

CHAPTER 7:

INJURY AND VIOLENCE

Injury is a leading cause of death, disability, and hospitalization. Nationally, injuries account for more physician visits than any other health condition. Among persons age 1 to 44, injuries are the leading cause of death, making them the principle cause of premature deaths. Injuries can be categorized as unintentional or intentional. Most motor vehicle crashes, falls, drowning, and burns, for example, are unintentional. Intentional injuries result from deliberate acts - suicide, homicide, and assault. Many unintentional and intentional injuries are potentially

preventable. For example, through education, mandating the use of seat belts, tougher laws against drunk driving, and engineering, we have seen a decline in the rate of death from motor vehicle crashes in recent years.

In this chapter, we discuss the major causes of injuries, including motor vehicle crashes (MVC), falls and hip fracture, homicide, and other violent crimes. *Suicide and accidental poisoning are mentioned below but are discussed in more detail in the chapter on mental health.*

Table 7-1:
Rates and Numbers for Unintentional and Intentional Injuries*

	King 1996		Seattle 1996		WA State 1996		U.S. 1995
	Rate	Number	Rate	Number	Rate	Number	Rate
Motor Vehicle Crash Death	10.2	170	7.4	51	14.4	789	16.3
Death from Falls	3.4	106	4.2	56	3.2	379	2.6
Hip Fracture Hospitalization** (Age 65+)	769.2	1,362	804.2	677	754.0	4,801	--
Homicide	4.9	74	6.5	32	4.9	254	9.4
Firearm Death	8.7	148	8.0	49	10.8	617	13.7
Other Violent Crime Reports***							
Rape	56.4	889	48.8	261	50.0	2,759	37.1
Robbery	198.3	3,230	369.8	1,677	114.8	6,355	220.9
Aggravated Assault	240.2	3,913	430.4	2,301	248.6	13,716	418.3

* Rates are age-adjusted except for hip fracture hospitalization and other violent crimes.

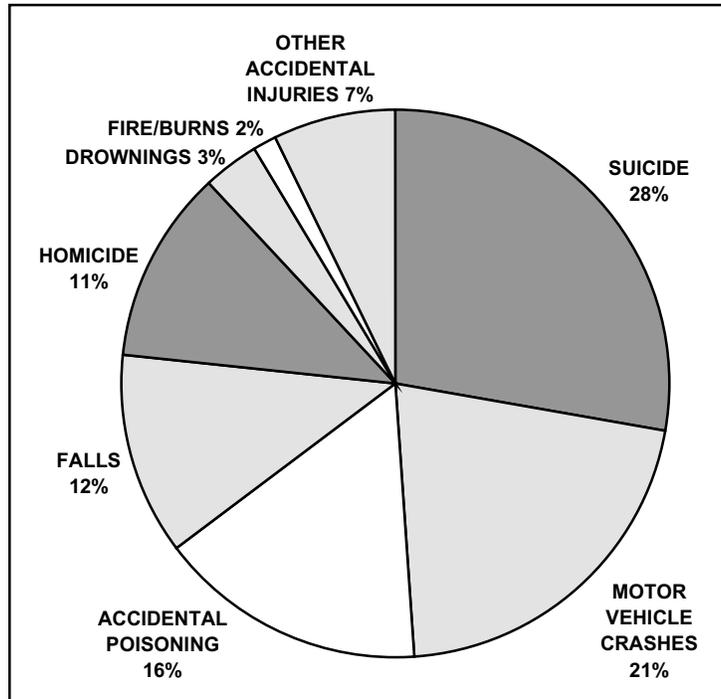
** Hip fracture statistics are based on hospitalization data in which Seattle includes ZIP codes in North County outside of Seattle.

*** Violence data are based on place of occurrence rather than victims' residence.

Source: Hosp. Discharge Data: WA State Dept. of Health, Office of Hospital and Patient Data Systems. Death Certificate Data: WA State Department of Health, Center for Health Statistics. U.S. Violent Crimes Data: FBI. Other Violence Data: Uniform Crime Reports.

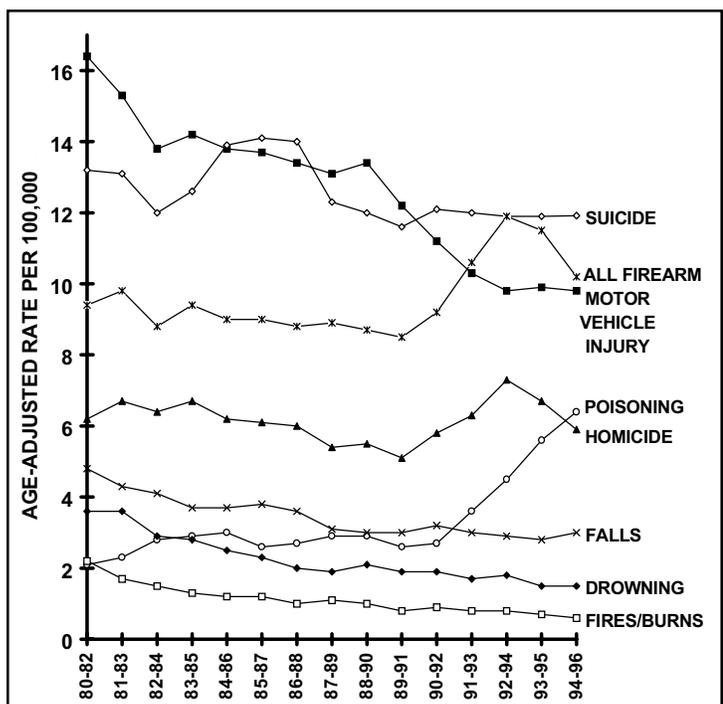
**Figure 7-1:
Percent of Injury Deaths by Type
King County
Three Year Average, 1994-1996**

Between 1994 and 1996, there were a total of 2,280 deaths due to injuries in King County, averaging 760 per year. Suicide accounted for 28% of these deaths, followed by motor vehicle crashes (21%), accidental poisoning (16%), falls (12%), homicide (11%), drowning (3%), and fire or burns (2%). Unintentional injury deaths accounted for 61% of the total injury deaths. Firearms caused 22% of all injury deaths, 51% of the suicides and 59% of the homicides (Figure 7-1).



Note: 8 cases of death due to legal intervention during the three year period are not included.

**Figure 7-2:
Time Trends for Injury Death
King County
Three Year Rolling Averages, 1980-1996**



Source: Death Certificate Data: WA State Department of Health, Center for Health Statistics.

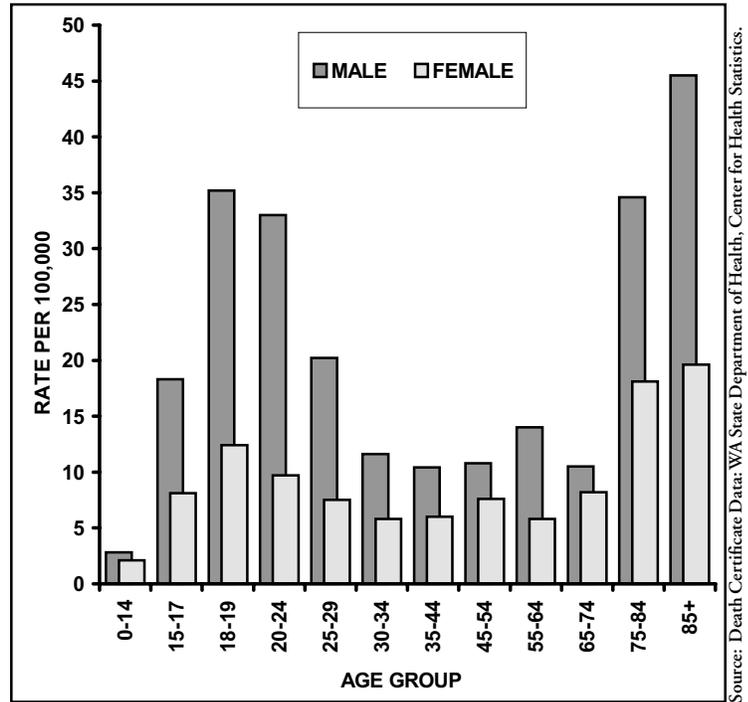
Between 1980 and 1996, the overall death rate of unintentional injury in King County declined, due to decreases in motor vehicle crashes, falls, fire and burns, and drowning. However, the rate of death from accidental poisoning (usually illicit drug overdose) has increased sharply since 1991. Overall, there was a substantial increase in unintentional injury deaths from 1995 (446 deaths) to 1996 (502 deaths), mainly due to increases in accidental poisoning (123 deaths to 142 deaths) and falls (78 deaths to 106 deaths).

Between 1980 and 1996, the age-adjusted rate of suicide declined slightly. The rate of homicide peaked between 1992 and 1994. Since 1994, the homicide rate declined. The time trend for firearm deaths was similar to that for homicide (Figure 7-2).

MOTOR VEHICLE CRASHES (MVC)

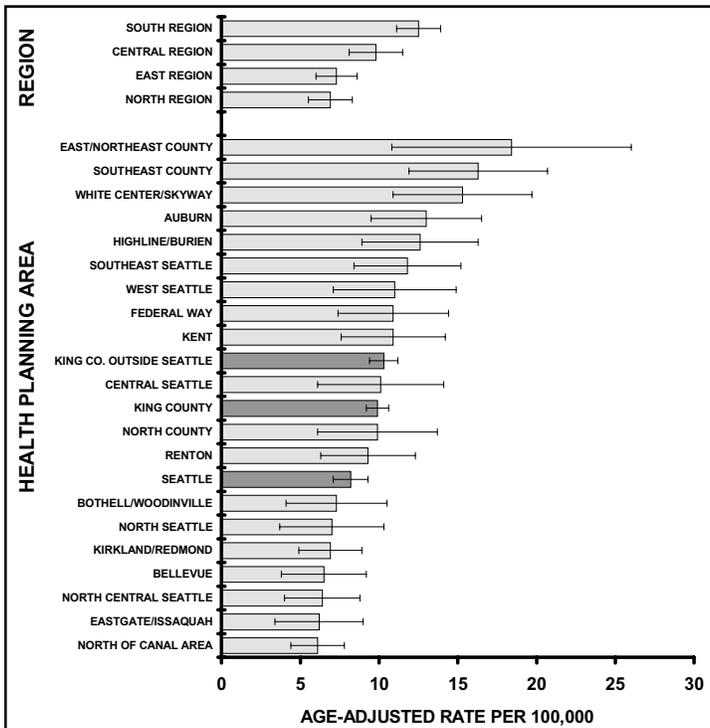
- ◆ In 1996, 170 King County residents died from MVC, including 51 residents of Seattle.
- ◆ Between 1980 and 1996, the age-adjusted death rate of MVC declined significantly in King County.
- ◆ Averaged over 1992-1996, the highest MVC death rates were observed among young adult males and elderly males age 75 and older (Figure 7-3). Males age 15-24 and age 75 and older accounted for 17.6% and 6.4% of the total MVC deaths respectively.

Figure 7-3:
Motor Vehicle Crash, Death Rates
By Age and Gender, King County
Five Year Average, 1992-1996



Source: Death Certificate Data: WA State Department of Health, Center for Health Statistics.

Figure 7-4:
Motor Vehicle Crash, Age-Adjusted Death Rates
By Region and Health Planning Area, King County
Five Year Average, 1992-1996



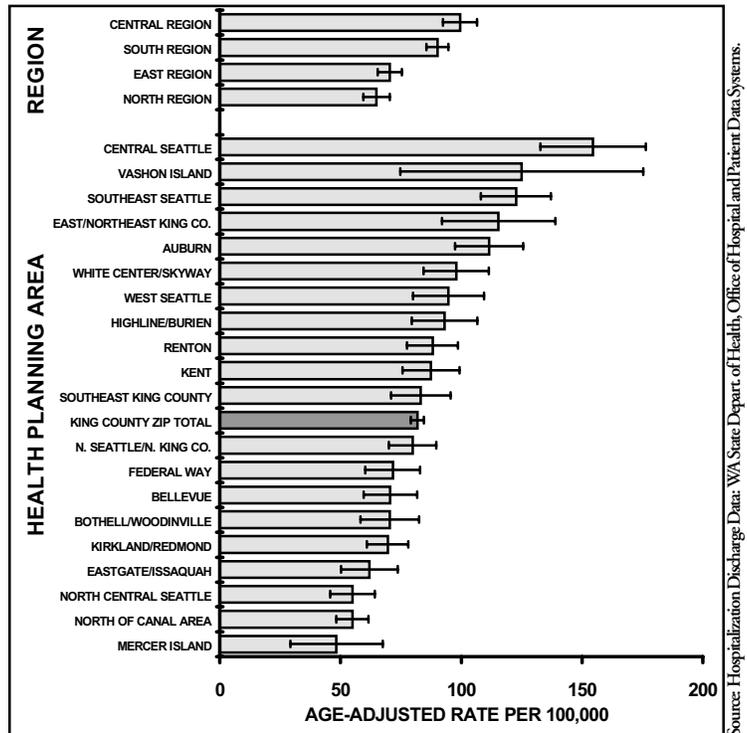
Source: Death Certificate Data: WA State Department of Health, Center for Health Statistics.

- ◆ There was no significant difference in the age-adjusted MVC death rate among the racial/ethnic groups or among areas of different poverty levels.
- ◆ Averaged over 1992-1996, the age-adjusted MVC death rate for residents of South Region was significantly higher than the rates for East and North Regions.
- ◆ Among the Health Planning Areas, the age-adjusted MVC death rates for residents of East/Northeast County, Southeast County, and White Center/Skyway were significantly higher than the county average (Figure 7-4).

Note: Vashon Island and Mercer Island are not included because of small numbers (<10).

Figure 7-5:
Motor Vehicle Crash, Age-Adjusted Hospitalization Rates
By Region and Health Planning Area, King County
Three Year Average, 1994-1996

- ◆ In addition to the 170 deaths, there were 1,292 MVC hospitalizations in 1996 among King County residents.
- ◆ Averaged over 1994-1996, Central Region had the highest MVC hospitalization rate, followed by South Region, East Region, and North Region.
- ◆ The age-adjusted MVC hospitalization rates among residents of Central Seattle, Southeast Seattle, East/Northeast County, and Auburn were significantly higher than the county average (Figure 7-5).



Source: Hospitalization Discharge Data: WA State Dept. of Health, Office of Hospital and Patient Data Systems.

Table 7-2:
Traffic Collisions in King County, 1996

	DEATHS	INJURIES	COLLISIONS
Total*	130	29,907	49,927
Drinking-Driver-Related	65	2,882	3,355
Drivers Under Age 25	52	11,509	15,866
Drivers Age 55+	27	6,176	9,618
Pedestrians in Traffic Collisions	29	855	
Bicyclists in Traffic Collisions	0	611	626
Motorcyclists in Traffic Collisions	8	446	502
Collisions Involving Heavy Trucks	12	826	2,803
Collisions Involving Light Trucks**	50	9,454	23,580

Traffic collision data provide additional information on motor vehicle crashes. Table 7-2 summarizes the 1996 traffic collision data for King County.

- ◆ In 1996, King County had 1,251,022 licensed drivers, accounting for 77% of the population.
- ◆ Meanwhile, there were 1,393,758 vehicles registered in King County.
- ◆ King County drivers traveled a total of 14,846 million miles in 1996, averaging 11,867 miles per licensed driver.
- ◆ In 1996, 1,692 serious injuries, 7,582 evident injuries, and 20,633 possible injuries occurred in King County due to traffic collisions.

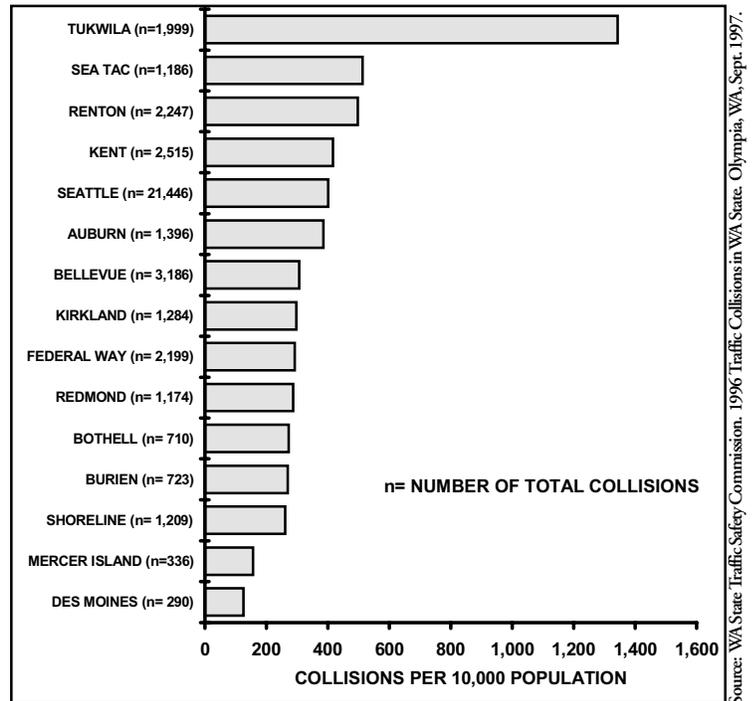
* The collision data are based on occurrence rather than residence. Therefore, the total number of deaths differed from that obtained from death certificates which is based on the residence of the deceased.

** Pickups, panel trucks, delivery trucks/vans, passenger vans <10,000lbs.

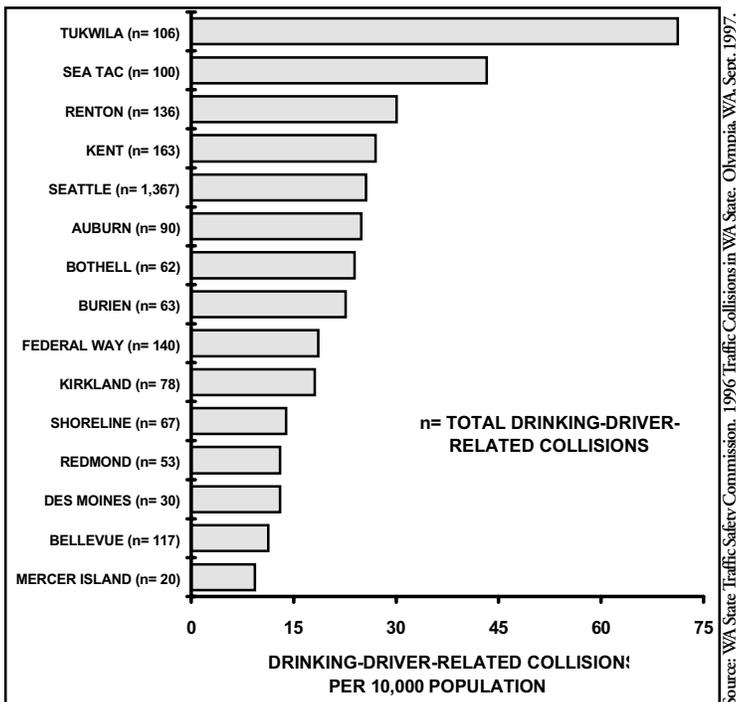
Source: WA State Traffic Safety Commission. 1996 Traffic Collisions in WA State. Olympia, WA, Sept. 1997.

- ◆ Among King County cities, Tukwila and SeaTac had the highest collision rates¹ (Figure 7-6).

**Figure 7-6:
Traffic Collision Rates
Among King County Cities, 1996**



**Figure 7-7:
Drinking-Driver-Related Collision Rate
Among King County Cities, 1996**



- ◆ In King County 1996, 38% of the fatal collisions and 7% of the total collisions were alcohol-related.
- ◆ Tukwila and Sea Tac also had the highest rates of drinking-driver-related collisions (Figure 7-7).
- ◆ In 1996, there were 150,981 licensed drivers under age 25, accounting for 12% of the total driver population. Drivers in this age group, however, were responsible for 40% of the traffic deaths and 32% of the collisions.

¹ The collision data originally obtained from State Patrol are based on occurrence rather than residence of the persons involved. The collision statistics for any specific area result from a number of contributory factors, such as local traffic engineering patterns, traffic volume, and local enforcement level as well as demographic profiles of local drivers. Some areas have more “outsider” traffic than other areas, therefore, the statistics may not reflect the risk of the local population.

FALLS AND HIP FRACTURE

Falls are the third leading cause of death from unintentional injury. Three quarters of deaths from falls occur among the elderly age 65 and older. Within this age group, falls are the number-one cause of unintentional injury death. Falls often result in a hip fracture among the elderly, which not only causes disability but also may hasten death from other causes.

Risk factors for falls and hip fracture include age, osteoporosis, alcohol, smoking, and use of medications. Adequate calcium intake, physical exercise, and estrogen replacement therapy after menopause may reduce osteoporosis and thus the risk of hip fracture. Home safety measures and walking aids can reduce the likelihood of falls among the elderly. In addition, careful use of medications with special attention to their complications is also important for preventing falls.

Figure 7-8:
Fall Injuries, Hospitalization and Death Rates
By Age, King County
Three Year Average, 1994-1996

- ◆ In 1996, 106 King County residents died from falls.
- ◆ There were 5,066 hospitalizations for fall injuries and 1,388 (27%) of these hospitalizations had a hip fracture.
- ◆ Death and hospitalization for fall injuries occur most often among the elderly age 65 and older. During 1994 to 1996, the elderly accounted for 78% of the deaths and 65% of the hospitalizations from falls, and 90% of the hospitalizations for hip fractures (Figure 7-8).

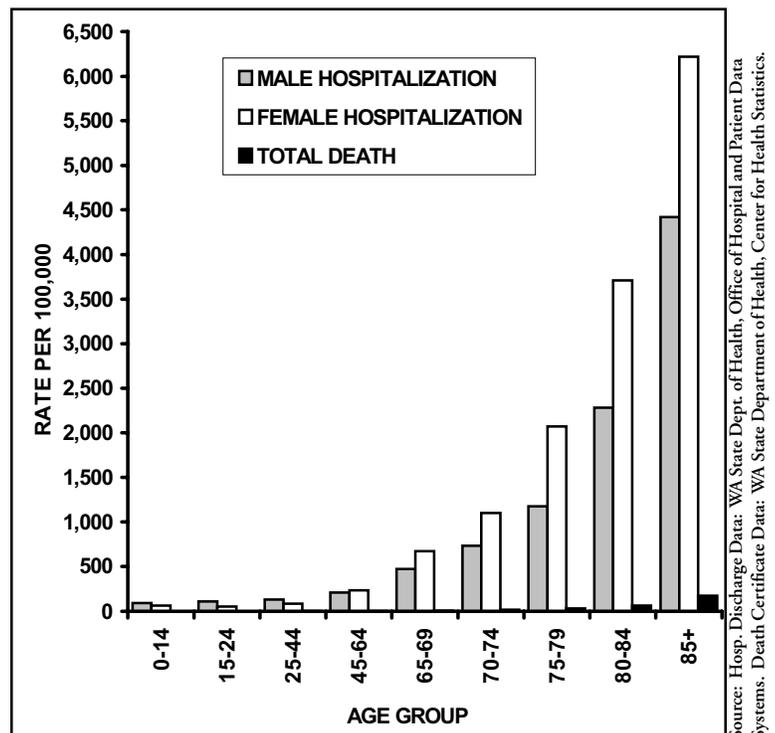


Figure 7-9:
Fall Injuries, Hospitalization and Death Trends
For Elderly Age 65+
King County, 1980-1996

◆ The death rate for falls among elderly age 65 and older declined significantly between 1980 and 1995 from 50.3 to 33.0. However, the rate increased substantially in 1996 to 46.9. The hospitalization rates for both elderly males and females increased significantly between 1989 and 1996 (Figure 7-9).

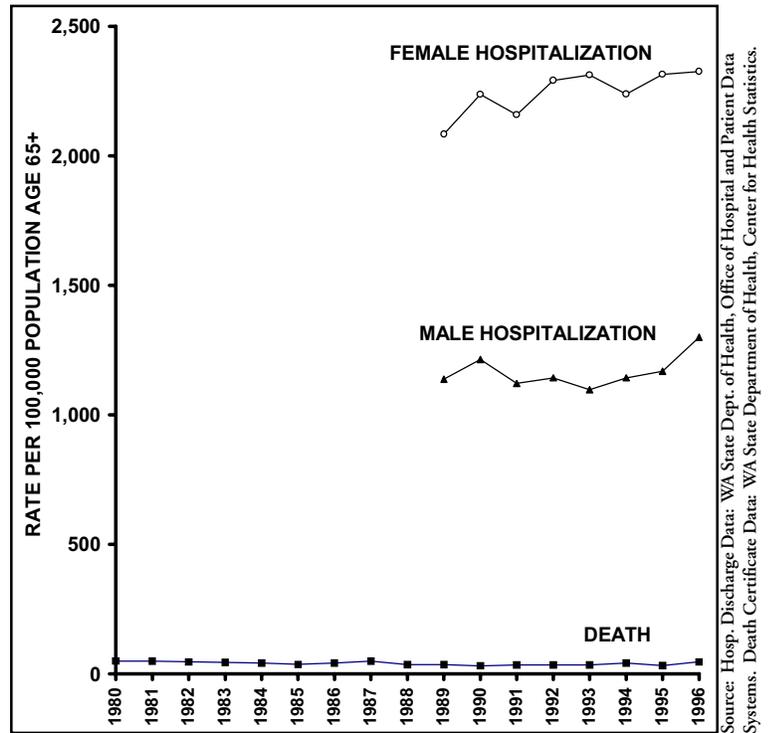
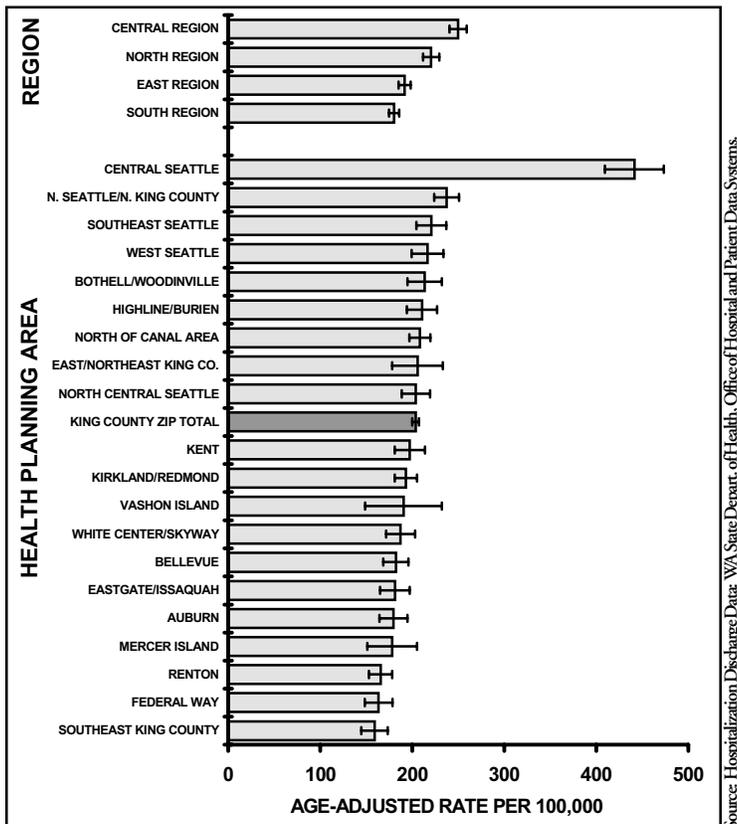


Figure 7-10:
Fall Injuries, Hospitalization Rates
By Region and Health Planning Area, King County
Three Year Average, 1994-1996



- ◆ The age-adjusted death rate for residents living in high poverty neighborhoods (4.4) was significantly higher than the rate for residents living in low poverty neighborhoods (2.2).²
- ◆ Averaged over 1994 to 1996, the age-adjusted rate of hospitalization for falls was the highest in Central Region, followed by South Region, East Region, and North Region.
- ◆ The age-adjusted rate of hospitalization for falls in Central Seattle was 2.2 times the county average rate. The rate in North Seattle/North County was also significantly higher than the county rate. The rates in Southeast County, Federal Way, and Renton were significantly lower than the county rate (Figure 7-10).

2 Racial/ethnic comparisons are not made because of the relative small numbers of death among the minority populations.

HOMICIDE

- ◆ In 1996, 74 King County residents, including 35 residents of Seattle, were murdered.
- ◆ The homicide rate was the highest among males age 15-24.
- ◆ Between 1980 and 1996, the age-adjusted homicide rate in King County fluctuated from year to year with the highest rates observed between 1992 and 1994 (Figure 7-11).

Figure 7-11:
Homicide Trends, Age-Adjusted Rates
King County, Seattle, and King County Outside Seattle
1980-1996

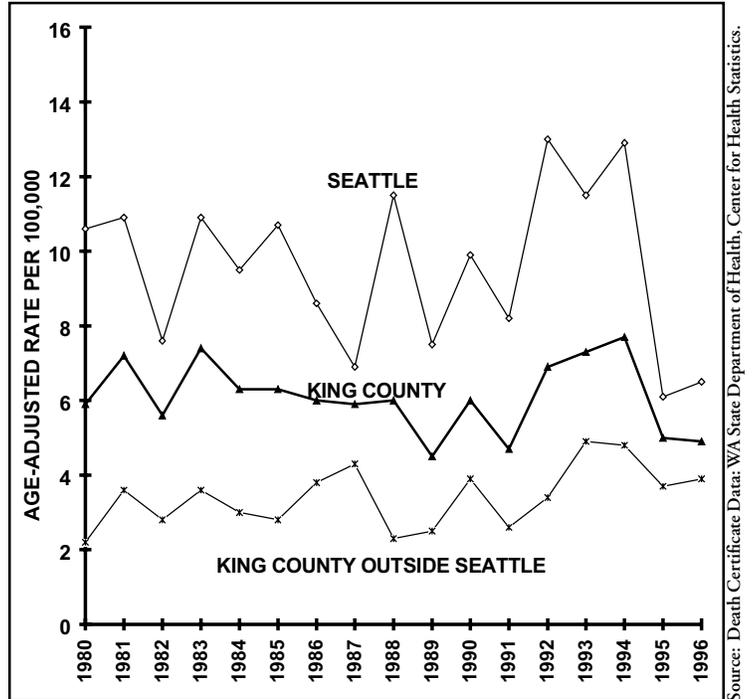
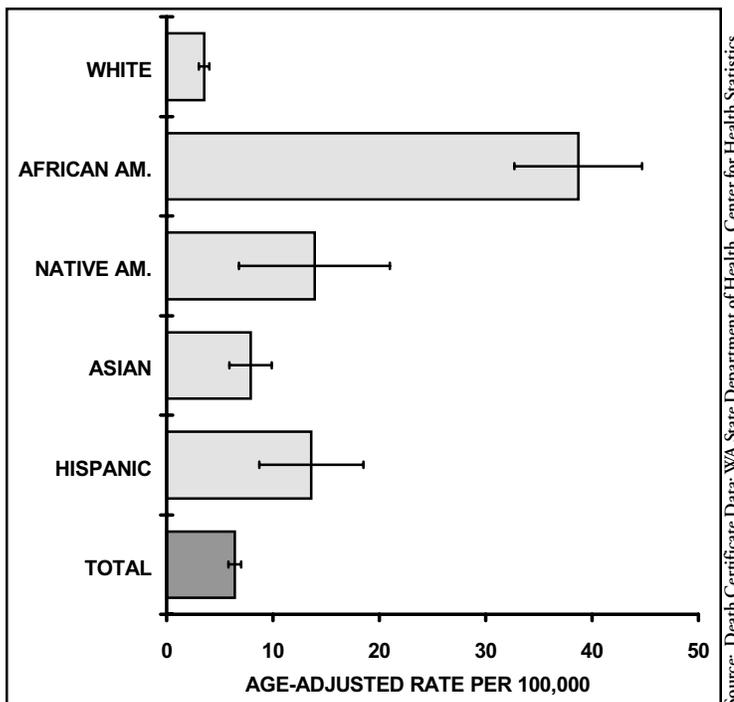
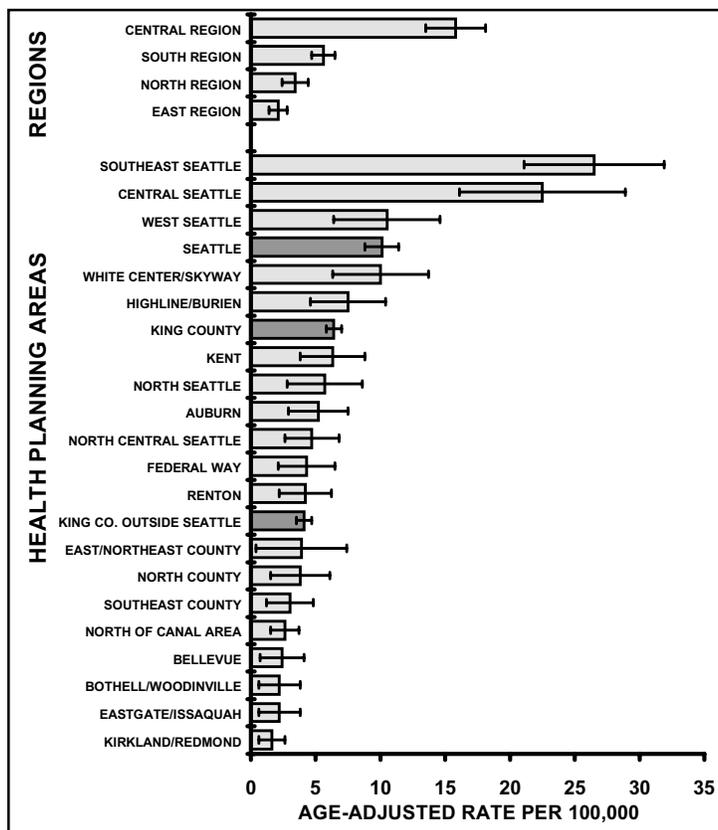


Figure 7-12:
Homicide, Age-Adjusted Rates
By Race/Ethnicity, King County
Five Year Average, 1992-1996



- ◆ Averaged over 1992-1996, the age-adjusted homicide rate for African Americans (38.7) was 11 times the rate for whites (3.5). The age-adjusted rates for Hispanics (15.4), Native Americans (13.9) and Asians (7.9) were all significantly higher than the white rate (Figure 7-12).

Figure 7-13:
Homicide, Age-Adjusted Rates
By Region and Health Planning Area, King County
Five Year Average, 1992-1996



Source: Death Certificate Data: WA State Department of Health, Center for Health Statistics.

Note: Vashon Island and Mercer Island are not included because of small numbers (<10).

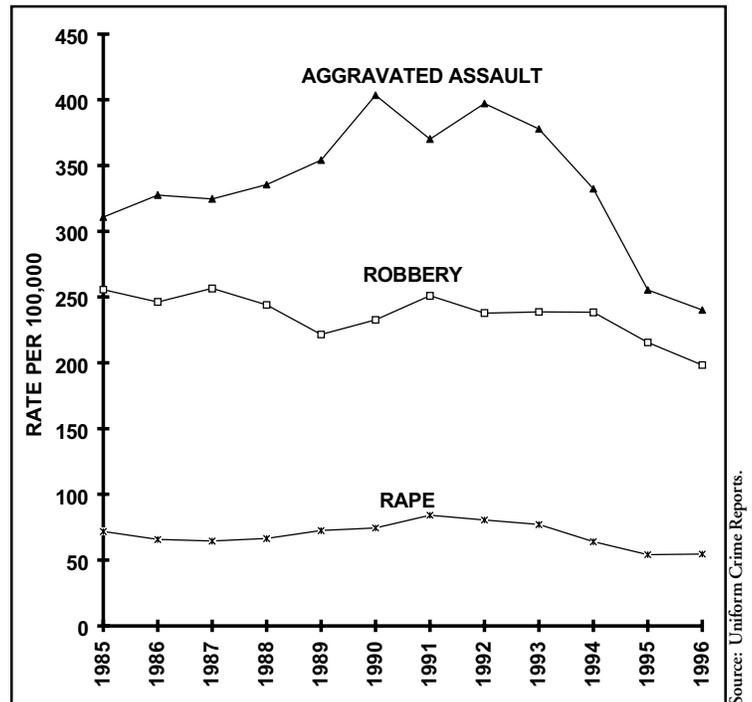
- ◆ The age-adjusted homicide rate for high poverty neighborhoods (16.0) was twice the rate for medium poverty neighborhoods (7.1) and five times the rate for low poverty neighborhoods (3.0).
- ◆ The age-adjusted homicide rate in Central Region was significantly higher than the rates in other regions. The rate in South Region was significant higher than the rates in North and East Regions.
- ◆ The age-adjusted homicide rates in Southeast Seattle and Central Seattle were significantly higher than the King County average rate (Figure 7-13).

OTHER SERIOUS VIOLENT CRIMES

In addition to homicide, police reports identify rape, robbery, and aggravated assault as serious violent crimes.

- ◆ In 1996, 889 cases of rape, 3,230 cases of robbery, and 3,913 cases of aggravated assault were reported to police in King County.
- ◆ Between 1985 and 1992 in King County, the rates of rape and aggravated assault increased while the rate of robbery stayed relatively stable. Since 1993, the rates of the three types of violent crimes declined significantly (Figure 7-14).
- ◆ Among the police jurisdictions (police department or sheriff's office) in King County, the rates of serious violent crimes were the highest in Tukwila and SeaTac³ (Table 7-3).

Figure 7-14:
Violent Crime Rates
King County
1985-1996



³ Note: Crime data from police reports are also based on occurrence.

**Table 7-3:
Violent Crimes (Homicide, Rape, Robbery and Aggravated Assault)
By Incorporated City in King County
1996**

City	Number of Offenses	Rate per 100,000	Population
Tukwila	238	1599.5	14,880
SeaTac	213	921.7	23,110
Seattle	4,576	855.8	534,700
Burien	172	618.0	27,830
Auburn	213	589.5	36,130
Federal Way	427	567.5	75,240
Renton	256	566.7	45,170
North Bend	16	521.2	3,070
Kent	291	481.9	60,380
Des Moines	99	430.1	23,020
Snoqualmie	6	387.1	1,550
Algona	6	294.8	2,035
Kirkland	106	245.6	43,160
Pacific	12	222.4	5,395
Shoreline	100	207.4	48,205
Bellevue	186	179.4	103,700
Issaquah	16	172.9	9,255
Woodinville	16	161.0	9,940
Enumclaw	16	155.9	10,260
Normandy Park	11	155.0	7,095
Bothell *	35	134.7	25,990
Redmond	43	105.4	40,805
Mercer Island	11	51.2	21,490
Newcastle **	3	****	8,260
Black Diamond	3	****	2,010
Duvall	3	****	3,635
Clyde Hill	2	****	3,015
Medina	1	****	3,085
Carnation **	1	****	1,540
Lake Forest Park ***	0	0.0	12,480
Yarrow Point	0	0.0	1,015
Unincorporated King County	1,024	237.1	431,910
Total King County	8,102	503.9	1,607,915

* Includes area of Bothell that is in Snohomish County.

** Agencies reported 6 months of data.

*** Agency reported 4 months of data.

**** Rates are not calculated for cities with less than 5 cases.

