35	31	31	25	27	27	26	34
Suicides	11	10	10	10	9	11	10	13	17	10	11	12	11	14	14	16
Illnesses	20	21	20	19	15	18	13	15	12	17	13	13	11	12	11	8
Homicides	4	5	3	1	3	3	4	1	3	1	2	4	3	2	3	2
Hostile Actions	0	0	0	0	0	0	2	0	0	0	0	20	0	0	0	2
Other	0	0.2	0	0.2	0	0	0	0.2	0	0.2	0.2	1	1	0.5	1	3

* Rates per 100,000 personnel calculated using denominator data in Table 1-7.

Air Force - Rates of Death by Casualty Type for Active Duty Personnel, FY 1980-1995



Source: DoD Worldwide U.S. Active Duty Military Personnel Casualties, Oct 79-Dec 95. Prepared by DoD, Washington Headquarters Services, Directorate for Information Operations and Reports (DTIC# DIOR/M07-96/01).

Figure 2-24

2-11. Comparison of All Services

The service casualty data for each service, presented in paragraphs 2-7 through 2-10, are compared and presented from three perspectives.

- **Table 2-12** compares each service's FY 1994 distribution (%) of deaths for active duty personnel by casualty type.
- **Table 2-13** compares each service's FY 1980-1995 rates and trends of deaths per 100,000 active duty personnel by casualty type.
- **Table 2-14** compares each service's CY 1994 distribution (%) of top five causes of death for active duty personnel by cause specific category.

Table 2-12. Distribution (%) of Deaths for Active Duty Personnel for FY 1994—A Comparison of All Services

Casualty Types	Army	Navy	Marine Corps	Air Force	Conclusions
Accidents	49%	48%	57%	47%	Distribution of Deaths • Overall distributions as a percentage of total deaths are similar for all services. • At least three quarters of all deaths in each of the services were due to injuries (when unintentional and intentional injuries are combined). Accidents • Accidental injury deaths, as a percentage of total deaths, are similar for the Army, Navy, and Air Force, but are about 20% higher for the Marine Corps. Suicides • The Air Force has 25% more suicides than the other services. Homicides • The Air Force has one half the homicide rates of the other services.
Suicides	18%	20%	20%	26%	
Illnesses	20%	18%	13%	21%	
Homicides	9%	8%	9%	4%	
Hostile Actions	4%	0%	0%	0%	
Other*	<1%	6%	1%	2%	

* Deaths that have a pending or undetermined cause.

Table 2-13. Rates and Trends of Deaths Per 100,000 Active Duty Personnel Per Year for FY 1980-1995—A Comparison of All Services

Casualty Types	Army	Navy	Marine Corps	Air Force	Conclusions
Accidents FY 1980 FY 1995 % Change	74 40 Down 46%	90 29 Down 68%	109 50 Down 54%	58 34 Down 41%	Death Rates • Death rates from accidental injury, homicide, and illness have declined steadily since FY 1980. Accidents • Accidental injury trends are downward and influence overall downward trends for all deaths. Suicides and Homicides • Violent injuries (suicides and homicides combined) are the second leading cause of death in recent years. Hostile Actions • Over the last 15 years, hostile actions are a small contribution to total deaths.
Suicides FY 1980 FY 1995 % Change	11 14 Up 27%	12 14 Up 17%	15 14 Down 7%	11 16 Up 45%	
Illnesses FY 1980 FY 1995 % Change	21 17 Down 19%	19 7 Down 63%	11 2 Down 82%	20 8 Down 60%	
Homicides FY 1980 FY 1995 % Change	8 4 Down 50%	9 7 Down 22%	16 5 Down 69%	4 2 Down 50%	
Hostile Actions FY 1980 FY 1995 % Change	.12 .39 †	0 0 0	0 † †	0 † †	
Other* FY 1980 FY 1995 % Change	† † †	2 4 Up 100%	2 8 Up 300%	0 3 †	

* Deaths that have a pending or undetermined cause.

† Insignificant; absolute numbers are small.

Table 2-14. Distribution (%) of Top Five Causes of Death* for Active Duty Personnel for CY 1994—A Comparison of All Services

Cause-Specific Categories	Top Five Causes of Death Per Service										Conclusions
	Army		Navy		Marine Corps		Air Force				
	%	Rank	%	Rank	%	Rank	%	Rank			
Vehicle Accidents	32%	1	32%	1	41%	1	31%†	1	Vehicle Accidents • Vehicle accidents are the number one cause of death for all services. Heart Attacks • Heart attacks are the third leading cause of death for all services. Gunshots • Deaths by gunshot are the second leading cause of death for all services except the Air Force.		
Gunshots	21%	2	19%	2	20%	2	—	—			
Heart Attacks	10%	3	12%	3	6%	3	12%	3			
Suicides	—	—	—	—	—	—	30%	2			
Fires and Burns	5%	4	—	—	—	—	—	—			
Training-Related Accidents	5%	5	—	—	—	—	—	—			
Drownings	—	—	3%	5	4%	5	—	—			
Aircraft Accidents at Sea/Aircraft Landings	—	—	5%	4	6%	4	—	—			
GOV Aircraft Accidents	—	—	—	—	—	—	9%	4			
Other Illnesses (Not Heart Attacks)	—	—	—	—	—	—	5%	5			

* As reported; methods of categorizing may differ among the services.

† All vehicle crashes, private and military, are combined.