National Trends in Injury Hospitalizations 1979-2001

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics

Injury data

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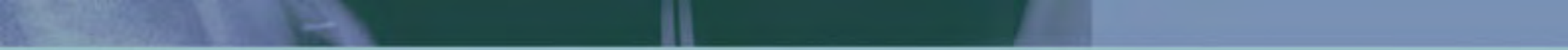

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Highlights

In 2001

• In 2001 injuries accounted for 1.8 million hospital discharges or 64.2 discharges per 10,000 population, and injuries accounted for 9 million days of inpatient care. (figures 1, 2, and 24)

• In 2001, 68 percent of injury discharges had an external cause code; of these, unintentional injuries were the majority. Falls, poisonings, and motor vehicle traffic-related injuries were the leading external causes of injuries regardless of intent. (figures 20–22)

From 1979 to 2001

• In 2001 injury discharges accounted for 6 percent of all short-stay hospital discharges, down from 9 percent in 1979. (figure 1)

• From 1979 to 2001 the discharge rate for injuries decreased on average 4.3 percent per year, and the total number of days of inpatient care for injuries decreased on average 5.2 percent per year. (figures 2 and 24)

• Injury hospital discharge rates were generally higher for males than for females under 65 years of age; however, females 65 years of age and over had higher injury discharge rates than males. From the early 1980s to 2001, females 65 years of age and over had the highest rate of injury discharges of any age/sex group although the overall rates for women 65 years and over decreased on average 0.6 percent per year. (figures 5 and 6)

• Fractures were the leading cause of injury hospitalizations, accounting for 36 percent of all injury hospital discharges in 1979 and 55 percent in 2001. The highest discharge rate was among females 65 years of age and over. (figures 9 and 11)

• Poisoning and toxic effects accounted for 6 percent of all injury hospital discharges in 1979 and 11 percent in 2001. (figures 12 and 13)

• Extremity injury discharge rates were higher than the rates for the other body regions and declined, on average, 3.4 percent per year. The highest discharge rates were consistently among females 65 years of age and over. (figures 14 and 16)

• Discharge rates for head and neck injuries for males and females under 65 years of age decreased on average 4.0 to 7.6 percent per year. From 1979 to 2001 traumatic brain injuries accounted for about 50–70 percent of all head and neck injuries. (figures 17 and 18)

• Hip fractures were most common among females 65 years of age and over. Females 85 years and over had the highest discharge rate for hip fracture, and the discharge rate for this group increased on average 0.7 percent per year. (figure 19)

Highlights

• The average length of stay for injury hospitalizations among those 65 years of age and over decreased on average 4.4 percent per year, while the average decrease for those under 65 years of age was 1.9 percent per year. (figure 25)

• From 1981 to 2001 the percent of injury hospitalizations discharged home among those 65 years of age and over decreased on average 4 percent each year compared with those under 65 years of age for whom the percent decreased on average 0.5 percent each year. The percent discharged to a long-term care institution and to a short-term facility increased for both age groups. (figures 28–30)

• In 2001 private insurance was the principal expected source of payment for about one-half of injury patients under 65 years of age. However, from 1979 to 2001, the proportion of injury discharges covered by Medicare, Medicaid, and the uninsured increased while the proportion paid by private health insurance decreased. (figure 31)

Introduction

Medical expenditures for injury remained relatively constant from 1985 to 2000 and were estimated in 2000 at $117 billion (1–3)[§] accounting for 10.3 percent of total medical expenditures. Expenditures per injured person were approximately $2,600 and nearly $430 per capita (1). In 1995 the total cost of injury was estimated at $1.7 trillion, including work loss, direct costs, and costs for pain and suffering (2).

In 2001 injuries accounted for 157,000 deaths (4), 1.8 million hospitalizations, 9 million days of inpatient care (5), and 33.8 million emergency department visits (6). This report describes trends in injury hospitalizations. National data on injury deaths, emergency department visits and episodes of injuries are available from other National Center for Health Statistics (NCHS) sources (7–9) as well as from other Federal and non-Federal sources (10).

Data on fatal and nonfatal injuries are used by public health officials and researchers to monitor trends, measure risk factors, evaluate the effectiveness of existing policies and programs, and assess the need for new policies and programs. In addition, data on injuries are used in monitoring progress toward achieving the Healthy People 2010 Injury-Related Objectives for the Nation (11).

Until recently there has not been a uniform method for analyzing and reporting injury hospital discharge data; thus, comparisons of hospital discharge rates for injuries within and across States and other jurisdictions were problematic. To help standardize injury hospital discharge data, the State and Territorial Injury Prevention Directors Association (STIPDA), in collaboration with other State and Federal agencies, released a report, *Consensus Recommendations for Using Hospital Discharge Data for Injury Surveillance* (12). The report recommended standard *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM) categories and methods for analyzing and reporting injury hospital discharge data. This chartbook is the first application of the STIPDA recommendations to national level data. In addition to providing broad measures for the United States, national level data are valuable as a benchmark for States and localities.

Methods

Data from 23 years, 1979 through 2001, of the National Hospital Discharge Survey (NHDS) are analyzed for this report. The NHDS is a nationally representative survey of discharges from non-Federal short-stay hospitals in the United States. "Appendix A" includes a detailed description of the NHDS. Since 1979, ICD-9-CM has been used for coding diagnoses and procedures in the NHDS (13). There were a small number of ICD-9-CM coding changes over the study period, but they only minimally affected the total number of injury discharges ("Appendix A," ICD-9-CM addenda affecting injuries). Chapter 17 of the ICD-9-CM includes the diagnosis codes for injury. Codes for external causes of injury are in the Supplementary Classification of External Causes of Injury and Poisoning section of ICD-9-CM. Codes used in this report are listed in tables 1 and 2.

[§] The 1985 estimate used for comparison is inflation-adjusted to year 2000 dollars. The 1985 actual estimate was $45 billion. The 1995 inflation-adjusted estimate based on 2000 dollars was $109 billion ($91 billion actual dollars) (2–3 and T. Miller, personal communication, January 2004).

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Table 1. Diagnosis labels and ICD-9-CM codes

Category	Principal diagnosis (first-listed diagnosis) ICD-9-CM diagnosis codes included
All discharges	001-999, V01-V82
Injury[1] (as defined by STIPDA)	800-909.2, 909.4, 909.9, 910-994.9, 995.5-995.59, 995.80-995.85
Noninjury	
Complications of care and adverse effects (and their late effects)	909.3, 909.5. 995.0-995.4, 995.6-995.7, 995.86, 995.89, 996-999
All other	001-799, V01-V82

[1]Unless otherwise specified "injury" diagnoses include poisoning.

NOTE: See "Appendix B" for ICD-9-CM codes and labels.

Table 2. External cause code definition

All injury and poisoning external cause codes (as defined by ICD-9-CM)	E800-E999 (ICD-9-CM Supplementary Classification of External Causes of Injury and Poisoning)
Injury and poisoning external cause codes as defined by the External cause of injury matrix and used for figures 20-22	E800-E848, E850-E868, E869.0-E869.3, E869.8-E869.9, E880-E929, E950-E966, E968-E999

NOTE: See "Appendix A," External cause of injury code, and "Appendix C," ICD-9-CM External Cause of Injury Matrix.

The STIPDA recommended case definition for injury hospitalizations was used to define injuries for this chartbook and is based on the first-listed diagnosis. The injury codes include ICD-9-CM 800-909.2, 909.4, 909.9, 910-994.9, 995.5-995.59, 995.80-995.85 (12). Excluded from the recommended definition are the codes for complications of care and adverse effects as well as their late effects (12) (see table 1). Deaths in the hospital are included in this definition.

The STIPDA defined injuries were further categorized using the two-dimensional Barell Injury Diagnosis Matrix (14). One dimension is the body region of the injury, and the other dimension is the nature of the injury. A category of the matrix referred to as "system wide" injuries does not fit the two dimensional aspect of the matrix, but refers to conditions that are systemic, such as poisoning. The cells of the Barell Matrix contain ICD-9-CM codes from chapter 17 corresponding to the intersection of the dimensions of the matrix, and the codes are provided in "Appendix B." A more thorough explanation of the matrix is in the Barell Matrix section of the chartbook and in "Appendix A," Barell Matrix.

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External causes of injury are defined and categorized using the two-dimensional ICD-9-CM External Cause Matrix (15,16). One dimension is the mechanism or external cause of the injury (e.g., fall, motor vehicle, etc.), and the other dimension is the manner or intent of the injury (e.g., self-inflicted, assault, unintentional, undetermined; see "Appendix A," External Cause of Injury codes). The following external cause codes are included in the matrix: E800-E869 (excluding E849, E869.4), E880-E929, E950-E999 (excluding E967) (see table 2). "Appendix C" includes the codes used to define each cell of the matrix. Exclusions include misadventures to patients during surgical and medical care and drugs, medicinal, and biological substances causing adverse effects in therapeutic use. Other exclusions are for invalid first-listed external cause codes (e.g., codes for place of occurrence or perpetrator of child or adult abuse) that should not be used without other external cause codes. If more than one ICD-9-CM external cause code was listed for a given record, only the first external cause code listed in the diagnostic code fields was used in this report. Coding guidelines recommend that the external cause code be related to the principal diagnosis as opposed to the initiating or underlying cause of the injury diagnosis (17).

External cause of injury coding provides information on the circumstances and causes of injuries. For discharges with a first-listed injury diagnosis, external cause coding increased from 14 percent in 1979 to 68 percent in 2001 (appendix table 20a); however, there has been no significant increase since 1997. Much of the increase in external cause code recording on medical record abstracts is attributed to the increased number of States that mandate external cause codes (18). External cause of injury data in figures 20–22 are shown only for 2001 because the percent of injury discharges that were assigned an external cause code is relatively high, 68 percent, for this year. However, the percent without an external cause code is still substantial and as a result, analysis and interpretation of the data is somewhat limited. The data are still informative particularly in the absence of other more complete nationally representative data.

Two measures are used in this report to present and discuss trends and changes in injury discharges in the United States from 1979 to 2001. The average annual percent change is calculated using weighted least squares regression. The average or total percent change from 1979 to 2001 is the average annual percent change multiplied by 22. Trends and differences were tested for statistical significance (see "Appendix A," Average percent change over time, test of trend, and test of significance between two statistics).

Estimates in all tables are rounded to the nearest thousand. Totals may include data for categories that are not shown individually in the tables. For these reasons, estimates within tables do not always add to the totals. Rates, percents, and average lengths of stay are calculated from unrounded figures and may not precisely agree with measures calculated from rounded data. Population denominators are for the civilian resident population.

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Organization of the Chartbook

Trends are graphically displayed by age and sex along with brief text highlights. Time trends are shown on a logarithmic scale to emphasize the rate of change and to enable measures with large differences in magnitude to be shown on the same figure ("Appendix A," Logarithmic scale). Figures in this chartbook have been grouped into three sections:

1. General statistics by demographic information (figures 1–6)
2. Injury diagnoses and external causes of injuries (figures 7–22)
3. Utilization and payment (figures 23–31)

Following the figures in the chartbook are data tables for each figure that show the data points graphed and related appendix tables. Standard errors for the data points are also provided. Data points in the figures are either age-adjusted or age-specific rates, percents, or means ("Appendix A," Age adjustment).

When selecting figures for this chartbook, consideration was given to measures that illustrate the trends and demographic patterns for the leading injury diagnoses among inpatients in U.S. short-stay hospitals as well as patterns in utilization.

Trends in injury hospitalization should be considered within the context of overall hospitalization. For this reason this chartbook includes data on discharge rates, average numbers of diagnoses, days of care, and average lengths of stay for patients hospitalized for both injury and noninjury diagnoses.

Discussion

In general, injury hospital discharge rates decreased from 1979 to 2001. It is important to understand that the decline reflects not only trends in the incidence of injury, but also changes in health care utilization and resources and the impact of new medical technologies (19). Partitioning the effects of each of these variables on injury hospitalization over time is beyond the scope of this chartbook. However, work is ongoing at the international level to develop measures of injury severity that will foster more valid and reliable surveillance of injury incidence (20).

A number of important changes in the health care delivery system led to decreases in hospitalization as a whole during the period from 1979 to 2001 including stricter utilization review that limited entry into the hospital, the growth of managed care that emphasized the avoidance of expensive hospitalization whenever possible, and the movement of a large proportion of diagnostic and surgical procedures from the inpatient to the outpatient setting (21–25).

It was hypothesized that, in addition to these factors, hospitalization for injury would also be affected by numerous public and private sector efforts designed to decrease the occurrence and/or severity

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of unintentional and violence-related injuries. Included among these efforts were the widespread promotion and adoption of injury prevention activities such as the use of seat belts, safer automobiles (e.g., with air bags), improvements in road safety, requirements for helmet use for bicycles, motorcycles and in sports activities, efforts to improve home and workplace safety including access to poison control centers, and initiatives aimed at reducing assaults and self-directed harm and their resulting injuries (10). Most recently, attention is being directed to how hospitals can and should respond to mass trauma events with the aim of reducing the severity of the injuries (26).

Injury hospitalization data are important to track because such injuries, though rarely an immediate threat to life (only 2 percent of hospitalized injury patients die during their hospital stay), are generally serious enough to warrant acute inpatient care. The importance and expense of inpatient treatment has led most States to gather comprehensive data on injury hospitalization in their data systems. States will be able to compare the data they gather to the national data included in this chartbook. The data in this publication, along with data on the occurrence of, and health care treatment for, injuries in settings other than the hospital, can help States improve existing and design new injury prevention programs.

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Injury and Noninjury Discharges

Injury discharges accounted for 6 percent (1.8 million) of all short-stay hospital discharges in 2001, down from 9 percent (3.3 million) in 1979. From 1979 to 2001 the discharge rate for injuries decreased on average 4.3 percent per year (for a total decrease of 62 percent) to 64.2 per 10,000 population.

Complications of care and adverse effects accounted for 1 percent of all short-stay hospital discharges in 1979 and 2 percent in 2001. The discharge rate for complications of care and adverse effects increased on average 2.4 percent per year (for a total increase of 68 percent) to 28.2 per 10,000 population. All other non-injury discharges decreased on average 2.2 percent per year (for a total decrease of 39 percent) to 1062.2 per 10,000 population.

Complications of care and adverse effects have come under increased scrutiny since 1999 when the Institute of Medicine published its report, To Err Is Human: Building a Safer Health System (1). Numerous research projects focusing on complications of care and adverse effects have been completed or are currently underway (2–6). Throughout the remainder of this report, the State and Territorial Injury Prevention Directors Association (STIPDA) definition of injuries, which excludes complications of care and adverse effects, will be used.

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Figure 1. Number of hospital discharges by first-listed diagnosis, 1979-2001

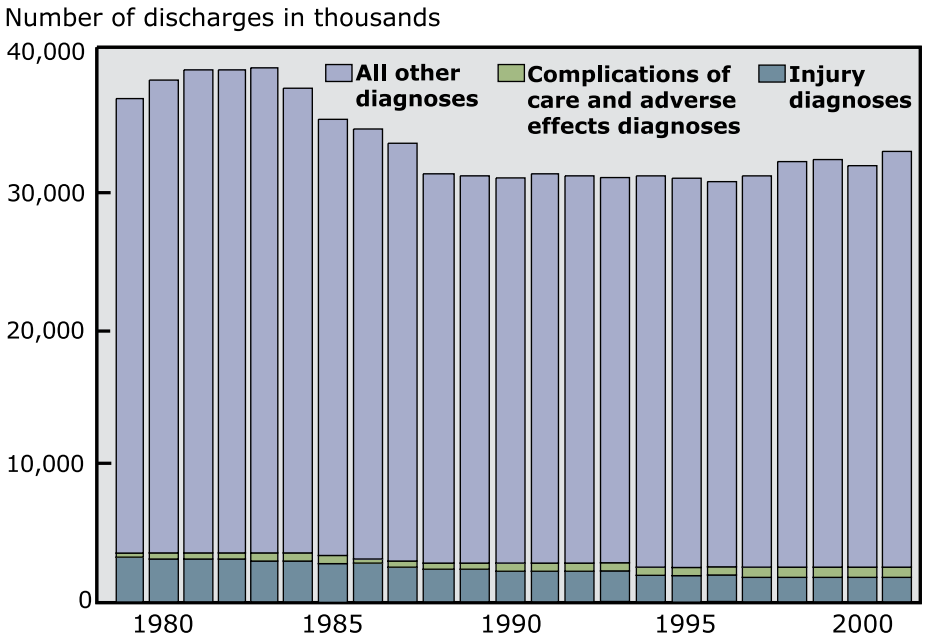
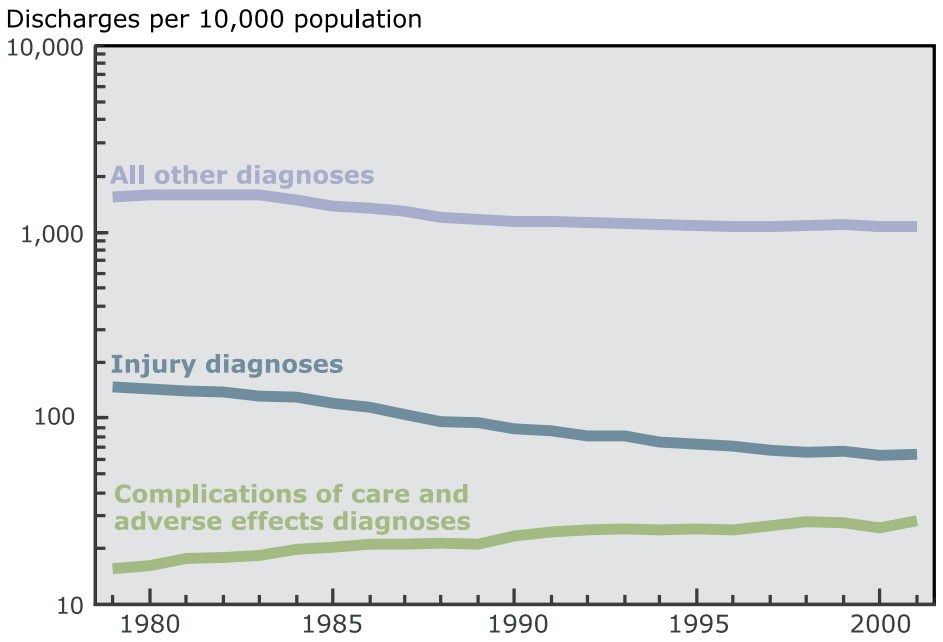


Figure 2. Hospital discharge rates by first-listed diagnosis, 1979-2001



NOTES: See "Table 1" for the ICD-9-CM codes in each category. See data table for data points graphed and additional notes. Figure 2 data are plotted on the log scale. Discharge rates are age adjusted using the 2000 standard population ("Appendix A," Age adjustment).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figures 1 and 2. Hospital discharges for injury and noninjury diagnoses, 1979-2001

Year	All discharges			Injury diagnoses			Noninjury diagnoses					
							Complications of care and adverse effects diagnoses			All other diagnoses		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	36,747	1,706.5	61.0	3,303	148.0	6.9	332	15.6	1.0	33,112	1542.8	55.7
1980	37,832	1,734.3	65.2	3,244	143.7	7.1	349	16.2	1.1	34,239	1574.3	59.8
1981	38,544	1,746.2	81.6	3,199	140.0	7.9	385	17.8	1.2	34,960	1588.4	74.6
1982	38,593	1,729.2	61.2	3,171	137.9	6.3	398	18.1	1.1	35,025	1573.2	56.1
1983	38,783	1,719.2	42.5	3,038	130.9	4.6	412	18.6	0.9	35,333	1569.8	39.2
1984	37,162	1,630.9	32.9	3,029	129.2	3.7	443	19.8	0.8	33,690	1481.9	30.2
1985	35,056	1,518.8	31.6	2,847	120.4	3.5	456	20.2	0.8	31,753	1378.2	29.0
1986	34,256	1,466.6	29.1	2,743	114.7	3.2	482	21.0	0.8	31,031	1330.9	26.8
1987	33,387	1,412.5	29.4	2,537	104.8	3.1	490	21.2	0.9	30,360	1286.5	27.1
1988	31,146	1,302.4	40.3	2,320	95.2	3.9	497	21.2	1.2	28,330	1186.0	36.2
1989	30,947	1,278.6	43.1	2,309	93.9	4.1	497	21.0	1.1	28,140	1163.7	39.1
1990	30,788	1,249.3	31.7	2,214	88.1	3.3	560	23.3	1.1	28,014	1137.9	28.5
1991	31,098	1,246.9	34.6	2,168	85.6	3.4	600	24.6	1.1	28,330	1136.7	31.2
1992	30,951	1,224.9	33.8	2,079	81.1	3.2	622	25.1	1.3	28,250	1118.6	30.3
1993	30,825	1,203.6	37.6	2,076	80.3	3.6	642	25.6	1.4	28,107	1097.7	33.9
1994	30,843	1,191.3	35.7	1,965	75.3	3.1	641	25.2	1.3	28,238	1090.9	32.5
1995	30,722	1,172.4	35.8	1,932	73.2	3.2	659	25.5	1.1	28,131	1073.7	32.6
1996	30,545	1,152.8	33.8	1,886	70.8	3.0	664	25.3	1.3	27,995	1056.7	30.7
1997	30,914	1,155.3	33.2	1,821	67.7	2.7	699	26.4	1.2	28,394	1061.2	30.4
1998	31,827	1,175.7	35.1	1,792	66.0	2.7	748	27.9	1.2	29,286	1081.9	32.4
1999	32,132	1,176.5	37.4	1,819	66.4	3.3	746	27.5	1.4	29,566	1082.6	33.6
2000	31,706	1,149.1	44.2	1,757	63.6	3.1	710	25.8	1.2	29,239	1059.7	40.7
2001	32,653	1,154.6	37.4	1,814	64.2	2.9	799	28.2	1.3	30,040	1062.2	34.3
Average annual percent change		-2.3			-4.3			2.4			-2.2	
Average percent change		-39.8			-62.2			68.5			-38.7	

SE is standard error.

NOTES: Discharge rates are age adjusted using the 2000 standard population ("Appendix A," Age adjustment).
See table 1 for the ICD-9-CM codes in each category.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Injury Hospital Discharge Rates by Sex and Race

In 1979 the injury hospital discharge rate for males was 44 percent higher than the rate for females. From 1979 to the early 1990s the rate for males declined faster than the rate for females and by the mid-1990s the differences between the genders were no longer statistically significant.

From 1979 to 2001 injury hospital discharge rates for white and black males and females decreased on average 4.4 to 6.2 percent per year (for a total decrease of 63–75 percent). Black males had the highest injury hospital discharge rate.[§]

[§]The National Hospital Discharge Survey (NHDS) data on race of patient are incomplete largely because a number of hospitals providing automated data to NHDS did not include race data for any of their patients (Appendix table 4a). For 1979–2001, coding of race averaged 85 percent. A study of the limitations of the NHDS data on race found that race is more often missing for white persons. NHDS data on race should be interpreted cautiously when the differences among racial groups are small and/or not substantiated by other research (1).

Reference

1. Kozak LJ. Underreporting of race in the National Hospital Discharge Survey. Advance data from vital and health statistics; no 265. Hyattsville, Maryland: National Center for Health Statistics. 1995.

Figure 3. Injury hospital discharge rates by sex, 1979-2001

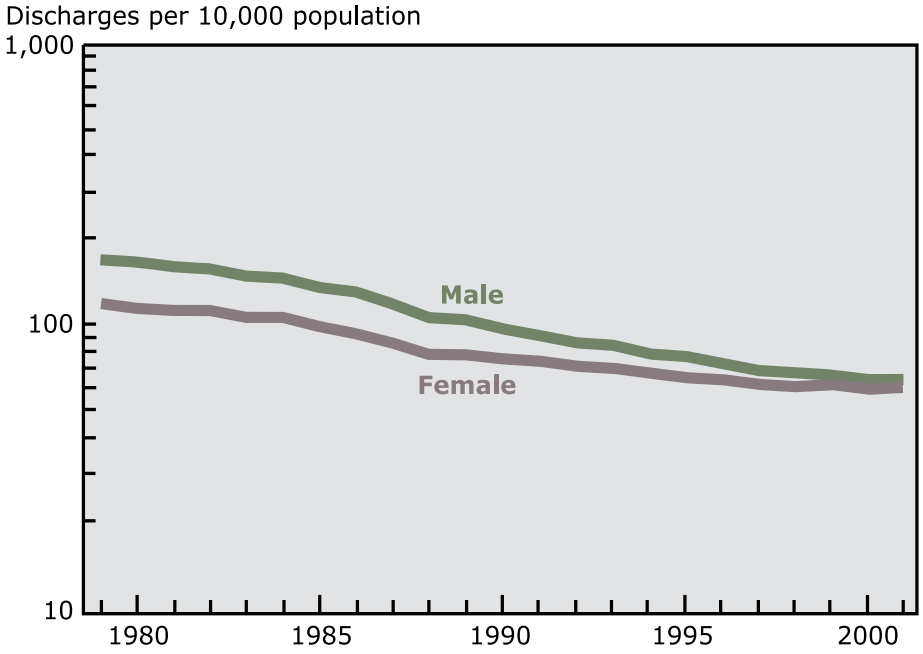
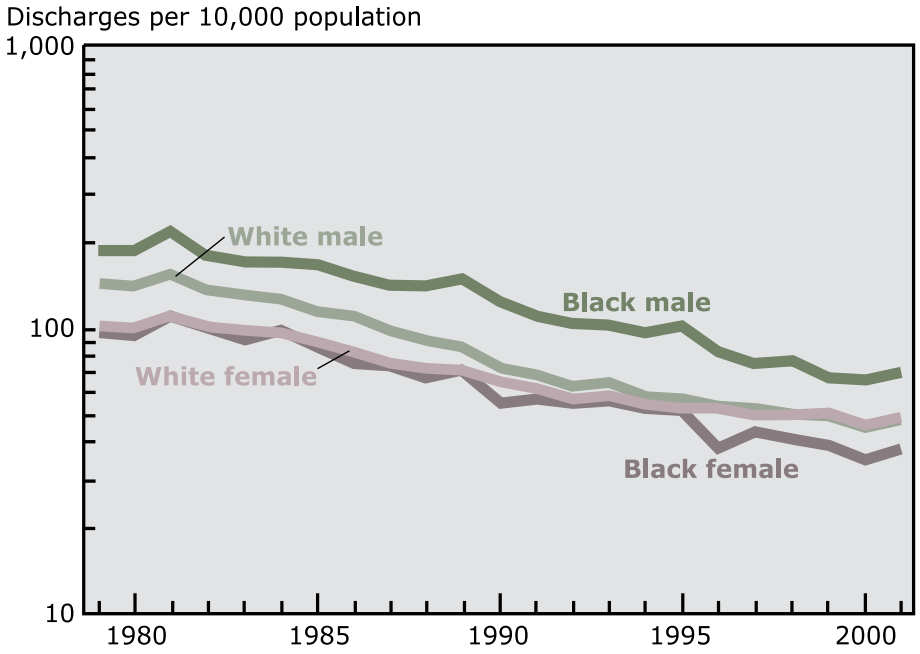


Figure 4. Injury hospital discharge rates by race and sex, 1979-2001



NOTES: Data are plotted on the log scale. See data table for data points graphed and additional notes. Discharge rates are age adjusted using the 2000 standard population ("Appendix A," Age adjustment).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 3. Injury hospital discharges by sex, 1979-2001

Year	Total			Male			Female		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	3,303	148.0	6.9	1,909	173.8	8.8	1,394	120.3	6.3
1980	3,244	143.7	7.1	1,869	168.6	9.0	1,375	116.9	6.5
1981	3,199	140.0	7.9	1,843	164.4	9.7	1,355	113.6	6.9
1982	3,171	137.9	6.3	1,800	159.6	7.8	1,370	113.9	5.8
1983	3,038	130.9	4.6	1,719	151.4	5.8	1,319	108.3	4.3
1984	3,029	129.2	3.7	1,691	147.6	4.6	1,339	108.4	3.5
1985	2,847	120.4	3.5	1,588	137.7	4.4	1,259	100.7	3.4
1986	2,743	114.7	3.2	1,547	132.7	4.1	1,196	94.6	3.1
1987	2,537	104.8	3.1	1,420	120.5	3.9	1,117	87.1	3.0
1988	2,320	95.2	3.9	1,286	108.4	5.3	1,034	80.0	2.9
1989	2,309	93.9	4.1	1,258	105.2	5.0	1,052	80.1	3.6
1990	2,214	88.1	3.3	1,195	97.5	3.8	1,019	76.1	3.1
1991	2,168	85.6	3.4	1,144	93.2	4.0	1,024	75.6	3.2
1992	2,079	81.1	3.2	1,088	87.8	3.8	991	72.2	3.0
1993	2,076	80.3	3.6	1,077	86.4	4.3	999	71.6	3.3
1994	1,965	75.3	3.1	1,000	79.6	3.3	964	68.4	3.2
1995	1,932	73.2	3.2	993	78.3	3.7	939	65.8	3.0
1996	1,886	70.8	3.0	944	73.8	3.5	942	65.0	2.9
1997	1,821	67.7	2.7	903	70.0	3.2	919	62.9	2.6
1998	1,792	66.0	2.7	882	68.0	3.2	909	61.8	2.5
1999	1,819	66.4	3.3	883	67.3	3.6	936	63.0	3.4
2000	1,757	63.6	3.1	855	64.7	3.4	902	60.1	3.2
2001	1,814	64.2	2.9	873	64.7	3.1	940	61.2	3.0
Average annual percent change		-4.3			-5.1			-3.5	
Average percent change		-62.2			-68.1			-54.6	

SE is standard error.

NOTES: Discharge rates are age adjusted using the 2000 standard population ("Appendix A", Age adjustment).
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 4. Injury hospital discharges by race and sex, 1979-2001

Year	White male			Black male			White female			Black female		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	1,381	144.5	7.6	224	190.6	13.6	1,038	102.4	5.7	130	98.0	7.8
1980	1,357	141.2	7.8	226	189.6	14.2	1,037	101.2	5.9	127	94.6	7.9
1981	1,506	155.4	9.3	267	219.9	28.7	1,159	111.6	6.9	152	110.7	15.4
1982	1,343	138.3	7.0	227	183.0	18.8	1,075	102.8	5.4	138	100.3	11.2
1983	1,285	131.9	3.9	217	171.0	9.8	1,046	98.8	3.0	126	91.6	5.9
1984	1,247	127.4	3.0	225	171.5	8.0	1,051	98.0	2.4	142	98.4	5.1
1985	1,136	115.4	2.8	216	168.0	8.0	974	89.9	2.3	127	87.4	4.7
1986	1,100	111.0	2.7	207	154.3	7.1	915	83.6	2.1	112	76.5	4.0
1987	991	99.2	2.6	197	141.6	6.9	837	75.7	2.0	110	73.7	4.1
1988	923	92.0	5.3	198	142.7	16.4	817	73.4	3.5	104	67.9	5.3
1989	874	86.7	4.8	209	151.0	17.0	806	71.3	3.8	109	70.9	5.7
1990	753	73.4	3.4	186	124.2	12.0	750	64.9	3.4	89	54.8	5.2
1991	707	69.0	3.8	165	110.8	11.4	720	61.7	3.4	92	57.2	5.3
1992	651	62.8	3.8	162	104.9	9.5	677	57.4	3.5	92	55.1	5.6
1993	678	65.0	4.1	156	103.1	11.3	699	58.0	3.5	93	56.3	5.2
1994	604	57.5	3.2	152	96.9	10.9	668	55.1	3.5	88	52.6	5.0
1995	597	56.4	3.7	165	102.9	10.7	647	52.7	3.3	88	51.5	4.7
1996	573	53.6	3.3	135	82.6	9.9	660	53.0	2.8	66	38.0	3.6
1997	572	53.0	3.2	123	76.0	9.0	624	49.7	2.8	75	43.4	3.7
1998	552	50.9	3.0	123	77.9	7.4	625	49.7	2.7	72	41.5	4.1
1999	546	49.9	3.3	111	67.4	7.3	644	50.6	3.4	69	38.9	4.0
2000	497	45.3	3.0	107	65.8	7.2	596	46.5	3.1	60	34.6	4.1
2001	532	47.9	2.9	114	70.7	7.8	627	48.4	2.7	67	38.1	3.6
Average annual percent change		-6.2			-5.2			-4.4			-5.2	
Average percent change		-75.5			-69.0			-62.9			-68.9	

SE is standard error.

NOTES: Discharge rates are age adjusted using the 2000 standard population ("Appendix A," Age adjustment).
Discharges for races other than white or black, or with race not stated, are not included in this table.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 4a. Number and percent reporting race among injury hospital discharges, 1979-2001

Year	Number reporting race in thousands	Percent reporting race	Percent SE
1979	2,774	84.0	0.9
1980	2,823	87.0	0.8
1981	3,199	100.0[1]	---
1982	2,871	90.5	0.6
1983	2,761	90.9	0.5
1984	2,758	91.1	0.4
1985	2,536	89.1	0.5
1986	2,424	88.4	0.5
1987	2,241	88.3	0.5
1988	2,126	91.7	1.6
1989	2,064	89.4	1.6
1990	1,843	83.2	2.1
1991	1,753	80.9	2.4
1992	1,644	79.1	2.6
1993	1,698	81.8	2.4
1994	1,588	80.8	2.7
1995	1,570	81.2	2.7
1996	1,517	80.4	2.7
1997	1,468	80.6	2.9
1998	1,456	81.3	2.5
1999	1,461	80.3	2.7
2000	1,317	75.0	3.0
2001	1,406	77.5	3.0

SE is standard error.
--- Category not applicable

[1]In 1981 "not stated" values were imputed for approximately 11 percent of total records so there are no "race not stated" cases that year.

NOTE: The National Hospital Discharge Survey data on race are incomplete largely because a number of hospitals providing automated data to the National Hospital Discharge Survey did not include race data for any of their patients.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Injury Hospital Discharge Rates by Sex and Age

From 1979 to 2001 injury hospital discharge rates for all age groups under 65 years of age decreased on average from 4.7 to 6.5 percent per year (for a total decrease of 66–77 percent) for males and females, while the rate for those 65 years and over decreased on average only 1.1 percent per year for males and 0.6 percent per year for females (for a total decrease of 21 and 13 percent, respectively).

Injury hospital discharge rates were generally higher for males than for females under 65 years of age; however, females 65 years of age and over had higher injury discharge rates than males.

In 1979 the injury hospital discharge rates were higher for males aged 15–24 years (266.0 per 10,000) and females 65 years of age and over (283.8 per 10,000 population) than for others. From 1979 to 2001 the injury discharge rates for males 15–24 declined on average 6.5 percent per year (for a total decrease of 77 percent) to 70.3 per 10,000 in 2001; meanwhile the rates for females 65 years and over decreased only 0.6 percent per year (for a total decrease of 13 percent) to 248.0 per 10,000 population. By 2001 discharge rates for females 65 years and over were 2 to 10 times the rates for other age-sex groups.

For both males and females, those under 15 years of age generally had the lowest rates of injury hospitalization. The injury discharge rates for males under 15 years of age were higher than the rates for females under 15 years of age from 1979 to 1991, but after that time the rates for males and females under 15 years of age were generally similar.

Figure 5. Injury hospital discharge rates among males by age, 1979-2001

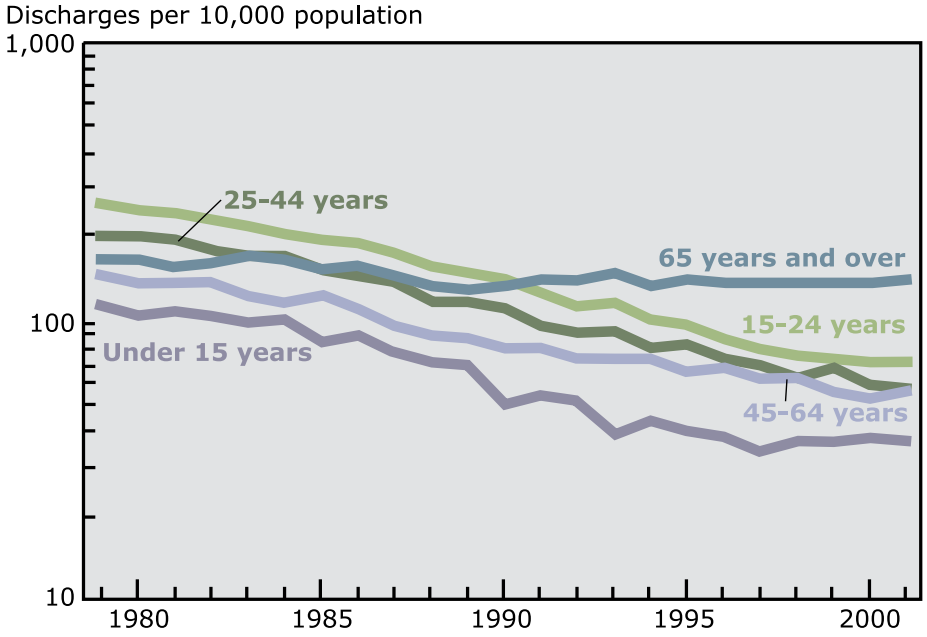
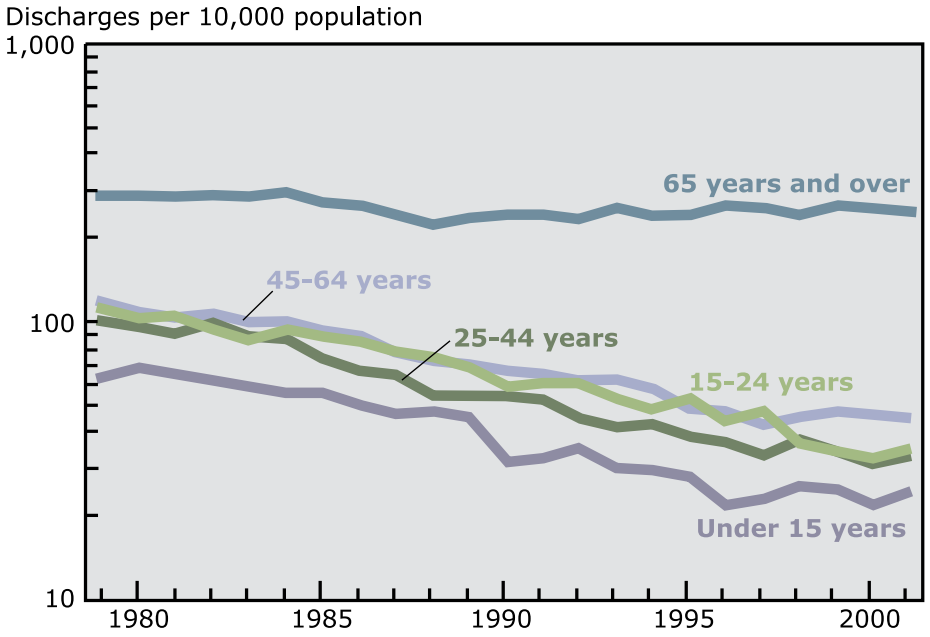


Figure 6. Injury hospital discharge rates among females by age, 1979-2001



NOTES: Data are plotted on the log scale. See data table for data points graphed and additional notes.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 5. Injury hospital discharges among males by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	297	112.8	7.7	549	266.0	16.3	594	201.3	12.2	301	143.0	9.7	168	165.8	12.5
1980	276	105.3	7.6	517	250.3	16.2	617	202.0	12.7	286	135.3	9.7	173	166.5	13.1
1981	282	107.4	7.7	500	243.5	16.4	609	192.7	12.7	289	136.4	9.8	165	156.4	12.0
1982	273	104.1	6.7	470	231.8	13.7	594	182.0	10.4	290	137.1	8.8	173	161.2	11.2
1983	263	99.8	5.5	432	216.1	10.7	576	171.3	8.0	260	122.7	6.8	188	171.6	10.1
1984	264	100.0	4.5	404	204.7	8.4	589	170.0	6.5	247	116.3	5.3	187	167.5	8.1
1985	223	84.6	4.0	382	195.1	8.2	550	154.5	6.1	259	121.9	5.6	174	152.9	7.6
1986	232	88.0	4.0	364	187.8	7.7	530	144.8	5.5	235	110.5	4.9	185	158.9	7.5
1987	205	77.2	3.7	331	173.4	7.7	507	135.4	5.4	207	96.8	4.7	170	142.8	7.2
1988	190	70.6	5.8	295	157.2	10.6	447	117.3	7.1	194	89.2	5.8	160	132.1	8.6
1989	191	70.0	7.0	273	148.1	8.7	447	115.3	7.2	188	85.5	5.1	159	128.9	9.4
1990	144	50.1	4.8	266	141.0	7.1	442	109.6	4.9	178	79.9	4.8	166	132.9	6.7
1991	157	54.0	4.7	237	127.1	6.2	390	95.2	5.1	180	80.0	5.4	180	141.3	9.6
1992	152	51.2	4.8	211	114.0	6.0	375	91.1	4.9	171	73.3	4.0	180	138.9	9.8
1993	118	39.5	3.5	213	115.1	9.4	376	91.0	5.4	173	72.6	4.7	196	148.1	10.3
1994	131	43.3	4.1	186	100.8	6.4	326	78.4	4.1	179	72.8	4.2	178	133.1	7.3
1995	122	40.0	4.5	177	95.5	5.5	338	81.0	4.9	165	65.6	4.3	191	140.2	9.0
1996	117	38.4	4.0	160	85.2	6.3	304	72.4	4.5	173	66.8	5.0	189	136.7	7.6
1997	104	34.1	3.4	149	78.5	5.1	292	69.5	4.2	168	62.8	3.6	189	135.5	8.0
1998	112	36.6	5.0	145	75.4	4.9	262	62.9	4.1	171	61.9	4.1	192	135.6	8.2
1999	113	36.7	5.7	143	73.2	4.9	276	66.5	4.3	159	55.4	3.8	193	135.4	8.7
2000	118	38.2	5.7	143	71.9	5.0	241	58.3	4.1	155	52.6	3.3	198	137.8	9.4
2001	116	37.4	5.3	141	70.3	5.2	239	57.1	3.3	175	55.8	3.5	203	138.9	8.9
Average annual percent change		-6.5			-6.5			-6.2			-4.7			-1.1	
Average percent change		-77.1			-77.3			-75.4			-65.6			-21.0	

SE is standard error.

NOTES: Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 6. Injury hospital discharges among females by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	158	62.8	4.8	230	109.9	7.8	308	99.6	6.7	272	116.9	8.1	425	283.8	18.1
1980	169	67.6	5.3	214	101.9	7.7	306	95.7	6.8	252	108.2	7.9	434	282.7	18.9
1981	162	64.7	5.0	214	103.1	7.7	298	90.4	6.5	242	103.7	7.6	439	280.2	19.1
1982	152	60.8	4.3	189	91.9	6.3	328	96.4	6.0	247	106.1	7.0	454	283.4	16.9
1983	144	57.4	3.6	172	85.0	5.1	307	87.6	4.7	235	101.1	5.7	462	281.8	13.8
1984	137	54.6	2.8	184	92.4	4.5	306	85.0	3.7	235	100.8	4.6	477	285.7	11.3
1985	140	55.5	2.9	174	88.8	4.4	269	72.7	3.3	217	93.0	4.4	460	270.0	11.0
1986	126	50.1	2.6	161	83.2	4.1	254	66.9	2.9	206	88.4	4.1	449	258.7	10.1
1987	117	46.1	2.5	147	77.0	4.0	251	64.8	3.0	181	77.2	3.8	422	238.1	10.3
1988	119	46.7	4.4	138	74.2	4.4	209	53.3	3.0	170	72.0	3.8	397	220.2	10.3
1989	117	45.1	4.4	122	67.2	4.8	212	53.1	3.3	165	69.2	4.9	434	236.8	12.9
1990	86	31.3	3.1	108	58.6	3.3	219	53.2	2.7	157	65.6	4.2	449	243.8	13.0
1991	88	31.7	3.1	110	60.2	3.6	221	52.8	3.3	154	64.0	3.6	451	240.8	13.4
1992	98	34.7	3.6	108	59.8	4.2	188	44.8	2.5	151	60.7	3.3	446	234.6	13.4
1993	84	29.3	3.1	95	52.5	3.6	172	41.0	2.7	157	61.5	3.7	491	254.8	15.2
1994	84	29.0	2.8	88	48.6	3.8	179	42.6	2.5	147	56.0	3.4	467	239.9	14.8
1995	79	27.2	2.8	95	52.4	3.9	163	38.6	2.7	131	48.8	3.1	471	240.2	13.6
1996	63	21.6	2.5	79	43.5	3.6	155	36.4	2.1	130	47.2	3.1	516	261.1	14.3
1997	66	22.7	3.0	86	47.3	4.4	140	33.1	2.1	121	42.5	2.4	505	254.4	12.8
1998	74	25.2	3.2	68	36.5	3.5	159	37.5	2.3	131	44.4	2.8	478	239.3	10.2
1999	72	24.4	3.8	64	34.1	3.3	143	33.8	2.5	142	46.8	4.0	515	257.3	15.5
2000	64	21.6	3.2	61	31.8	2.9	126	30.1	2.3	144	45.7	3.4	507	252.4	15.5
2001	71	24.2	3.7	67	34.8	3.2	139	32.9	2.3	149	45.1	3.0	514	248.0	13.6
Average annual percent change		-5.7			-5.4			-5.8			-5.0			-0.6	
Average percent change		-72.8			-70.8			-72.8			-67.6			-13.3	

SE is standard error.

NOTES: Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Barell Matrix for Injury Diagnosis Categories

Injury diagnosis categories used in this chartbook are defined by the Barell Matrix. The Barell Matrix is a two-dimensional array of ICD-9-CM injury codes[§] defined by body region and nature of the injury (1) (Appendix A, Barell Matrix and Appendix B). The columns of the matrix are defined by nature-of-injury categories and the rows are the body region categories. The 36 most detailed rows of the matrix can be collapsed for broader groupings of injuries (from 36 rows to 9 rows to 5 rows). For instance, injuries to the knee can be collapsed to lower extremity injuries and then to all extremity injuries. Thus, an injury may be defined by 1 of 12 columns (i.e., nature of injury; e.g., fracture), a row (i.e., body region; e.g., extremity injury), a combination of cells (fracture of the extremities), or a single cell (hip fracture).

The next to last row of the matrix is a category referred to as "system wide" injury. This is not consistent with the other rows or columns in the matrix. It could just as easily have been treated as the last column of the matrix. System wide injuries affect the entire body; they include poisoning, toxic effects, foreign bodies, early complications of trauma, other and unspecified effects of external cause, late effects of injury, poisoning, toxic effects, and other external causes, and child and adult maltreatment. The largest category of these systemic injuries includes poisonings and toxic effects.

Injury hospital discharge rates are shown in figures 7 and 8 for two periods, 1979–82 and 1998–2001. Because of the level of detail provided in the cells of the Barell Matrix, rates were calculated using 4 years of data in order to increase the reliability of estimates. If only 1 year of data were used fewer cells with reliable data could be presented.

Examples of how to interpret the cells of the Barell Matrix include: (1) the total traumatic brain injury (TBI) hospital discharge rate decreased from 15.6 per 10,000 population for the period 1979–82 to 5.6 per 10,000 population for the period 1998–2001; (2) hip fracture hospital discharge rates increased from 9.5 per 10,000 population for the period 1979–82 to 11.7 per 10,000 population for the period 1998–2001.

Trends for the leading nature of injury categories are presented in figures 9–13; the body region of the injury categories are presented in figures 14–18, and an example of the intersection of the dimensions of the Barell Matrix (cells) is presented in figure 19.

[§]There were a small number of ICD-9-CM coding changes over the study period and they minimally affected the total number of injury discharges ("Appendix A," ICD-9-CM addenda affecting injuries).

Reference

1. Barrell V, Aharonson-Daniel L, Fingerhut LA, MacKenzie EJ, et al. An introduction to the Barell body region by nature of injury diagnosis matrix. Injury Prevention 8:91-6. 2002.

Figure 7. Barell Matrix: Injury hospital discharge rates by nature of injury and body region, 1979-1982

Body region			Nature of injury											
			Total[1]	Fractures	Dislocation	Sprains and strains	Internal	Open wound	Amputations	Blood vessels	Contusion/ superficial	Crushing	Burns	Nerves	Un-specified
			142.5	50.9	8.8	19.7	17.3	13.7	1.2	0.2	9.5	0.6	3.9	0.8	2.0
Head and neck	Traumatic brain injury (TBI)	TBI1	5.9	0.7			5.2							--	
		TBI2	9.6	1.6			8.0								
		TBI3	*	*											
		Total TBI	15.6	2.4			13.2							--	
	Other head, face, and neck	Other head	1.2					1.2					*	*	--
		Face	7.2	4.4	*	--		2.7					*		
		Eye	1.7					0.9			0.7		*0.1	*	
		Neck	0.3	*		--		0.3				--	*	*	
		Head, face, neck, unspecified	1.8							*	1.3	*	0.3	--	0.3
		Total other head, face, and neck	12.3	4.4	*	--		5.1		*	2.0	*	0.4	*	0.3
		Total head and neck	**27.8**	**6.8**	*	--	**13.2**	**5.1**		*	**2.0**	*	**0.4**	*	**0.3**
Spine and back	Spinal cord injury (SCI)	Cervical SCI	0.3	*0.1			0.2								
		Thoracic/dorsal SCI	0.1	*			*0.1								
		Lumbar SCI	*0.1	*			*0.1								
		Sacrum coccyx SCI	*	--			*								
		Spine, back, unspecified SCI	0.1	*			*0.1								
		Total SCI	0.7	0.2			0.5								
	Vertebral column injury (VCI)	Cervical VCI	3.9	0.6	*0.1	3.1									
		Thoracic/dorsal VCI	0.9	0.6	*	0.3									
		Lumbar VCI	3.0	0.9	*	2.1									
		Sacrum coccyx VCI	0.1	*0.1	*	*									
		Spine, back, unspecified VCI	*0.1	*0.1	*										
		Total VCI	8.0	2.3	0.2	5.5									
		Total spine and back	**8.7**	**2.5**	**0.2**	**5.5**	**0.5**								
Torso	Torso	Chest/thorax	5.8	2.9	*	*	1.3	0.7		*	0.7	*	*	--	
		Abdomen	3.5				2.1	0.8		*	0.5		*	*	
		Pelvis/urogenital	10.1	2.0	*	7.4	0.2	0.2		*	*0.1	--	*	--	
		Trunk	0.7	*				*			*0.1	*	*0.1	*	0.4
		Back and buttocks	1.8			0.9		0.2			0.6	*	*0.1		
		Total torso	**21.9**	**5.0**	*0.1	**8.4**	**3.6**	**2.0**		*	**2.1**	*	**0.2**	*	**0.4**
Extremities	Upper	Shoulder and upper arm	6.4	4.3	0.9	0.7		0.2	*		0.2	*	*		*
		Forearm and elbow	6.7	5.5	0.2	0.2		0.6	*		*0.1	*	*		
		Wrist, hand, and fingers	8.1	2.6	0.3	0.9		2.5	0.9		*0.1	0.3	0.3		0.2
		Other and unspecified	1.2	*				0.3	*	*0.1	*0.1	*	0.1	0.6	*
		Total upper extremity	22.4	12.5	1.4	1.8		3.6	1.0	*0.1	0.4	0.4	0.4	0.6	0.3
	Lower	Hip	10.5	9.5	0.3	0.2					0.5	*	--		
		Upper leg and thigh	3.2	2.8	--	--			*		0.2	*	*0.1		
		Knee	9.3	0.9	6.6	1.5					0.3	*	*		
		Lower leg and ankle	10.2	9.2	*0.1	0.7			*		*0.1	*	*0.1		
		Foot and toes	2.8	1.3	0.1	*0.1		0.6	0.1		0.1	*0.1	0.2		
		Other and unspecified	3.7	*0.1		0.8		1.8	*	*	0.4	*	0.3		0.4
		Total lower extremity	39.8	24.0	7.1	3.2		2.4	0.2	*	1.6	0.2	0.7		0.4
		Total extremities	**62.2**	**36.4**	**8.5**	**5.0**		**6.0**	**1.2**	**0.1**	**2.1**	**0.5**	**1.1**	**0.6**	**0.6**
Unclassifiable by site	Other and unspecified	Other multiple	0.1	*						*			*	*0.1	
		Unspecified sites	7.6	0.1	*	0.7	*	0.7		*	3.2	*	2.1	*	0.7
		Total other and unspecified	7.8	0.2	*	0.7	*	0.7		*	3.2	*	2.1	0.1	0.7
		System wide and late effects	14.1												
		Total unclassifiable by site	**21.9**	**0.2**	*	**0.7**	*	**0.7**		*	**3.2**	*	**2.1**	**0.1**	**0.7**

-- Quantity zero * Figure does not meet standard of reliability or precision ("Appendix A," Standards of reliability). Empty cells = No diagnosis codes.
[1]Nature of injury figures do not add to total because total includes system wide and late effects. The column totals are derived by summing the totals for each body region.
NOTES: Rates per 10,000 civilian residential population. Rates are not age adjusted. Numbers may not add to totals because of rounding. See "Appendix B" for the ICD-9-CM codes in each category.
SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Figure 8. Barell Matrix: Injury hospital discharge rates by nature of injury and body region, 1998-2001

Body region			Nature of injury												
			Total[1]	Fractures	Dislocation	Sprains and strains	Internal	Open wound	Amputations	Blood vessels	Contusion/ superficial	Crushing	Burns	Nerves	Un-specified
			64.7	35.6	0.8	2.4	7.2	3.5	0.3	0.2	2.1	0.1	2.3	0.1	1.3
Head and neck	Traumatic brain injury (TBI)	TBI1	3.8	1.0			2.8							--	
		TBI2	1.6	0.3			1.3								
		TBI3	0.2	0.2											
		Total TBI	5.6	1.5			4.1							--	
	Other head, face, and neck	Other head	1.1					0.3					*	*	0.8
		Face	1.8	1.2	*	--		0.6					0.1		
		Eye	0.3					0.2			0.1		*	*	
		Neck	0.2	*		--		0.1				*	*	*	
		Head, face, neck, unspecified	0.7							*0.0	0.4	*	0.2	*	*0.0
		Total other head, face, and neck	4.1	1.2	*	--		1.2		*0.0	0.5	*	0.3	*	0.8
		Total head and neck	9.7	2.7	*	--	4.1	1.2		*0.0	0.5	*	0.3	*	0.8
Spine and back	Spinal cord injury (SCI)	Cervical SCI	0.2	0.1			0.1								
		Thoracic/dorsal SCI	0.1	0.1			*								
		Lumbar SCI	*0.0	*0.0			*								
		Sacrum coccyx SCI	*	*			*								
		Spine, back, unspecified SCI	*	*			*								
		Total SCI	0.4	0.2			0.2								
	Vertebral column injury (VCI)	Cervical VCI	0.7	0.5	0.1	0.2									
		Thoracic/dorsal VCI	0.7	0.6	*	*									
		Lumbar VCI	1.4	1.1	*0.0	0.2									
		Sacrum coccyx VCI	0.1	0.1	*	*									
		Spine, back, unspecified VCI	*	*	*										
		Total VCI	2.9	2.3	0.1	0.5									
		Total spine and back	3.3	2.5	0.1	0.5	0.2								
Torso	Torso	Chest/thorax	3.3	1.3	*	*	1.4	0.2		*0.0	0.3	*	0.1	--	
		Abdomen	1.9				1.5	0.2		*	0.1		*0.1	*	
		Pelvis/urogenital	2.4	2.0	*	0.2	0.1	0.1		*	*	*	*	*	
		Trunk	0.3	*				*			*0.1	--	*0.1	--	0.2
		Back and buttocks	0.3			*		*0.0			0.1	--	0.1		
		Total torso	8.2	3.3	*	0.2	3.0	0.5		0.0	0.6	*	0.3	*	0.2
Extremities	Upper	Shoulder and upper arm	3.7	2.6	0.1	0.8		0.1	*		*0.1	*	*0.0		*
		Forearm and elbow	2.6	2.3	*	*		0.2	*		*	*	0.1		
		Wrist, hand, and fingers	1.7	0.5	*0.1	*		0.6	0.2		*0.0	*0.0	0.2		*
		Other and unspecified	0.3	*				*	*	0.1	*	*	*0.1	0.1	*
		Total upper extremity	8.4	5.5	0.2	0.8		0.9	0.2	0.1	0.1	*0.0	0.4	0.1	*0.0
	Lower	Hip	12.2	11.7	0.1	0.1					0.3	*	--		
		Upper leg and thigh	2.2	2.1	--	--			*		0.1	*	0.1		
		Knee	1.1	0.5	0.2	0.3					0.1	*	*		
		Lower leg and ankle	6.9	6.5	*	0.2			*		0.1	*	0.1		
		Foot and toes	1.3	0.8	*	*		0.2	*0.0		*0.0	*	0.2		
		Other and unspecified	1.3	*		0.3		0.6	*	*0.1	0.1	*	0.1		0.1
		Total lower extremity	25.0	21.5	0.4	0.9		0.8	0.0	*0.1	0.6	*0.1	0.5		0.1
		Total extremities	33.3	27.0	0.6	1.6		1.7	0.3	0.2	0.8	0.1	0.9	0.1	0.1
Unclassifiable by site	Other and unspecified	Other multiple	*0.0	*						*			*	*	
		Unspecified sites	1.4	*	*	0.1	*	*0.1		*	0.3	--	0.8	*	0.1
		Total other and unspecified	1.4	*	*	0.1	*	*0.1		*	0.3	--	0.8	*	0.1
		System wide and late effects	8.7												
		Total unclassifiable by site	10.1	*	*	0.1	*	*0.1		*	0.3	--	0.8	*	0.1

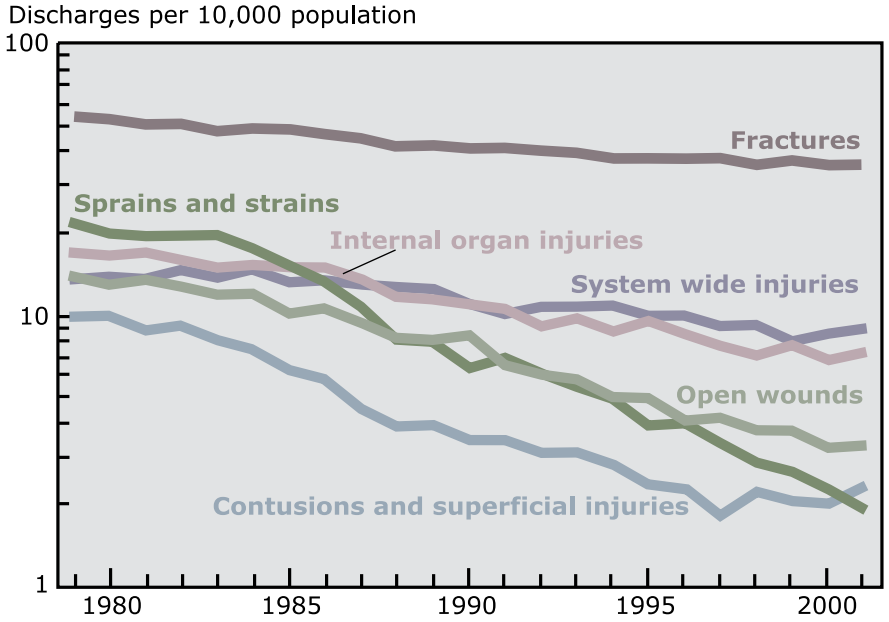
-- Quantity zero * Figure does not meet standard of reliability or precision ("Appendix A," Standards of reliability). Empty cells = No diagnosis codes.
[1]Nature of injury figures do not add to total because total includes system wide and late effects. The column totals are derived by summing the totals for each body region.
NOTES: Rates per 10,000 civilian residential population. Rates are not age adjusted. Numbers may not add to totals because of rounding. See "Appendix B" for the ICD-9-CM codes in each category.
SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Discharges by Injury Diagnosis

One dimension of the Barell Matrix is the nature of injury. From 1979 to 2001 fractures, sprains and strains, open wounds, internal organ injuries, contusions and superficial injuries, and system wide injuries accounted for the vast majority of injury hospital discharges (87–94 percent). Throughout this time period, fracture discharge rates were higher than the rates for other leading injury diagnoses and declined on average only 2 percent per year (for a total decrease of 36 percent) to a rate of 35.4 per 10,000 population in 2001.

From 1979 to 2001 the rate for sprains and strains decreased more than did the rates for other types of injuries, an average of 11.1 percent per year (for a total decrease of 92 percent) to a rate of 1.9 per 10,000 population in 2001. Open wounds and contusion/superficial injury discharge rates, decreased on average 7.1 and 8.2 percent per year respectively (for total decreases of 80 and 85 percent), to rates of 3.3 and 2.3 per 10,000 population in 2001. System wide and internal organ injury discharge rates decreased on average 2.8 and 4.5 percent per year, respectively (for total decreases of 46 and 64 percent), to 9.0 and 7.3 per 10,000 population in 2001.

Figure 9. Hospital discharge rates by nature of injury diagnosis, 1979-2001



NOTES: Data are plotted on the log scale. See data table for data points graphed and additional notes. Discharge rates are age adjusted using the 2000 standard population ("Appendix A," Age adjustment). System wide injuries include poisoning, toxic effects, foreign bodies, early complications of trauma, other and unspecified effects of external causes, late effects of injury, poisoning, toxic effects, and other external causes, and child and adult maltreatment. See "Appendix B" for the ICD-9-CM diagnosis codes in each category.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 9. Injury hospital discharges by nature of injury diagnosis, 1979-2001

Year	Fractures			System wide injuries			Sprains and strains			Internal organ injuries			Open wounds			Contusions and superficial injuries		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	1,180	54.2	2.9	309	13.6	0.9	469	21.8	1.4	395	16.8	1.1	322	13.9	0.9	222	10.0	0.7
1980	1,163	52.6	3.0	319	13.9	1.0	438	20.0	1.3	386	16.4	1.1	304	13.0	0.9	221	9.8	0.7
1981	1,138	50.9	3.1	310	13.4	1.0	433	19.5	1.3	408	17.1	1.2	316	13.5	1.0	202	8.7	0.7
1982	1,132	50.2	2.6	339	14.6	0.9	444	19.7	1.2	380	15.9	1.0	302	12.7	0.8	212	9.2	0.6
1983	1,090	47.8	2.0	323	13.8	0.7	444	19.5	1.0	358	14.9	0.8	287	12.0	0.6	187	8.1	0.5
1984	1,114	48.4	1.6	346	14.7	0.6	406	17.6	0.7	368	15.2	0.6	290	12.0	0.5	173	7.4	0.4
1985	1,129	48.5	1.7	316	13.3	0.6	355	15.2	0.7	361	14.9	0.6	246	10.1	0.5	148	6.3	0.3
1986	1,100	46.8	1.5	323	13.4	0.6	310	13.1	0.6	369	15.0	0.6	257	10.4	0.5	138	5.7	0.3
1987	1,062	44.6	1.5	317	13.0	0.6	257	10.7	0.5	337	13.6	0.6	230	9.2	0.4	110	4.5	0.2
1988	1,014	42.1	2.1	314	12.8	0.6	192	8.0	0.6	289	11.7	0.7	205	8.2	0.5	96	3.9	0.3
1989	1,021	42.0	2.1	308	12.4	0.6	189	7.8	0.7	288	11.5	0.6	204	8.1	0.5	96	3.9	0.3
1990	1,017	41.1	1.9	281	11.0	0.5	160	6.5	0.4	278	10.9	0.6	217	8.3	0.5	87	3.5	0.3
1991	1,034	41.3	2.0	259	10.0	0.5	171	6.9	0.5	269	10.4	0.8	170	6.5	0.4	88	3.5	0.3
1992	1,016	40.0	2.1	279	10.7	0.6	154	6.2	0.4	238	9.2	0.5	158	6.0	0.3	80	3.1	0.3
1993	1,017	39.5	2.3	281	10.8	0.5	140	5.5	0.4	250	9.6	0.7	152	5.8	0.5	80	3.1	0.3
1994	987	38.0	1.9	282	10.7	0.6	124	4.9	0.4	230	8.8	0.5	133	5.0	0.3	73	2.8	0.3
1995	988	37.6	1.9	267	10.0	0.5	102	3.9	0.3	250	9.4	0.6	131	4.9	0.4	63	2.4	0.3
1996	1,012	38.2	1.8	266	9.8	0.5	104	4.0	0.4	228	8.5	0.6	111	4.1	0.3	61	2.3	0.2
1997	1,008	37.6	1.8	248	9.1	0.4	89	3.4	0.3	210	7.8	0.5	113	4.2	0.3	49	1.8	0.2
1998	966	35.7	1.6	250	9.1	0.6	77	2.8	0.3	195	7.2	0.5	102	3.7	0.3	60	2.2	0.2
1999	1,002	36.8	2.1	224	8.1	0.4	72	2.6	0.3	214	7.8	0.5	104	3.8	0.3	57	2.1	0.2
2000	982	35.7	2.0	239	8.6	0.5	64	2.3	0.2	189	6.8	0.5	89	3.2	0.3	55	2.0	0.2
2001	999	35.4	1.9	255	9.0	0.5	55	1.9	0.2	207	7.3	0.5	94	3.3	0.3	66	2.3	0.3
Average annual percent change		-2.0			-2.8			-11.1			-4.5			-7.1			-8.2	
Average percent change		-35.6			-45.9			-92.5			-63.8			-80.3			-84.9	

SE is standard error.

NOTES: Discharge rates are age adjusted using the 2000 standard population ("Appendix A", Age adjustment). These rates exclude all other injuries. See Appendix table 9a for number of all other injury discharges.
System wide injuries include poisoning, toxic effects, foreign bodies, early complications of trauma, other and unspecified effects of external causes, late effects of injury, poisoning, toxic effects, and other external causes, and child and adult maltreatment.
See "Appendix B" for the ICD-9-CM diagnosis codes in each category.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 9a. Percent distribution of injury hospital discharges by nature of injury diagnosis, 1979-2001

Year	Fractures			System wide injuries			Sprains and strains			Internal organ injuries			Open wounds			All other injuries		
	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE
1979	1,180	35.7	1.0	309	9.4	0.5	469	14.2	0.6	395	12.0	0.5	322	9.8	0.5	627	19.0	0.7
1980	1,163	35.9	1.0	319	9.8	0.5	438	13.5	0.6	386	11.9	0.6	304	9.4	0.5	634	19.6	0.8
1981	1,138	35.6	0.9	310	9.7	0.4	433	13.5	0.5	408	12.8	0.5	316	9.9	0.4	594	18.6	0.7
1982	1,132	35.7	0.9	339	10.7	0.5	444	14.0	0.5	380	12.0	0.5	302	9.5	0.4	574	18.1	0.6
1983	1,090	35.9	0.8	323	10.6	0.4	444	14.6	0.5	358	11.8	0.4	287	9.4	0.4	537	17.7	0.6
1984	1,114	36.8	0.7	346	11.4	0.4	406	13.4	0.4	368	12.1	0.4	290	9.6	0.3	506	16.7	0.5
1985	1,129	39.7	0.7	316	11.1	0.4	355	12.5	0.4	361	12.7	0.4	246	8.6	0.3	440	15.5	0.4
1986	1,100	40.1	0.7	323	11.8	0.4	310	11.3	0.4	369	13.4	0.4	257	9.4	0.3	384	14.0	0.4
1987	1,062	41.9	0.7	317	12.5	0.4	257	10.1	0.4	337	13.3	0.4	230	9.1	0.3	334	13.2	0.4
1988	1,014	43.7	0.8	314	13.5	0.6	192	8.3	0.4	289	12.5	0.6	205	8.8	0.4	305	13.2	0.5
1989	1,021	44.2	0.7	308	13.3	0.5	189	8.2	0.5	288	12.5	0.5	204	8.8	0.4	299	13.0	0.5
1990	1,017	45.9	0.9	281	12.7	0.5	160	7.2	0.3	278	12.5	0.6	217	9.8	0.4	262	11.8	0.6
1991	1,034	47.7	1.1	259	12.0	0.5	171	7.9	0.5	269	12.4	0.8	170	7.9	0.4	264	12.2	0.5
1992	1,016	48.9	1.1	279	13.4	0.6	154	7.4	0.4	238	11.4	0.5	158	7.6	0.4	234	11.2	0.6
1993	1,017	49.0	1.1	281	13.5	0.6	140	6.7	0.4	250	12.1	0.6	152	7.3	0.6	236	11.4	0.6
1994	987	50.3	0.9	282	14.4	0.6	124	6.3	0.4	230	11.7	0.6	133	6.8	0.3	208	10.6	0.5
1995	988	51.1	1.0	267	13.8	0.5	102	5.3	0.4	250	12.9	0.7	131	6.8	0.4	195	10.1	0.6
1996	1,012	53.7	0.8	266	14.1	0.5	104	5.5	0.4	228	12.1	0.6	111	5.9	0.4	165	8.7	0.5
1997	1,008	55.3	1.0	248	13.6	0.5	89	4.9	0.4	210	11.5	0.6	113	6.2	0.4	153	8.4	0.5
1998	966	53.9	1.1	250	14.0	0.6	77	4.3	0.4	195	10.9	0.7	102	5.7	0.3	201	11.2	1.0
1999	1,002	55.1	1.3	224	12.3	0.6	72	4.0	0.4	214	11.8	0.6	104	5.7	0.4	202	11.1	1.1
2000	982	55.9	1.2	239	13.6	0.7	64	3.6	0.3	189	10.7	0.5	89	5.1	0.4	193	11.0	1.0
2001	999	55.1	1.5	255	14.1	0.6	55	3.0	0.2	207	11.4	0.6	94	5.2	0.5	205	11.3	1.2
Average annual percent change		2.6			1.7			-6.7			-0.4			-2.8			-4.0	
Average percent change		74.2			44.1			-78.4			-8.4			-47.0			-59.1	

SE is standard error.

NOTES: System wide injuries include poisoning, toxic effects, foreign bodies, early complications of trauma, other and unspecified effects of external causes, late effects of injury, poisoning, toxic effects, and other external causes, and child and adult maltreatment.
See "Appendix B" for the ICD-9-CM diagnosis codes in each category.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 9b. Internal organ injury hospital discharges among males by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	64	24.5	2.2	85	41.2	3.6	65	21.9	2.0	26	12.5	1.4	13	12.8	1.7
1980	57	21.7	2.1	76	36.6	3.4	64	20.8	2.0	28	13.4	1.5	18	17.4	2.2
1981	54	20.7	1.9	93	45.4	3.8	63	20.1	1.8	30	14.2	1.4	20	19.4	2.0
1982	58	22.1	1.3	73	35.9	2.9	74	22.7	1.9	24	11.4	1.2	16	15.3	1.7
1983	55	21.0	1.7	69	34.8	2.6	64	18.9	1.4	27	12.6	1.2	17	15.4	1.7
1984	53	19.9	1.3	67	33.9	2.1	68	19.7	1.2	21	9.9	0.8	18	16.0	1.4
1985	46	17.6	1.2	64	32.8	2.1	67	18.8	1.2	32	14.9	1.1	21	18.2	1.6
1986	50	19.0	1.2	73	37.7	2.2	72	19.6	1.2	25	11.6	0.9	19	16.2	1.4
1987	48	18.2	1.2	69	36.0	2.2	73	19.5	1.2	23	10.7	0.9	17	14.7	1.3
1988	36	13.4	1.7	54	28.8	3.4	53	14.0	1.1	26	11.7	1.5	16	13.3	2.1
1989	38	14.1	2.3	49	26.5	2.4	62	16.0	1.6	16	7.3	0.9	23	18.3	2.3
1990	28	9.9	1.4	48	25.6	2.3	64	15.9	1.6	23	10.2	1.2	17	13.8	1.9
1991	24	8.3	1.1	42	22.4	2.2	65	16.0	1.8	24	10.5	1.4	20	16.0	2.4
1992	26	8.8	1.2	41	22.2	2.0	48	11.6	1.1	21	9.2	1.2	21	16.3	2.2
1993	26	8.6	1.4	42	22.9	3.6	51	12.4	1.2	21	8.7	1.1	29	22.2	3.3
1994	23	7.8	1.2	34	18.5	1.8	51	12.4	1.4	24	9.8	1.2	23	17.5	2.5
1995	26	8.4	1.5	36	19.4	2.0	51	12.2	1.3	27	10.6	1.7	25	18.0	2.8
1996	21	6.8	1.0	31	16.7	2.1	46	11.0	1.2	25	9.4	1.2	31	22.6	3.4
1997	16	5.2	0.9	33	17.2	2.3	44	10.5	1.3	28	10.3	1.1	20	14.0	1.8
1998	16	5.1	1.0	29	14.8	2.0	37	8.9	1.0	23	8.4	1.3	20	14.1	2.0
1999	14	4.7	0.8	30	15.1	1.8	44	10.6	1.2	23	8.2	1.1	24	17.2	2.0
2000	18	5.8	1.1	27	13.4	1.8	39	9.5	1.2	18	6.0	0.8	23	15.9	2.0
2001	14	4.5	0.8	29	14.4	1.8	37	8.9	1.0	26	8.3	1.0	28	19.0	2.1
Average annual percent change		-7.9			-5.3			-4.4			-2.5			**0.4	
Average percent change		-83.5			-69.8			-62.5			-42.5			**8.0	

SE is standard error.
**Not significant.

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 9c. Internal organ injury hospital discharges among females by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	34	13.3	1.4	38	18.0	1.9	34	11.0	1.2	19	8.2	1.0	17	11.4	1.4
1980	31	12.4	1.4	38	17.9	1.9	39	12.1	1.3	18	7.6	1.0	19	12.2	1.6
1981	40	16.0	1.5	34	16.4	1.6	31	9.3	0.9	18	7.9	0.8	24	15.0	1.5
1982	26	10.3	1.0	31	15.3	1.5	37	10.9	1.0	17	7.5	0.8	22	14.0	1.5
1983	23	9.3	0.9	30	15.0	1.4	33	9.5	0.9	18	7.8	0.8	21	13.0	1.3
1984	27	10.6	0.8	37	18.4	1.3	35	9.6	0.7	18	7.6	0.7	26	15.4	1.2
1985	27	10.7	0.9	31	15.7	1.2	34	9.3	0.7	16	6.8	0.6	24	14.0	1.2
1986	20	8.0	0.7	29	14.8	1.1	34	9.0	0.6	18	7.7	0.7	29	16.9	1.3
1987	20	7.8	0.7	25	13.2	1.1	27	7.1	0.6	13	5.4	0.5	22	12.2	1.0
1988	18	7.1	1.1	26	14.2	2.0	26	6.5	0.9	16	6.7	1.0	18	9.9	1.4
1989	24	9.1	1.3	20	11.1	1.5	28	7.0	1.0	13	5.6	0.9	15	8.3	1.2
1990	12	4.3	0.7	22	12.0	1.5	26	6.4	0.8	14	5.7	1.0	23	12.6	1.4
1991	13	4.8	0.9	17	9.1	1.5	32	7.8	1.5	10	4.2	0.7	22	11.5	1.5
1992	11	3.9	0.7	15	8.3	1.3	17	4.1	0.6	10	3.9	0.7	28	14.6	1.6
1993	13	4.7	0.9	12	6.7	1.0	18	4.2	0.7	15	5.9	0.8	22	11.5	1.5
1994	*7	*2.4	*0.5	12	6.5	1.2	19	4.4	0.6	13	4.8	0.9	24	12.4	1.8
1995	10	3.4	0.6	17	9.5	2.1	22	5.3	0.8	11	4.0	0.7	26	13.3	1.4
1996	*9	*3.0	*0.5	12	6.5	1.0	18	4.2	0.6	9	3.3	0.6	27	13.5	1.6
1997	*7	*2.3	*0.5	12	6.4	1.0	13	3.2	0.5	11	3.7	0.7	27	13.8	1.8
1998	*9	*3.0	*0.8	10	5.4	1.0	14	3.3	0.5	12	3.9	0.7	27	13.3	1.6
1999	*8	*2.8	*0.5	10	5.1	0.8	21	5.0	0.7	11	3.5	0.6	29	14.6	1.9
2000	*7	*2.3	*0.6	*7	*3.6	*0.7	10	2.4	0.4	10	3.3	0.6	30	15.0	2.0
2001	*7	*2.5	*0.6	10	5.1	1.5	15	3.5	0.5	11	3.4	0.6	30	14.5	1.5
Average annual percent change		-8.8			-6.5			-6.2			-4.4			**0.0	
Average percent change		-86.8			-77.2			-75.6			-63.2			**0.0	

SE is standard error.
*Figure does not meet standard of reliablility or precision ("Appendix A," Standards of reliability).
**Not significant.

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 9d. Percent distribution of system wide injury hospital discharges by diagnosis, 1979-2001

Year	Poisoning			Toxic Effects			Foreign Body			Other system wide injuries		
	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE
1979	155	50.1	1.8	55	17.6	1.2	35	11.4	0.9	65	20.9	1.3
1980	148	46.4	1.9	55	17.3	1.2	36	11.2	0.9	80	25.0	1.5
1981	145	46.7	1.5	45	14.4	0.9	37	11.9	0.8	84	27.1	1.2
1982	166	49.0	1.6	53	15.5	0.7	34	10.2	0.7	86	25.3	1.2
1983	151	46.8	1.5	55	16.9	1.0	40	12.3	0.8	77	23.9	1.2
1984	169	48.7	1.3	60	17.3	0.8	44	12.7	0.7	74	21.3	0.9
1985	175	55.4	1.3	52	16.4	0.8	36	11.5	0.7	53	16.7	0.8
1986	185	57.3	1.3	54	16.7	0.8	36	11.1	0.6	48	14.9	0.8
1987	192	60.5	1.2	48	15.1	0.8	32	10.0	0.6	46	14.4	0.8
1988	190	60.5	2.4	36	11.3	1.1	29	9.3	1.1	59	18.9	2.4
1989	200	65.0	1.8	38	12.3	1.0	27	8.7	1.0	43	14.0	1.3
1990	176	62.4	1.8	42	14.9	1.1	30	10.7	1.0	34	12.0	1.1
1991	164	63.3	1.9	40	15.6	1.4	21	8.0	0.9	34	13.1	1.1
1992	179	64.1	2.1	40	14.3	1.9	24	8.7	1.0	36	13.0	1.1
1993	191	68.0	1.8	32	11.3	1.2	18	6.6	1.0	39	14.1	1.4
1994	193	68.4	2.1	33	11.8	1.7	21	7.6	1.0	34	12.2	1.3
1995	186	69.5	1.8	30	11.3	1.2	23	8.5	1.1	28	10.6	1.2
1996	176	66.3	2.3	32	12.2	1.5	19	7.2	1.0	38	14.3	1.6
1997	167	67.3	1.7	30	12.0	1.1	18	7.4	0.7	33	13.3	1.6
1998	172	68.8	2.0	26	10.3	1.2	17	6.8	0.8	35	14.1	1.4
1999	158	70.6	1.7	24	10.7	1.1	16	7.2	0.9	26	11.5	1.2
2000	170	71.0	1.7	22	9.4	1.2	20	8.5	1.0	27	11.1	1.2
2001	178	69.9	2.1	28	11.2	1.4	19	7.5	1.2	29	11.5	1.3
Average annual percent change		2.0			-2.3			-2.7			-4.3	
Average percent change		54.9			-40.6			-45.0			-62.1	

SE is standard error.

NOTES: See "Appendix B" for ICD-9-CM diagnosis codes in each category.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Fractures

From 1979 to 2001 fracture hospital discharge rates for all male and female age groups under 65 years of age declined, with average decreases ranging from 2.2 to 5.6 percent per year (for total declines ranging from 39 to 72 percent). Neither the rates for males or females 65 and over changed significantly over the 22 years.

For persons 45–64 years of age, the fracture hospital discharge rates were similar for males and females. For persons under 45 years of age, males generally had higher discharge rates for fractures than females. Females 65 years of age and over had the highest discharge rates for fractures.

Figure 10. Fracture hospital discharge rates among males by age, 1979-2001

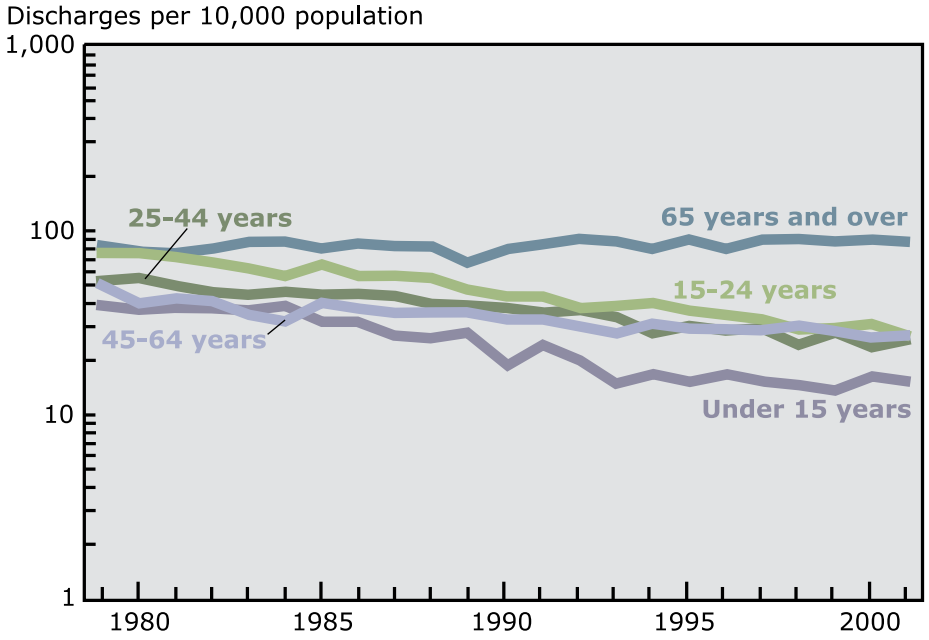
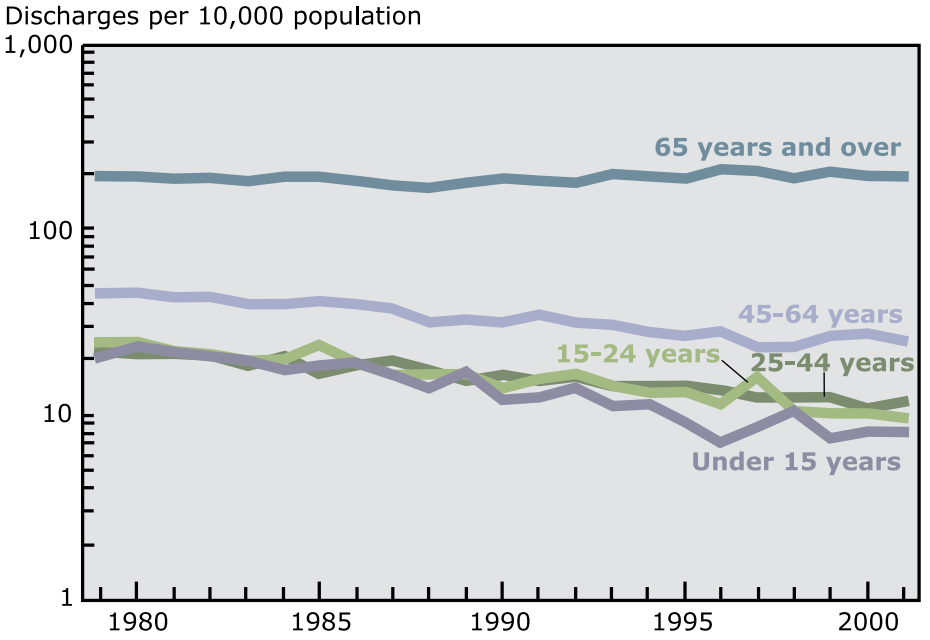


Figure 11. Fracture hospital discharge rates among females by age, 1979-2001



NOTES: Data are plotted on the log scale. See data table for data points graphed and additional notes. See "Appendix B" for the ICD-9-CM diagnosis codes for fractures.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 10. Fracture hospital discharges among males by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	103	39.1	3.2	156	75.6	5.8	159	53.8	4.1	107	50.9	4.2	84	83.0	7.2
1980	97	36.8	3.2	154	74.4	6.0	167	54.6	4.3	85	40.4	3.6	80	77.3	7.1
1981	101	38.4	3.2	146	71.3	5.6	158	49.9	3.9	89	42.3	3.5	80	76.0	6.5
1982	101	38.3	2.9	138	67.9	4.9	152	46.5	3.3	89	42.0	3.3	86	80.2	6.4
1983	98	37.1	2.6	124	62.1	4.0	152	45.3	2.8	74	34.9	2.6	95	86.2	6.0
1984	102	38.7	2.2	111	56.3	3.1	162	46.7	2.3	68	32.3	2.0	98	87.8	4.9
1985	85	32.2	1.9	128	65.4	3.5	161	45.4	2.3	85	39.9	2.4	91	79.9	4.6
1986	86	32.5	1.8	109	56.3	3.0	165	45.0	2.2	81	37.9	2.2	99	85.2	4.7
1987	72	27.0	1.7	109	56.9	3.2	165	44.1	2.2	76	35.6	2.2	97	81.5	4.7
1988	71	26.6	2.9	104	55.3	5.7	154	40.3	3.4	79	36.2	3.0	98	81.2	7.1
1989	77	28.1	3.2	88	47.6	4.0	153	39.4	3.1	80	36.3	3.1	83	67.6	6.3
1990	54	18.9	2.0	83	44.1	2.9	155	38.5	2.2	74	33.4	3.1	99	79.2	5.4
1991	70	24.0	2.4	82	44.1	3.4	148	36.0	2.5	75	33.3	3.3	107	83.8	6.8
1992	59	20.0	2.2	70	37.8	3.1	150	36.5	2.5	71	30.5	2.2	115	88.4	8.0
1993	45	14.8	1.6	73	39.7	3.5	142	34.4	2.8	66	27.8	2.8	114	85.9	8.1
1994	50	16.6	1.8	74	40.1	3.6	117	28.1	2.0	77	31.2	2.4	108	80.4	5.7
1995	47	15.3	2.4	69	37.1	3.1	127	30.3	2.5	74	29.5	2.2	122	89.9	7.3
1996	51	16.6	2.0	65	34.7	3.1	120	28.6	2.0	76	29.4	2.6	109	78.6	4.8
1997	47	15.3	1.9	63	33.1	2.9	122	29.1	2.4	76	28.3	2.4	126	90.4	6.6
1998	45	14.6	1.8	57	29.8	2.4	101	24.2	1.8	84	30.2	3.0	127	89.9	7.0
1999	42	13.6	2.0	58	29.6	2.8	115	27.7	2.2	81	28.4	2.6	123	86.5	6.5
2000	50	16.3	2.8	62	31.1	3.3	97	23.5	2.0	77	26.0	1.9	128	88.6	7.0
2001	48	15.5	2.0	54	27.0	2.6	108	25.9	2.0	85	27.2	2.5	127	87.2	7.1
Average annual percent change		-5.6			-4.7			-3.7			-2.2			**0.3	
Average percent change		-72.1			-65.0			-57.0			-39.2			**7.8	

SE is standard error.

** Not significant.

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 11. Fracture hospital discharges among females by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	53	20.9	2.0	52	24.8	2.4	68	21.9	2.0	108	46.3	3.8	291	194.4	13.3
1980	59	23.5	2.3	52	24.7	2.5	67	21.1	2.0	107	46.0	4.0	295	192.3	13.7
1981	54	21.6	1.9	46	22.0	2.0	70	21.1	1.8	102	43.6	3.6	292	186.6	13.4
1982	52	20.8	1.7	44	21.5	1.9	70	20.7	1.7	100	42.9	3.3	300	187.4	11.9
1983	49	19.7	1.6	39	19.5	1.7	64	18.3	1.4	93	40.0	2.8	302	184.1	9.8
1984	44	17.6	1.2	40	20.2	1.4	74	20.6	1.2	92	39.7	2.3	321	192.5	8.3
1985	47	18.5	1.3	47	23.7	1.6	62	16.7	1.1	96	41.2	2.4	328	192.6	8.4
1986	48	19.1	1.3	36	18.7	1.3	71	18.6	1.1	92	39.5	2.2	314	180.5	7.6
1987	42	16.4	1.2	32	16.7	1.3	76	19.6	1.2	87	37.4	2.2	307	173.2	7.7
1988	35	13.7	1.4	31	16.5	1.9	68	17.3	1.7	75	31.6	2.2	300	166.3	8.3
1989	44	16.8	2.4	30	16.5	2.1	61	15.2	1.4	78	32.6	3.6	329	179.2	9.1
1990	33	12.1	1.4	26	13.9	1.5	68	16.4	1.4	75	31.5	2.8	350	189.6	10.5
1991	34	12.3	1.6	28	15.4	1.7	63	15.0	1.4	83	34.4	2.6	346	184.5	10.7
1992	39	13.7	1.7	30	16.3	1.9	67	16.0	1.5	78	31.2	2.4	339	178.1	10.8
1993	32	11.2	1.7	26	14.4	1.6	61	14.5	1.2	78	30.5	2.6	381	197.5	13.4
1994	33	11.6	1.4	24	13.1	1.8	60	14.2	1.4	73	28.0	2.0	372	191.3	12.7
1995	27	9.1	1.2	24	13.2	1.7	60	14.1	1.3	72	27.0	2.3	366	186.8	11.2
1996	21	7.1	1.1	20	11.3	1.4	57	13.5	1.2	78	28.3	2.2	415	209.9	12.4
1997	25	8.6	1.5	29	16.2	2.6	53	12.4	1.1	65	23.0	1.6	401	202.3	11.8
1998	31	10.6	1.4	20	10.6	1.6	53	12.6	1.0	68	23.0	1.9	381	190.5	8.8
1999	22	7.4	1.1	19	10.3	1.4	53	12.5	1.3	81	26.5	3.1	408	204.1	13.5
2000	24	8.1	1.4	20	10.3	1.5	45	10.7	1.1	87	27.6	2.7	394	196.0	12.9
2001	24	8.2	1.3	19	9.7	1.7	49	11.7	1.4	83	24.9	2.1	401	193.6	11.9
Average annual percent change		-5.2			-4.1			-3.0			-3.2			**0.3	
Average percent change		-68.8			-60.0			-48.9			-51.2			**7.1	

SE is standard error.

**Not significant.

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Poisoning and Toxic Effects

Poisoning and toxic effects accounted for 6 percent of all injury hospital discharges in 1979 and 11 percent in 2001. Poisoning was the largest component of system wide injuries. In 1979 poisonings accounted for about one-half of the system wide injury discharges and for 70 percent in 2001. Toxic effects accounted for 18 percent of system wide injuries in 1979 and 11 percent in 2001 (Appendix table 9d).

From 1979 to 2001 poisoning and toxic effects discharge rates decreased for males and females under 15 years of age, for males aged 15–24 years, and for males and females 65 years and over.

From 1979 to 2001 the overall hospitalization rates for poisoning and toxic effects for males and females were generally similar.

In 2001 over one-half of those hospitalized for poisoning and toxic effects had either poisoning by analgesics, antipyretics, and antirheumatics (ICD-9-CM code 965) or poisoning by psychotropic drugs (ICD-9-CM code 969).

Figure 12. Poisoning and toxic effects hospital discharge rates among males by age, 1979-2001

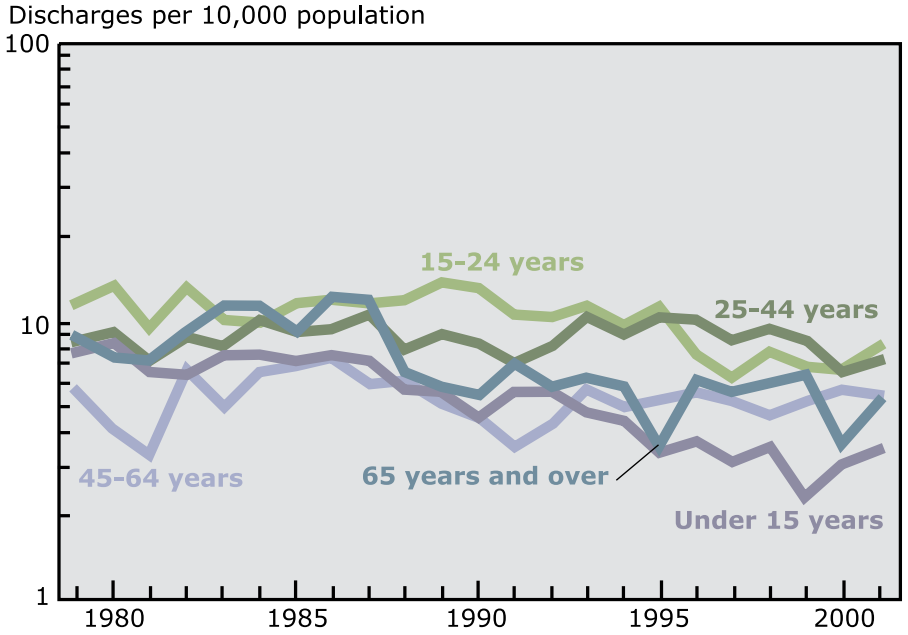
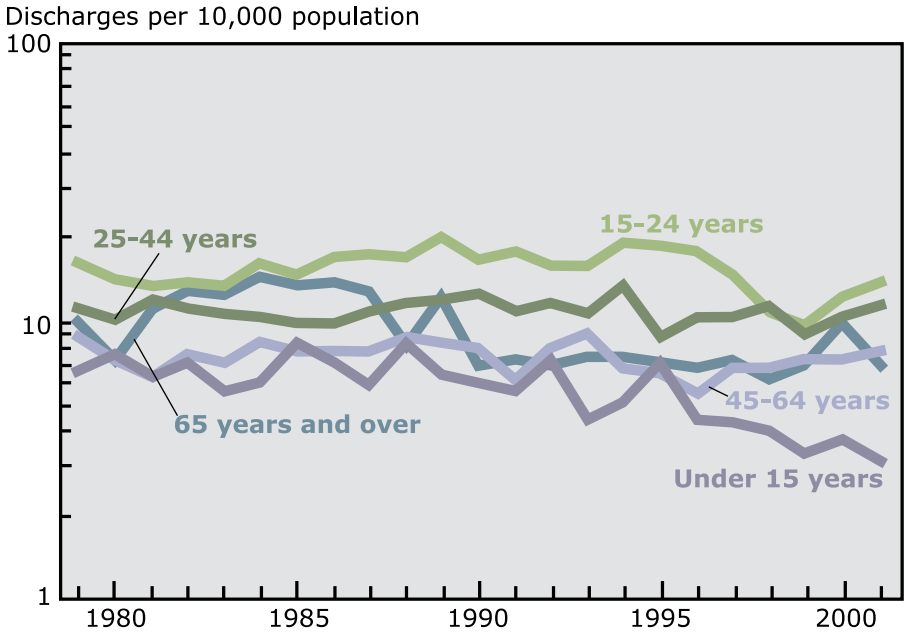


Figure 13. Poisoning and toxic effects hospital discharge rates among females by age, 1979-2001



NOTES: Data are plotted on the log scale. See data table for data points graphed and additional notes. See "Appendix B" for the ICD-9-CM diagnosis codes for poisoning and toxic effects.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 12. Poisoning and toxic effects hospital discharges among males by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	20	7.7	0.9	24	11.6	1.3	25	8.5	1.0	12	5.5	0.8	*9	*8.7	*1.3
1980	22	8.4	1.0	28	13.4	1.6	28	9.2	1.1	*9	*4.1	*0.6	*8	*7.5	*1.2
1981	17	6.5	0.7	19	9.5	1.0	23	7.3	0.8	*7	*3.3	*0.4	*8	*7.3	*0.9
1982	17	6.5	0.7	27	13.3	1.3	28	8.7	0.9	14	6.7	0.8	10	9.3	1.2
1983	20	7.6	0.8	20	10.1	1.0	27	8.1	0.8	10	4.9	0.6	13	11.5	1.4
1984	20	7.5	0.6	20	9.9	0.9	35	10.0	0.7	14	6.6	0.6	13	11.3	1.1
1985	19	7.2	0.6	23	11.7	1.0	33	9.2	0.7	15	6.9	0.7	10	9.2	1.0
1986	20	7.6	0.6	23	11.8	0.9	35	9.5	0.7	16	7.5	0.7	14	12.3	1.1
1987	19	7.3	0.6	22	11.6	1.0	40	10.7	0.8	13	6.0	0.6	14	12.1	1.2
1988	15	5.8	0.9	22	12.0	1.5	31	8.1	0.8	13	6.2	1.0	*8	*6.6	*1.3
1989	15	5.5	1.0	26	13.9	2.2	35	9.1	0.8	11	5.0	0.9	*7	*5.8	*1.4
1990	13	4.4	0.8	25	13.2	1.6	33	8.3	0.9	10	4.5	0.8	*7	*5.4	*1.4
1991	16	5.6	0.9	20	10.6	1.5	29	7.2	0.7	*8	*3.6	*0.6	*9	*7.0	*1.4
1992	17	5.6	0.9	19	10.3	1.3	34	8.2	0.8	10	4.3	0.7	*8	*5.9	*1.2
1993	14	4.7	1.0	21	11.4	1.5	43	10.3	0.9	14	5.6	0.8	*8	*6.3	*1.6
1994	13	4.4	0.7	18	9.7	1.7	37	9.0	0.8	12	5.0	0.8	*8	*5.8	*1.7
1995	10	3.4	0.6	21	11.4	1.6	44	10.5	1.1	13	5.2	0.8	*	*	*
1996	11	3.7	0.7	14	7.7	1.1	42	10.1	1.0	14	5.6	0.8	*9	*6.2	*1.8
1997	10	3.1	0.6	12	6.2	1.1	36	8.6	0.8	14	5.1	0.7	*8	*5.6	*1.1
1998	11	3.5	0.8	15	7.8	1.1	39	9.4	1.5	13	4.6	0.8	*8	*5.9	*1.1
1999	*7	*2.3	*0.5	14	7.0	1.1	36	8.6	0.9	15	5.2	0.8	9	6.4	1.3
2000	9	3.1	0.7	13	6.8	1.2	27	6.7	0.9	17	5.6	0.9	*5	*3.6	*0.7
2001	11	3.5	0.7	16	8.1	1.1	30	7.2	1.1	17	5.5	0.9	*8	*5.2	*1.1
Average annual percent change		-4.6			-1.9			**-0.2			**-0.5			-3.7	
Average percent change		-64.4			-35.1			**-3.6			**-10.1			-56.3	

SE is standard error.
*Figure does not meet standard of reliability or precision ("Appendix A," Standards of reliability).
**Not significant.

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 13. Poisoning and toxic effects hospital discharges among females by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	17	6.6	0.8	34	16.1	1.7	34	11.1	1.2	20	8.7	1.0	15	9.8	1.3
1980	19	7.6	1.0	29	14.0	1.6	32	10.1	1.1	17	7.3	1.0	11	7.3	1.1
1981	16	6.3	0.7	28	13.3	1.3	39	11.9	1.1	15	6.4	0.7	17	11.1	1.2
1982	18	7.1	0.8	28	13.9	1.4	38	11.1	1.0	18	7.6	0.8	21	12.8	1.4
1983	14	5.6	0.6	27	13.4	1.3	37	10.7	0.9	16	7.1	0.8	20	12.5	1.3
1984	15	6.0	0.6	32	16.2	1.2	37	10.3	0.7	19	8.3	0.7	24	14.4	1.2
1985	21	8.3	0.7	29	14.6	1.1	36	9.9	0.7	18	7.7	0.7	23	13.4	1.1
1986	18	7.0	0.6	33	17.2	1.2	37	9.9	0.7	18	7.9	0.7	24	13.9	1.1
1987	15	5.8	0.6	33	17.5	1.3	42	10.9	0.8	18	7.8	0.7	23	12.7	1.1
1988	22	8.5	1.5	32	17.2	1.7	46	11.7	1.3	21	8.7	1.3	15	8.2	1.5
1989	17	6.5	1.0	36	19.9	2.3	48	12.1	1.3	20	8.4	1.1	22	12.1	2.5
1990	16	6.0	0.9	31	16.5	1.5	51	12.4	1.3	19	8.0	1.1	13	6.9	1.2
1991	16	5.6	0.8	33	17.9	1.9	45	10.8	1.1	15	6.2	1.0	14	7.3	1.4
1992	21	7.3	1.2	29	15.9	2.0	49	11.7	1.0	20	8.0	1.2	13	7.0	1.3
1993	13	4.4	0.7	29	15.9	2.0	44	10.6	1.0	23	8.9	1.3	14	7.4	1.3
1994	15	5.1	0.9	34	19.0	2.0	57	13.4	1.1	18	6.8	0.9	14	7.4	1.4
1995	21	7.1	1.4	34	18.8	2.1	37	8.7	0.8	17	6.4	1.0	14	7.2	1.0
1996	13	4.4	0.9	32	17.8	2.0	44	10.4	0.8	15	5.5	0.7	13	6.7	1.0
1997	13	4.3	0.7	27	14.9	1.7	44	10.4	0.9	19	6.8	1.0	14	7.2	1.1
1998	12	4.0	0.7	20	10.8	1.4	48	11.3	1.1	20	6.7	0.8	12	6.1	1.0
1999	10	3.3	0.6	18	9.7	1.4	38	9.0	1.0	22	7.2	1.0	14	6.9	1.1
2000	11	3.8	0.7	23	12.2	1.6	43	10.3	1.0	23	7.2	1.0	20	9.8	1.6
2001	9	3.2	0.7	27	13.8	1.7	48	11.3	1.0	26	7.8	1.0	15	7.1	1.2
Average annual percent change		-2.9			**-0.2			**-0.1			**-0.5			-3.2	
Average percent change		-47.2			**-4.1			**-1.3			**-11.0			-50.6	

SE is standard error.
**Not significant.

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 12a. Poisoning and toxic effects hospital discharges by diagnosis, 1979-2001

Year	Poisoning by analgesics, antipyretics, and antirheumatics			Poisoning by psychotropic agents			Poisoning by agents primarily affecting the cardiovascular system			Poisoning by other and unspecified drugs and medicinal substances			Toxic effects of other substances, chiefly nonmedicinal as to source			All other poisoning and toxic effect diagnoses		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	21	1.0	0.1	32	1.4	0.1	14	0.6	0.1	58	2.6	0.2	23	1.0	0.1	61	2.7	0.3
1980	19	0.8	0.1	29	1.3	0.1	12	0.5	0.1	56	2.5	0.2	20	0.9	0.1	67	3.0	0.3
1981	19	0.8	0.1	31	1.4	0.1	17	0.8	0.1	47	2.0	0.2	18	0.8	0.1	58	2.5	0.2
1982	23	1.0	0.1	30	1.3	0.1	20	0.9	0.1	58	2.5	0.2	17	0.8	0.1	70	3.1	0.3
1983	21	0.9	0.1	26	1.1	0.1	17	0.7	0.1	47	2.0	0.2	17	0.7	0.1	78	3.4	0.2
1984	24	1.0	0.1	31	1.3	0.1	21	0.9	0.1	49	2.1	0.1	26	1.1	0.1	77	3.3	0.2
1985	30	1.3	0.1	36	1.5	0.1	15	0.6	0.1	41	1.8	0.1	18	0.8	0.1	87	3.7	0.2
1986	29	1.2	0.1	43	1.8	0.1	17	0.7	0.1	41	1.7	0.1	18	0.7	0.1	91	3.8	0.2
1987	34	1.4	0.1	47	2.0	0.1	18	0.8	0.1	37	1.5	0.1	20	0.8	0.1	84	3.5	0.2
1988	40	1.7	0.2	59	2.4	0.2	16	0.6	0.1	19	0.8	0.1	13	0.5	0.1	78	3.2	0.2
1989	44	1.8	0.2	61	2.5	0.2	17	0.7	0.2	22	0.9	0.1	12	0.5	0.1	82	3.3	0.3
1990	40	1.6	0.2	61	2.4	0.2	10	0.4	0.1	13	0.5	0.1	12	0.5	0.1	82	3.3	0.2
1991	38	1.5	0.1	54	2.1	0.2	10	0.4	0.1	11	0.4	0.1	11	0.4	0.1	80	3.1	0.2
1992	36	1.4	0.1	62	2.4	0.2	13	0.5	0.1	11	0.4	0.1	14	0.5	0.2	82	3.2	0.3
1993	37	1.4	0.1	66	2.5	0.2	11	0.4	0.1	16	0.6	0.1	10	0.4	0.1	83	3.2	0.2
1994	47	1.8	0.2	69	2.6	0.2	10	0.4	0.1	15	0.6	0.1	*7	*0.3	*0.1	78	3.0	0.2
1995	47	1.8	0.2	59	2.2	0.2	*9	*0.3	*0.1	15	0.5	0.1	*8	*0.3	*0.1	78	3.0	0.2
1996	51	1.9	0.2	57	2.1	0.2	10	0.4	0.1	12	0.5	0.1	*8	*0.3	*0.1	72	2.7	0.2
1997	34	1.3	0.1	57	2.1	0.2	10	0.4	0.1	14	0.5	0.1	10	0.4	0.1	72	2.7	0.2
1998	38	1.4	0.1	61	2.2	0.2	*7	*0.2	*0.0	12	0.4	0.1	*8	*0.3	*0.1	72	2.6	0.2
1999	38	1.4	0.1	53	1.9	0.2	*9	*0.3	*0.1	10	0.4	0.1	*7	*0.2	*0.1	66	2.4	0.2
2000	49	1.8	0.2	51	1.8	0.1	*8	*0.3	*0.0	11	0.4	0.1	*9	*0.3	*0.1	65	2.3	0.2
2001	50	1.8	0.1	60	2.1	0.2	9	0.3	0.1	12	0.4	0.1	10	0.4	0.1	65	2.3	0.2
Average annual percent change		2.7			2.7			-5.1			-10.1			-6.4			-1.5	
Average percent change		80.8			79.0			-68.5			-90.3			-76.9			-28.6	

SE is standard error.
* Figure does not meet standard of reliability or precision ("Appendix A," Standards of reliability).

NOTES: Poisoning by analgesics, antipyretics, and antirheumatics - ICD-9-CM code 965
Poisoning by psychotropic agents - ICD-9-CM code 969
Poisoning by agents primarily affecting the cardiovascular system - ICD-9-CM code 972
Poisoning by other and unspecified drugs and medicinal substances - ICD-9-CM code 977
Toxic effects of other substances, chiefly nonmedicinal as to source - ICD-9-CM code 989
All other poisoning and toxic effect diagnoses - ICD-9-CM codes 960-964, 966-968, 970-971, 973-976, 978-988
Average annual percent change is from 1979-2001, ("Appendix A," Test of trend).
Average percent change is for 1979-2001, ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

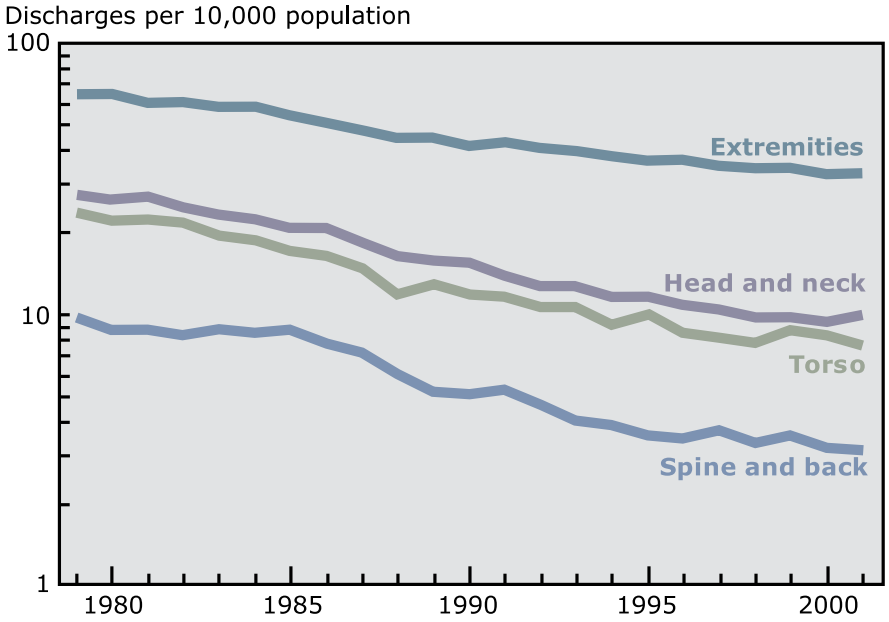
SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Discharges by Body Region

Another dimension of the Barell Matrix is the body region of the injury. The body region of the injury can be categorized at various levels of detail, with the four major body regions being: head and neck, spine and back, torso, and extremities.

From 1979 to 2001 injury hospital discharge rates decreased for each of the major body regions. Extremity injury rates were higher than the rates for the other body regions and declined on average 3.4 percent per year (for a total decrease of 53 percent) to 32.8 per 10,000 population in 2001. Rates were lower for the other major body region categories, but their relative declines were larger. From 1979 to 2001 the average annual percent decrease for head and neck, spine and back, and torso injury hospital discharge rates ranged from 5.4 to 5.8 percent per year (for total decreases of 71–73 percent) to 10.0, 3.2, and 7.7 per 10,000 population, respectively in 2001.

Figure 14. Injury hospital discharge rates by body region of injury, 1979-2001



NOTES: Data are plotted on the log scale. See data table for data points graphed and additional notes. Discharge rates are age adjusted using the 2000 standard population ("Appendix A, Age adjustment"). See "Appendix B" for the ICD-9-CM diagnosis codes in each category.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 14. Injury hospital discharges by body region of injury, 1979-2001

Year	Head and neck			Spine and back			Torso			Extremities			Other and unspecified site		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	655	28.0	1.7	210	9.7	0.7	514	23.9	1.5	1,431	64.7	3.4	183	8.1	0.6
1980	630	26.8	1.7	193	8.8	0.7	491	22.5	1.5	1,438	64.2	3.5	174	7.6	0.6
1981	644	27.2	1.8	196	8.8	0.7	496	22.2	1.5	1,382	61.2	3.7	170	7.3	0.6
1982	594	24.9	1.4	189	8.3	0.6	487	21.7	1.3	1,385	60.8	3.1	176	7.6	0.5
1983	563	23.4	1.1	200	8.7	0.5	445	19.5	1.0	1,334	58.1	2.3	174	7.4	0.4
1984	545	22.5	0.9	199	8.5	0.4	439	18.9	0.8	1,339	57.8	1.9	162	6.8	0.3
1985	509	20.9	0.8	207	8.8	0.4	406	17.3	0.7	1,280	54.7	1.8	128	5.3	0.3
1986	513	20.9	0.8	188	7.9	0.4	395	16.6	0.7	1,212	51.3	1.7	111	4.6	0.2
1987	456	18.4	0.8	176	7.3	0.4	355	14.7	0.7	1,139	47.6	1.6	93	3.8	0.2
1988	409	16.5	0.9	148	6.1	0.5	291	11.9	0.7	1,073	44.4	2.2	86	3.5	0.4
1989	395	15.7	0.9	127	5.2	0.4	315	12.9	0.7	1,094	44.9	2.4	71	2.9	0.3
1990	395	15.3	0.9	128	5.1	0.4	301	12.0	0.6	1,051	42.3	1.9	58	2.3	0.3
1991	361	14.0	1.0	134	5.3	0.4	294	11.6	0.6	1,072	42.8	2.0	47	1.8	0.2
1992	333	12.7	0.7	120	4.7	0.4	274	10.8	0.5	1,035	40.7	2.0	39	1.5	0.2
1993	336	12.8	0.8	107	4.1	0.3	274	10.6	0.7	1,039	40.5	2.3	40	1.6	0.3
1994	310	11.7	0.7	103	4.0	0.3	237	9.1	0.5	989	38.1	1.9	43	1.6	0.2
1995	311	11.6	0.7	95	3.6	0.3	264	10.0	0.6	959	36.6	2.0	37	1.4	0.2
1996	291	10.8	0.7	93	3.5	0.3	230	8.6	0.5	975	36.8	1.8	32	1.2	0.2
1997	283	10.5	0.7	101	3.8	0.3	219	8.2	0.4	949	35.5	1.7	21	0.8	0.1
1998	265	9.7	0.6	92	3.4	0.2	216	8.0	0.4	924	34.2	1.6	*	*	*
1999	272	9.9	0.7	99	3.6	0.3	241	8.8	0.6	941	34.5	2.0	*	*	*
2000	258	9.3	0.6	88	3.2	0.3	234	8.5	0.5	908	33.0	2.0	*	*	*
2001	283	10.0	0.6	90	3.2	0.2	218	7.7	0.4	926	32.8	1.8	*	*	*
Average annual percent change		-5.4			-5.8			-5.5			-3.4			-11.9	
Average percent change		-70.6			-73.4			-70.9			-53.0			-93.8	

SE is standard error.
* Figure does not meet standard of reliability or precision ("Appendix A," Standards of reliability).

NOTES: Discharge rates are age adjusted using the 2000 standard population ("Appendix A," Age adjustment).
☐ gure 9.
See "Appendix B" for the ICD-9-CM diagnosis codes in each category.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 14a. Injury hospital discharges by body region of injury, 1979-2001

Year	Extremities			Head and neck			Torso			Spine and back			Other and unspecified		
	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE
1979	1,431	43.4	1.0	655	19.8	0.7	514	15.6	0.6	210	6.4	0.4	183	5.5	0.3
1980	1,438	44.3	1.1	630	19.4	0.8	491	15.1	0.6	193	5.9	0.4	174	5.4	0.3
1981	1,382	43.2	1.0	644	20.1	0.7	496	15.5	0.6	196	6.1	0.3	170	5.3	0.3
1982	1,385	43.7	0.9	594	18.7	0.6	487	15.4	0.6	189	6.0	0.3	176	5.6	0.3
1983	1,334	43.9	0.8	563	18.5	0.6	445	14.6	0.5	200	6.6	0.3	174	5.7	0.3
1984	1,339	44.2	0.7	545	18.0	0.5	439	14.5	0.4	199	6.6	0.3	162	5.3	0.2
1985	1,280	45.0	0.7	509	17.9	0.5	406	14.3	0.4	207	7.3	0.3	128	4.5	0.2
1986	1,212	44.2	0.7	513	18.7	0.5	395	14.4	0.4	188	6.9	0.3	111	4.1	0.2
1987	1,139	44.9	0.7	456	18.0	0.5	355	14.0	0.5	176	6.9	0.3	93	3.7	0.2
1988	1,073	46.3	1.0	409	17.6	0.6	291	12.5	0.6	148	6.4	0.4	86	3.7	0.3
1989	1,094	47.4	1.0	395	17.1	0.6	315	13.7	0.6	127	5.5	0.3	71	3.1	0.3
1990	1,051	47.4	1.0	395	17.8	0.7	301	13.6	0.5	128	5.8	0.4	58	2.6	0.3
1991	1,072	49.4	1.1	361	16.7	0.9	294	13.6	0.5	134	6.2	0.4	47	2.2	0.3
1992	1,035	49.8	1.1	333	16.0	0.7	274	13.2	0.5	120	5.8	0.4	39	1.9	0.3
1993	1,039	50.1	1.1	336	16.2	0.7	274	13.2	0.7	107	5.1	0.3	40	1.9	0.4
1994	989	50.4	1.0	310	15.8	0.8	237	12.1	0.5	103	5.2	0.4	43	2.2	0.3
1995	959	49.6	1.3	311	16.1	0.7	264	13.6	0.6	95	4.9	0.4	37	1.9	0.3
1996	975	51.7	1.0	291	15.4	0.7	230	12.2	0.5	93	4.9	0.3	32	1.7	0.3
1997	949	52.1	1.2	283	15.6	0.7	219	12.0	0.5	101	5.5	0.4	21	1.2	0.1
1998	924	51.6	1.2	265	14.8	0.7	216	12.1	0.6	92	5.1	0.3	*	*	*
1999	941	51.7	1.4	272	14.9	0.9	241	13.3	0.5	99	5.4	0.4	*	*	*
2000	908	51.7	1.3	258	14.7	0.8	234	13.3	0.6	88	5.0	0.3	*	*	*
2001	926	51.1	1.2	283	15.6	0.7	218	12.0	0.5	90	5.0	0.3	*	*	*
Average annual percent change		1.0			-1.3			-1.1			-1.4			-7.2	
Average percent change		25.6			-25.8			-21.6			-27.3			-80.5	

SE is standard error.
* Figure does not meet standard of reliability or precision ("Appendix A," Standards of reliability).

NOTES: Numb☐ Appendix table 9a. See
"Appendix B" for the ICD-9-CM diagnosis codes in each category.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 14b. Torso injury hospital discharges among males by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	14	5.5	0.7	66	32.0	2.9	118	40.1	3.2	64	30.3	2.8	32	31.4	3.4
1980	18	6.9	0.9	57	27.5	2.7	112	36.6	3.1	64	30.2	2.9	30	29.0	3.3
1981	14	5.3	0.6	70	34.0	2.9	106	33.6	2.7	61	28.8	2.5	31	29.2	2.9
1982	17	6.4	0.7	55	26.9	1.9	106	32.4	2.5	54	25.7	1.9	30	28.0	2.7
1983	18	6.7	0.7	51	25.4	2.1	103	30.7	2.1	54	25.5	2.0	33	29.9	2.7
1984	13	5.1	0.5	61	31.1	2.0	93	26.9	1.5	44	20.5	1.4	30	27.2	2.1
1985	13	4.8	0.5	46	23.5	1.6	97	27.1	1.6	47	22.3	1.5	30	26.2	2.0
1986	17	6.5	0.6	50	26.0	1.7	99	27.0	1.5	44	20.8	1.4	29	24.5	1.8
1987	20	7.5	0.7	49	25.8	1.8	80	21.4	1.3	34	15.8	1.2	24	20.5	1.7
1988	9	3.5	0.5	37	19.6	2.1	68	17.9	1.6	28	13.1	1.6	23	19.3	2.9
1989	15	5.4	0.9	41	22.2	2.0	79	20.5	2.0	36	16.2	2.1	25	19.9	2.8
1990	12	4.2	0.6	38	20.0	1.8	72	17.8	1.5	29	13.1	1.5	20	16.1	1.9
1991	10	3.4	0.6	37	19.8	1.7	68	16.6	1.3	32	14.2	1.4	20	16.1	2.5
1992	10	3.3	0.6	37	19.9	2.1	54	13.0	1.1	29	12.3	1.5	26	20.0	2.4
1993	11	3.6	0.6	37	20.0	2.9	54	12.9	1.3	25	10.5	1.3	32	24.1	3.7
1994	11	3.6	0.7	29	15.7	1.6	45	10.9	1.3	28	11.6	1.6	25	18.4	2.4
1995	10	3.2	0.6	36	19.2	2.1	54	13.0	1.3	24	9.6	1.3	27	19.8	2.9
1996	*8	*2.8	*0.5	25	13.5	1.5	51	12.1	1.5	29	11.2	1.4	23	17.0	1.9
1997	*9	*2.9	*0.5	22	11.5	1.5	38	9.1	0.8	29	10.8	1.1	23	16.3	2.0
1998	10	3.2	0.7	22	11.5	1.3	37	8.9	0.9	23	8.2	1.3	24	16.9	2.3
1999	14	4.6	0.9	22	11.2	1.3	45	10.8	1.2	27	9.6	1.5	29	20.1	2.6
2000	14	4.6	0.8	21	10.8	1.5	43	10.5	1.1	21	7.2	0.9	30	20.9	2.6
2001	10	3.2	0.7	24	11.9	1.8	34	8.2	0.9	26	8.3	1.0	28	19.4	2.3
Average annual percent change		-3.4			-4.9			-7.2			-6.4			-2.7	
Average percent change		-52.9			-66.9			-80.6			-76.5			-44.8	

SE is standard error.
*Figure does not meet standard of reliability or precision ("Appendix A," Standards of reliability).

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 14c. Torso injury hospital discharges among females by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	9	3.7	0.5	27	13.1	1.5	71	23.0	2.1	57	24.4	2.3	55	36.7	3.5
1980	10	4.0	0.6	26	12.2	1.4	58	18.1	1.8	52	22.2	2.2	65	42.0	4.0
1981	11	4.5	0.5	24	11.6	1.2	66	20.0	1.7	45	19.4	1.8	68	43.1	3.7
1982	11	4.5	0.5	24	11.8	1.2	73	21.4	1.8	49	21.1	1.9	68	42.7	3.4
1983	*7	*2.6	*0.4	20	9.7	1.0	59	16.8	1.3	39	16.6	1.4	63	38.3	2.9
1984	*8	*3.1	*0.4	16	8.2	0.7	59	16.5	1.1	45	19.1	1.3	69	41.2	2.5
1985	9	3.7	0.4	22	11.4	1.0	46	12.5	0.9	35	15.1	1.1	61	35.8	2.3
1986	*6	*2.2	*0.3	19	9.6	0.8	43	11.4	0.8	34	14.6	1.0	54	31.2	2.0
1987	*6	*2.5	*0.3	15	8.1	0.8	39	10.1	0.7	30	12.8	1.0	57	32.0	2.1
1988	*9	*3.4	*0.7	17	9.4	1.2	32	8.2	1.2	20	8.5	1.0	46	25.5	2.4
1989	*7	*2.6	*0.6	15	8.4	1.2	27	6.7	0.8	24	10.0	1.4	48	26.0	2.6
1990	*5	*1.9	*0.4	13	6.9	1.0	36	8.8	1.0	23	9.5	1.2	54	29.3	2.6
1991	*	*	*	14	7.6	1.3	31	7.4	0.9	20	8.4	1.1	57	30.7	3.2
1992	*7	*2.6	*0.5	16	8.7	1.7	24	5.8	0.7	21	8.5	1.3	51	26.7	2.4
1993	*6	*2.2	*0.5	14	7.5	1.2	23	5.4	0.8	16	6.5	0.9	56	29.2	3.1
1994	*	*	*	*7	*4.0	*0.6	19	4.5	0.7	18	6.9	1.1	50	25.6	2.7
1995	*	*	*	13	7.4	1.4	20	4.6	0.7	16	6.1	0.9	59	30.1	3.0
1996	*5	*1.8	*0.4	*8	*4.5	*0.8	16	3.8	0.6	14	5.2	0.8	49	24.7	2.9
1997	*	*	*	14	7.8	1.3	16	3.8	0.6	13	4.5	0.6	52	26.1	2.1
1998	*	*	*	*8	*4.4	*1.0	18	4.3	0.6	15	5.0	0.7	54	27.1	2.1
1999	*5	*1.7	*0.4	*8	*4.3	*0.8	19	4.5	0.6	13	4.3	0.7	59	29.6	2.9
2000	*6	*2.0	*0.6	*6	*3.0	*0.6	15	3.6	0.6	14	4.4	0.8	63	31.2	3.2
2001	*6	*2.0	*0.5	*6	*3.1	*0.9	12	2.8	0.5	16	4.7	0.7	57	27.3	2.2
Average annual percent change		-5.0			-5.1			-9.4			-8.4			-2.1	
Average percent change		-67.6			-68.6			-88.6			-85.3			-37.9	

SE is standard error.
* Figure does not meet standard of reliability or precision ("Appendix A," Standards of reliability).

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Extremity Injuries

Extremity injuries accounted for 43 to 52 percent of all injury hospital discharges from 1979 to 2001 (data not shown). For both males and females under 65 years of age, discharge rates for both upper and lower extremity injuries declined from 1979 to 2001; the average annual percent decrease ranged from 3.7 to 6.9 percent per year (for total declines ranging from 56 to 79 percent). In contrast, the rates for males and females 65 years of age and over remained unchanged. For patients under 45 years of age, extremity injury discharge rates were higher for males than for females. Females 65 years of age and over had the highest discharge rate for extremity injury.

From 1979 to 2001 the percent of extremity injury hospital discharges that were upper extremity decreased on average 2.1 percent per year (for a total decline of 38 percent) to 25 percent in 2001. The percent that were hip injuries increased 4.2 percent per year (for a total increase of 148 percent) to 37 percent in 2001, and lower extremity injuries other than hip injuries decreased on average 1.0 percent per year (for a total decrease of 20 percent). (Appendix table 16c)

Figure 15. Extremity injury hospital discharge rates among males by age, 1979-2001

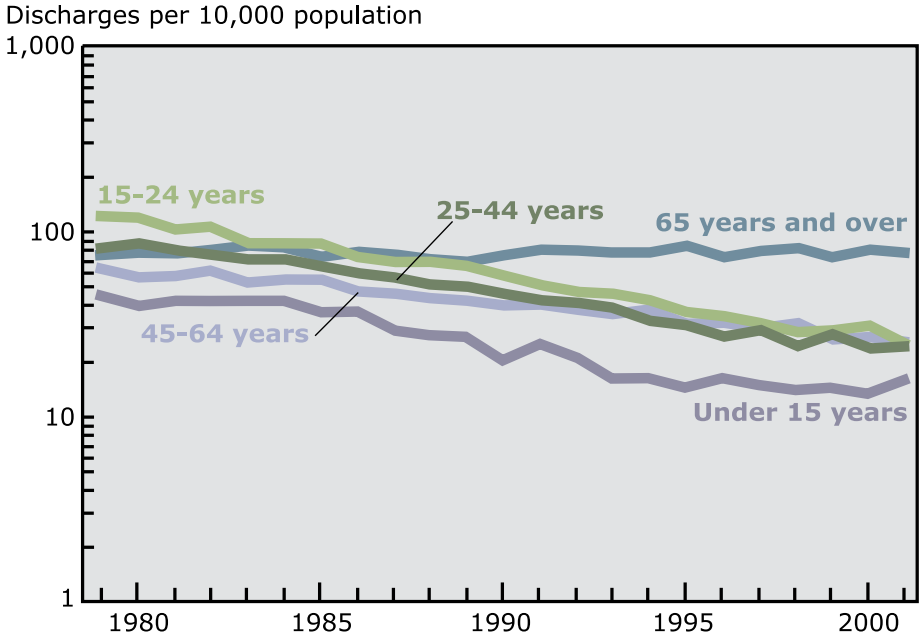
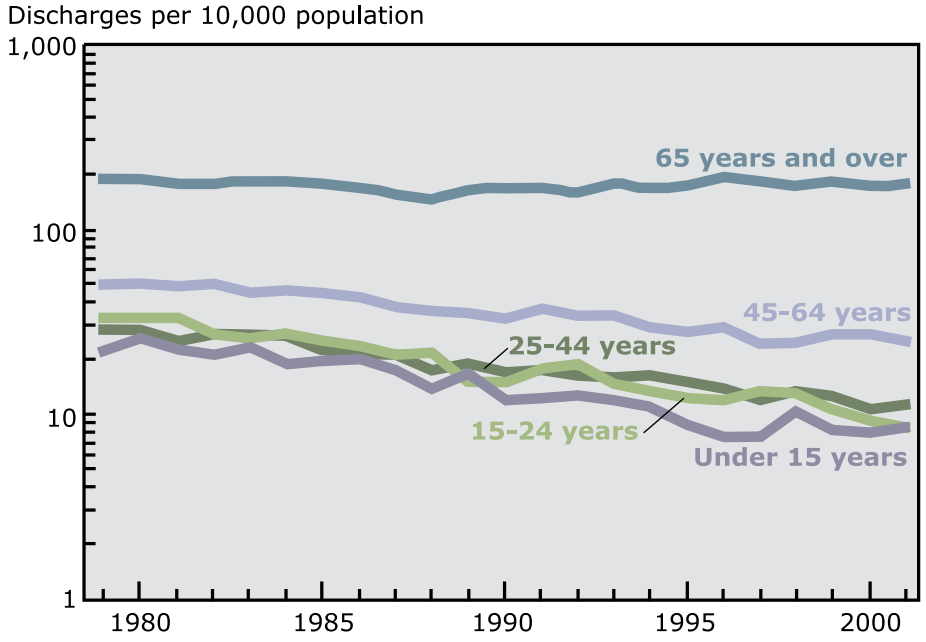


Figure 16. Extremity injury hospital discharge rates among females by age, 1979-2001



NOTES: Data are plotted on the log scale. See data table for data points graphed and additional notes. See "Appendix B" for the ICD-9-CM diagnosis codes for extremity injuries.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 15. Extremity injury hospital discharges among males by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	120	45.6	3.7	250	121.2	8.5	241	81.7	5.8	133	63.3	5.0	76	75.3	6.7
1980	105	40.2	3.5	241	116.9	8.6	264	86.3	6.3	118	56.1	4.7	81	78.5	7.1
1981	113	43.0	3.5	213	104.0	7.7	251	79.6	5.8	123	58.3	4.7	81	77.0	6.5
1982	112	42.6	3.2	213	105.2	7.1	243	74.4	4.9	131	61.8	4.5	85	79.4	6.3
1983	112	42.6	2.8	172	86.1	5.2	241	71.6	4.0	114	54.1	3.6	92	83.8	5.8
1984	111	42.0	2.3	169	85.7	4.2	247	71.3	3.2	117	54.9	3.0	92	82.0	4.7
1985	97	36.9	2.1	170	86.9	4.4	231	64.8	3.0	116	54.8	3.0	84	73.3	4.3
1986	97	37.0	2.0	141	72.9	3.7	219	59.9	2.7	101	47.4	2.6	91	78.5	4.4
1987	78	29.3	1.8	132	69.4	3.7	214	57.1	2.7	101	47.0	2.7	89	74.6	4.4
1988	75	28.1	2.7	128	68.3	6.5	196	51.5	3.9	94	43.4	3.8	87	71.9	6.0
1989	74	27.2	3.1	120	65.3	5.6	195	50.3	3.4	93	42.4	3.1	84	68.4	6.4
1990	58	20.2	2.0	108	57.5	4.0	187	46.3	2.4	89	40.2	3.3	95	76.2	5.7
1991	73	25.1	2.3	97	52.3	3.5	173	42.1	2.5	90	39.9	3.6	102	80.3	6.5
1992	62	20.9	2.0	89	47.9	3.7	169	41.0	2.6	89	38.4	2.6	103	79.5	7.9
1993	49	16.2	1.7	85	46.1	4.5	164	39.5	2.8	87	36.3	3.2	101	76.5	6.7
1994	49	16.2	1.5	79	43.0	3.4	139	33.4	2.2	92	37.5	2.9	105	78.3	5.3
1995	44	14.4	1.9	69	37.4	3.1	132	31.5	2.3	82	32.4	2.5	114	83.6	6.8
1996	49	16.2	1.7	65	34.6	3.9	115	27.4	2.0	84	32.5	2.7	101	73.5	5.9
1997	45	14.7	1.5	61	32.2	2.8	123	29.4	2.2	81	30.4	2.6	113	80.7	6.4
1998	43	14.2	1.6	56	28.9	2.7	100	24.1	1.6	89	32.3	2.9	116	82.2	6.4
1999	45	14.7	2.2	58	29.7	2.9	116	28.0	2.2	75	26.3	2.4	105	73.6	6.2
2000	42	13.5	1.8	62	31.3	3.0	96	23.2	2.0	79	26.7	1.9	114	79.4	6.9
2001	48	15.6	1.8	50	25.0	2.5	100	23.9	1.8	81	25.8	2.2	112	77.1	6.1
Average annual percent change		-6.5			-6.9			-6.3			-4.1			**0.0	
Average percent change		-77.2			-79.5			-76.0			-60.0			**0.3	

SE is standard error.
**Not significant.

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 16. Extremity injury hospital discharges among females by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	56	22.2	2.1	70	33.3	3.0	89	28.7	2.5	118	50.5	4.1	279	186.0	12.8
1980	64	25.6	2.5	70	33.4	3.1	91	28.5	2.5	117	50.3	4.3	285	185.7	13.3
1981	56	22.5	2.0	70	33.5	2.9	82	24.8	2.1	115	49.3	4.0	278	177.2	12.8
1982	52	20.7	1.7	56	27.4	1.8	92	27.0	2.1	117	50.3	3.8	284	177.4	11.4
1983	57	22.8	1.8	52	25.9	2.1	94	26.7	1.9	105	45.3	3.1	294	179.2	9.6
1984	47	18.5	1.3	54	27.0	1.8	95	26.4	1.5	107	45.9	2.5	302	180.9	7.9
1985	49	19.4	1.3	49	24.8	1.7	82	22.3	1.3	105	44.9	2.5	298	174.9	7.8
1986	50	19.8	1.3	45	23.4	1.6	78	20.7	1.2	99	42.4	2.3	289	166.6	7.1
1987	43	17.1	1.2	40	21.1	1.5	82	21.2	1.3	88	37.8	2.2	271	153.1	6.9
1988	35	13.8	1.4	40	21.4	2.2	67	17.0	1.4	86	36.2	2.8	264	146.5	7.7
1989	43	16.6	2.2	27	14.8	1.6	74	18.5	1.5	84	35.2	3.7	299	162.7	9.5
1990	32	11.7	1.3	28	14.9	1.3	69	16.7	1.4	79	33.2	3.0	306	165.8	10.1
1991	33	12.0	1.4	32	17.8	1.7	71	17.0	1.2	89	36.9	3.0	311	166.0	10.3
1992	35	12.4	1.2	34	18.7	2.1	69	16.4	1.1	84	33.7	2.4	301	158.4	10.6
1993	33	11.7	1.7	26	14.3	1.9	66	15.7	1.3	86	33.7	2.8	343	177.8	12.8
1994	31	10.9	1.3	24	13.3	1.6	68	16.1	1.5	77	29.4	2.0	325	167.3	10.7
1995	25	8.8	1.2	22	12.1	1.8	63	14.8	1.7	75	28.0	2.6	333	170.0	11.0
1996	22	7.4	1.0	21	11.7	1.4	59	13.8	1.4	80	29.1	2.5	378	191.2	10.3
1997	22	7.6	1.2	24	13.3	2.3	50	11.7	1.0	69	24.1	1.7	361	182.0	10.5
1998	30	10.1	1.3	24	13.0	2.4	56	13.3	1.0	71	24.1	2.0	338	169.5	8.6
1999	24	8.2	1.1	20	10.6	1.8	52	12.4	1.2	82	27.0	3.1	363	181.4	12.1
2000	23	7.9	1.4	18	9.2	1.3	44	10.5	1.1	85	27.0	2.6	345	171.7	11.7
2001	25	8.5	1.6	17	8.6	1.4	47	11.3	1.4	83	25.1	2.1	362	174.8	11.3
Average annual percent change		-5.7			-6.0			-4.5			-3.7			**-0.0	
Average percent change		-72.6			-74.4			-63.9			-56.3			**-0.1	

SE is standard error.
**Not significant.

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 15a. Upper extremity injury hospital discharges among males by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	62	23.6	2.2	110	53.1	4.3	97	32.8	2.8	48	22.6	2.2	23	22.3	2.6
1980	53	20.3	2.0	93	44.8	3.9	95	31.1	2.7	52	24.7	2.5	17	16.8	2.2
1981	61	23.3	2.1	89	43.5	3.6	96	30.5	2.5	50	23.8	2.2	20	19.2	2.0
1982	61	23.4	1.4	86	42.3	3.4	99	30.5	2.4	53	25.2	1.9	19	17.8	1.9
1983	60	22.8	1.8	70	34.9	2.6	101	30.0	2.0	47	22.3	1.8	22	19.6	2.0
1984	59	22.6	1.4	70	35.4	2.2	106	30.7	1.7	56	26.3	1.7	17	15.0	1.4
1985	54	20.6	1.4	70	36.0	2.2	92	25.9	1.5	48	22.6	1.5	16	13.9	1.3
1986	47	17.7	1.2	61	31.6	1.9	101	27.7	1.5	46	21.3	1.4	24	20.6	1.6
1987	35	13.2	1.0	57	30.1	2.0	94	25.2	1.5	44	20.4	1.4	15	12.5	1.2
1988	38	14.2	1.5	49	25.8	2.2	89	23.4	2.0	37	17.0	2.1	16	13.4	2.1
1989	38	13.8	1.8	47	25.3	3.0	84	21.6	2.2	43	19.4	1.9	19	15.6	2.9
1990	30	10.6	1.2	52	27.8	2.6	74	18.4	1.4	37	16.7	1.8	20	16.2	2.4
1991	39	13.4	1.5	41	21.9	2.2	70	17.1	1.5	44	19.4	2.3	21	16.6	2.4
1992	28	9.3	1.2	34	18.2	1.8	66	16.1	1.4	38	16.4	1.7	19	14.3	2.2
1993	23	7.8	0.9	27	14.4	1.7	64	15.6	1.5	37	15.5	1.7	22	16.8	2.8
1994	24	8.0	1.0	27	14.4	1.8	52	12.4	1.2	41	16.7	1.9	22	16.7	2.4
1995	18	6.0	1.0	26	13.9	1.6	46	11.1	0.9	30	11.9	1.3	26	18.7	2.8
1996	25	8.2	1.0	21	11.2	1.6	42	10.0	1.0	38	14.6	1.6	15	10.7	1.9
1997	17	5.7	0.8	30	15.8	2.1	42	10.0	1.1	32	11.9	1.5	20	14.4	2.0
1998	19	6.2	0.8	18	9.4	1.3	40	9.6	1.0	31	11.1	1.2	18	12.9	2.3
1999	19	6.1	1.1	22	11.5	1.5	42	10.0	1.0	27	9.4	1.1	19	13.1	1.9
2000	20	6.6	1.1	22	11.2	1.7	37	9.0	1.1	21	7.3	1.0	21	14.8	2.5
2001	22	7.0	1.0	19	9.5	1.4	36	8.7	0.9	31	10.0	1.2	16	10.9	1.9
Average annual percent change		-7.4			-7.6			-6.8			-4.7			-1.7	
Average percent change		-81.6			-82.3			-78.9			-65.1			-31.5	

SE is standard error.

NOTES: See "Appendix B" for ICD-9-CM diagnosis codes.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 15b. Other lower extremity injury hospital discharges among males by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	56	21.3	2.0	138	67.1	5.2	139	47.1	3.7	76	35.9	3.2	18	17.9	2.2
1980	50	19.1	1.9	145	70.2	5.7	163	53.2	4.2	57	27.0	2.7	22	20.9	2.6
1981	49	18.6	1.7	118	57.7	4.6	149	47.3	3.7	64	30.4	2.7	21	20.3	2.1
1982	48	18.5	1.6	124	61.0	4.5	138	42.3	3.1	67	31.5	2.3	22	20.0	2.1
1983	50	18.8	1.5	98	49.1	3.4	133	39.6	2.5	58	27.5	2.1	23	21.4	2.1
1984	47	18.0	1.2	96	48.6	2.7	132	38.2	2.0	51	24.1	1.6	24	21.1	1.7
1985	42	15.7	1.1	96	49.2	2.8	131	36.9	2.0	57	27.0	1.8	21	18.7	1.6
1986	48	18.2	1.2	76	39.3	2.3	113	30.8	1.6	45	21.0	1.4	19	16.3	1.4
1987	41	15.5	1.1	73	38.3	2.4	113	30.1	1.7	47	22.0	1.5	15	12.9	1.2
1988	35	13.1	1.7	77	40.9	5.4	98	25.7	2.1	49	22.5	2.9	19	15.5	2.1
1989	34	12.5	1.8	71	38.6	4.0	103	26.5	1.9	39	17.9	1.9	18	14.9	2.3
1990	26	9.0	1.2	54	28.7	2.3	105	25.9	1.6	37	16.5	1.9	21	16.9	2.1
1991	31	10.7	1.4	54	29.2	2.2	96	23.4	1.5	32	14.5	1.6	20	15.8	2.4
1992	32	10.8	1.4	53	28.7	2.5	93	22.7	1.6	45	19.3	1.7	23	17.8	3.1
1993	24	7.9	1.1	58	31.2	3.5	92	22.3	1.8	40	16.6	1.8	19	14.3	2.2
1994	23	7.5	0.9	50	27.2	2.7	83	19.9	1.4	39	15.8	1.5	18	13.7	1.8
1995	24	7.9	1.4	41	22.1	2.5	81	19.5	1.8	42	16.5	1.7	22	16.2	2.1
1996	23	7.4	1.0	39	20.6	3.1	69	16.3	1.4	37	14.1	1.6	20	14.2	1.7
1997	24	7.9	1.0	29	15.5	1.9	77	18.4	1.6	40	15.1	2.0	20	14.4	1.9
1998	23	7.6	1.0	36	18.6	2.1	55	13.2	1.2	44	15.8	1.6	19	13.5	1.8
1999	25	8.1	1.4	34	17.3	2.0	67	16.2	1.6	38	13.3	1.9	22	15.5	2.0
2000	20	6.4	1.1	37	18.8	2.0	56	13.6	1.2	49	16.6	1.5	22	15.4	2.7
2001	25	8.0	1.1	29	14.5	1.9	60	14.3	1.3	38	12.2	1.4	28	19.1	2.8
Average annual percent change		-5.7			-6.7			-6.0			-4.1			-1.6	
Average percent change		-72.5			-78.1			-74.5			-60.2			-30.0	

SE is standard error.

NOTES: See "Appendix B" for ICD-9-CM diagnosis codes.
Other lower extremity includes all lower extremity injuries except hip injuries.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 16a. Upper extremity injury hospital discharges among females by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	31	12.2	1.3	25	12.1	1.4	30	9.8	1.1	36	15.6	1.6	67	44.5	4.0
1980	37	14.7	1.6	23	10.8	1.3	31	9.7	1.1	42	18.0	1.9	70	45.6	4.3
1981	29	11.5	1.1	20	9.7	1.0	28	8.6	0.9	36	15.4	1.5	63	40.5	3.6
1982	30	12.2	1.2	17	8.5	0.9	30	8.7	0.9	37	16.1	1.5	65	40.4	2.8
1983	36	14.4	1.3	18	8.7	0.9	30	8.6	0.8	37	15.7	1.4	68	41.6	3.1
1984	29	11.5	0.9	16	8.3	0.8	31	8.7	0.7	38	16.1	1.2	65	38.9	2.4
1985	28	11.1	0.9	16	8.3	0.8	24	6.5	0.5	39	16.9	1.2	56	33.1	2.2
1986	27	10.6	0.8	14	7.0	0.7	30	8.0	0.6	34	14.8	1.1	49	28.1	1.8
1987	25	10.0	0.8	14	7.2	0.7	29	7.6	0.6	27	11.5	0.9	46	26.0	1.8
1988	20	7.9	0.9	12	6.3	1.2	24	6.1	0.7	28	12.0	1.5	41	22.7	2.1
1989	25	9.8	1.4	*9	*4.7	*0.9	27	6.9	0.9	24	10.0	1.4	48	26.0	4.0
1990	18	6.4	0.8	10	5.7	0.9	25	6.0	0.8	22	9.2	1.3	50	26.9	2.1
1991	19	6.7	1.0	*8	*4.4	*0.8	24	5.7	0.8	29	12.1	1.6	44	23.6	2.7
1992	17	6.0	0.8	*6	*3.1	*0.6	23	5.4	0.7	23	9.3	1.1	50	26.4	2.7
1993	16	5.6	0.9	*7	*4.1	*0.9	18	4.4	0.6	28	11.0	1.3	49	25.3	2.0
1994	14	4.7	0.8	*6	*3.3	*0.8	20	4.7	0.7	24	9.1	1.0	44	22.4	2.3
1995	11	3.9	0.6	*8	*4.3	*1.0	19	4.5	0.7	25	9.4	1.2	54	27.5	2.7
1996	11	3.8	0.7	*7	*3.9	*0.8	17	4.0	0.6	25	9.0	1.6	50	25.2	2.4
1997	*9	*3.0	*0.5	*6	*3.5	*0.8	14	3.2	0.5	25	8.8	1.1	54	27.1	2.4
1998	12	4.0	0.7	*8	*4.5	*1.2	16	3.9	0.5	20	6.8	0.9	51	25.5	2.1
1999	13	4.3	0.8	*	*	*	12	2.9	0.5	26	8.4	1.4	54	27.2	3.1
2000	13	4.2	0.9	*6	*3.2	*0.8	11	2.7	0.5	21	6.8	1.2	50	25.1	2.4
2001	12	3.9	0.9	*6	*3.2	*0.7	12	2.9	0.5	20	6.1	0.9	57	27.6	3.3
Average annual percent change		-6.9			-6.5			-5.5			-4.5			-2.7	
Average percent change		-79.4			-77.0			-71.4			-63.5			-45.5	

SE is standard error.
* Figure does not meet standard of reliability or precision ("Appendix A," Standards of reliability).

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 16b. Other lower extremity injury hospital discharges among females by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	24	9.5	1.1	43	20.5	2.1	55	17.8	1.7	65	27.9	2.6	66	44.1	4.0
1980	24	9.8	1.2	46	21.7	2.2	57	18.0	1.8	59	25.4	2.5	63	40.8	3.9
1981	24	9.4	1.0	48	23.0	2.1	52	15.8	1.4	56	24.1	2.2	64	41.1	3.6
1982	20	8.0	0.9	37	18.1	1.7	60	17.5	1.0	61	26.0	1.5	63	39.0	2.4
1983	19	7.7	0.8	33	16.5	1.5	60	17.2	1.3	52	22.4	1.8	63	38.5	2.9
1984	16	6.4	0.6	36	18.2	1.3	59	16.3	1.0	50	21.5	1.4	69	41.0	2.5
1985	18	7.1	0.6	29	15.0	1.2	56	15.2	1.0	48	20.7	1.4	60	35.4	2.3
1986	21	8.3	0.7	31	16.1	1.2	45	11.9	0.8	49	20.9	1.4	62	35.5	2.2
1987	17	6.6	0.6	25	12.9	1.1	50	13.0	0.9	48	20.5	1.4	58	32.8	2.1
1988	14	5.4	0.9	26	14.0	1.9	40	10.2	1.3	40	16.9	2.2	51	28.4	2.5
1989	14	5.3	0.8	18	9.8	1.2	45	11.3	1.0	44	18.4	2.0	61	33.4	3.4
1990	12	4.3	0.7	16	8.8	1.1	41	10.0	1.1	47	19.7	2.1	58	31.7	2.4
1991	14	4.9	0.7	23	12.7	1.4	43	10.4	0.7	43	17.9	1.8	59	31.7	3.1
1992	16	5.8	0.8	26	14.3	1.8	43	10.2	0.8	45	18.1	1.7	59	31.2	3.1
1993	15	5.2	1.1	18	9.8	1.4	45	10.7	1.1	46	18.0	2.2	70	36.3	4.0
1994	16	5.7	1.1	17	9.6	1.4	46	10.8	1.1	43	16.4	1.4	68	34.9	3.1
1995	13	4.6	0.8	13	7.5	1.4	42	10.0	1.2	41	15.2	1.7	59	30.3	3.0
1996	9	3.2	0.6	14	7.6	1.1	40	9.4	1.1	42	15.4	1.5	66	33.5	2.6
1997	13	4.3	1.0	18	9.7	2.1	33	7.7	0.8	33	11.5	1.1	76	38.1	3.5
1998	15	5.3	0.8	16	8.4	1.6	37	8.7	0.9	40	13.5	1.4	63	31.6	2.4
1999	11	3.7	0.8	15	8.0	1.6	39	9.2	1.0	45	14.7	2.2	72	36.2	3.3
2000	10	3.3	0.8	11	5.7	1.0	31	7.3	1.0	45	14.3	1.3	66	33.1	2.8
2001	12	4.1	1.1	9	4.7	1.1	34	8.0	1.3	49	14.7	1.5	70	34.0	2.5
Average annual percent change		-4.4			-5.8			-4.2			-3.2			-0.9	
Average percent change		-63.0			-72.8			-61.2			-51.1			-18.7	

SE is standard error.

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes.
Other lower extremity includes all lower extremity injuries except hip injuries.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 16c. Extremity injury hospital discharges by body region, 1979-2001

Year	Upper extremity			Lower extremity					
				Hip			Other lower extremity		
	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE
1979	528	36.9	1.2	223	15.6	0.8	680	47.5	1.3
1980	513	35.7	1.2	240	16.7	0.8	686	47.7	1.4
1981	494	35.7	1.1	242	17.5	0.7	647	46.8	1.2
1982	499	36.0	1.1	248	17.9	0.8	638	46.1	1.2
1983	488	36.6	1.0	255	19.1	0.7	591	44.3	1.1
1984	487	36.4	0.8	272	20.3	0.6	580	43.3	0.9
1985	445	34.8	0.8	276	21.5	0.7	560	43.7	0.9
1986	433	35.7	0.8	271	22.4	0.7	509	42.0	0.9
1987	386	33.9	1.0	265	23.3	0.7	487	42.8	0.9
1988	354	33.0	1.2	270	25.2	1.0	449	41.8	1.4
1989	363	33.2	1.0	284	25.9	1.0	447	40.9	1.3
1990	339	32.2	1.0	295	28.1	1.3	417	39.7	0.9
1991	338	31.6	1.0	317	29.6	1.0	417	38.9	0.9
1992	303	29.3	0.9	296	28.6	1.2	436	42.1	1.1
1993	292	28.1	1.1	321	30.9	1.2	426	41.0	1.1
1994	272	27.5	0.8	314	31.7	1.1	403	40.7	0.9
1995	263	27.5	0.9	316	33.0	1.2	379	39.5	1.0
1996	250	25.7	0.8	366	37.6	1.3	358	36.7	1.0
1997	249	26.2	0.9	338	35.6	1.1	363	38.2	1.0
1998	234	25.3	0.9	343	37.1	1.5	348	37.6	1.1
1999	238	25.3	1.0	335	35.6	1.3	368	39.1	1.0
2000	224	24.7	0.9	336	37.0	1.4	347	38.3	1.1
2001	232	25.0	1.0	340	36.8	1.3	354	38.2	1.3
Average annual percent change		-2.1			4.2			-1.0	
Average percent change		-37.8			147.7			-20.5	

SE is standard error.

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes in each category.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Head and Neck Injuries

Head and neck injuries include a wide range of injuries from traumatic brain injury (TBI) to more minor injuries to the head, neck, face, or eye. From 1979 to 2001 head and neck injury hospital discharge rates decreased for males and females under 65 years of age an average of 4.0 to 7.6 percent per year (for total decreases of 60 to 82 percent), while rates for those 65 years and over decreased on average 1.2 percent per year for males and 1.1 percent per year for females (for total decreases of 23 and 22 percent, respectively).

Generally males under 65 years of age had higher rates of head and neck injury discharges than females under 65 years of age. For nearly all years in the study period, rates for males and females 65 years and over were similar.

In 2001, among males and females, traumatic brain injuries (TBI) by age accounted for 50–70 percent of all head and neck injuries. Hospital discharge rates for TBI were generally higher for males than for females among the 15–24 and the 25–44 age groups (Appendix tables 17a and 18a). TBI rates for those under 65 years of age declined. TBI discharge rates for those 65 years and over did not change significantly over the 22 years.

Figure 17. Head and neck injury hospital discharge rates among males by age, 1979-2001

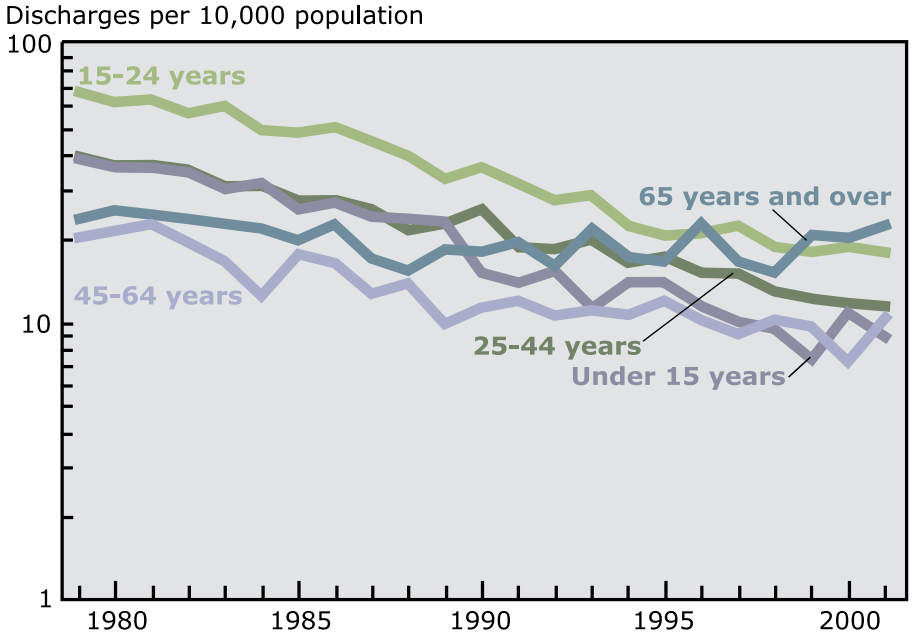
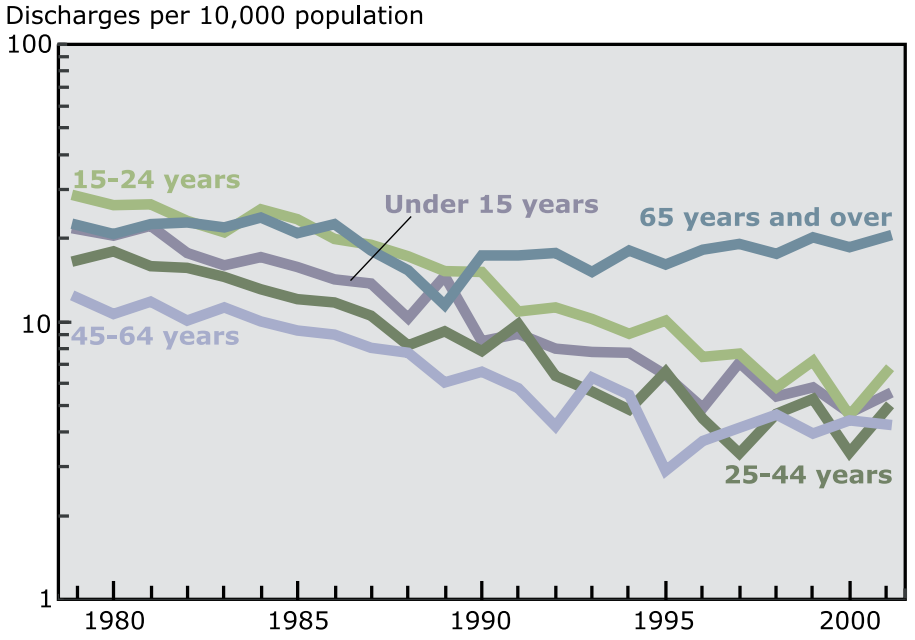


Figure 18. Head and neck injury hospital discharge rates among females by age, 1979-2001



NOTES: Data are plotted on the log scale. See data table for data points graphed and additional notes. See "Appendix B," for the ICD-9-CM diagnosis codes for head and neck injuries.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 17. Head and neck injury hospital discharges among males by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	103	39.0	3.2	140	68.1	5.3	118	39.9	3.2	43	20.2	2.0	24	23.5	2.7
1980	95	36.2	3.1	129	62.3	5.2	113	36.9	3.1	46	21.7	2.2	27	25.9	3.0
1981	96	36.7	3.0	130	63.5	5.0	117	37.1	3.0	49	23.0	2.1	26	24.9	2.5
1982	91	34.8	2.7	115	56.8	4.3	116	35.5	2.7	41	19.6	1.8	26	23.7	2.4
1983	80	30.4	2.2	121	60.7	4.0	105	31.3	2.1	36	16.9	1.5	25	22.7	2.2
1984	84	32.1	1.9	98	49.4	2.8	109	31.4	1.7	27	12.5	1.0	24	21.9	1.8
1985	68	25.7	1.6	95	48.5	2.8	100	28.0	1.6	37	17.6	1.3	23	19.8	1.7
1986	72	27.3	1.6	99	50.8	2.8	102	27.9	1.5	35	16.4	1.2	27	22.8	1.8
1987	65	24.3	1.5	85	44.7	2.6	97	25.8	1.5	27	12.6	1.0	20	17.2	1.5
1988	64	23.8	2.8	76	40.4	4.1	83	21.7	1.9	31	14.1	1.7	19	15.6	2.2
1989	63	23.3	3.3	61	32.9	2.9	88	22.6	2.2	22	9.9	1.4	23	18.5	2.5
1990	44	15.3	2.1	69	36.7	3.1	103	25.6	2.1	25	11.4	1.2	22	18.0	2.3
1991	41	14.1	1.7	60	32.1	2.8	77	18.7	1.9	27	12.0	1.5	25	19.4	2.9
1992	45	15.3	2.0	52	27.8	2.0	76	18.6	1.6	25	10.7	1.1	21	16.0	2.1
1993	34	11.3	1.6	54	29.1	3.5	82	19.9	2.1	27	11.2	1.1	29	22.1	3.1
1994	42	14.0	1.9	41	22.3	2.2	68	16.4	1.6	26	10.7	1.1	24	17.6	2.3
1995	43	14.0	2.0	38	20.6	2.0	72	17.3	1.8	30	12.1	1.6	23	16.7	1.9
1996	36	11.7	1.6	40	21.3	2.3	64	15.3	1.5	27	10.3	1.0	31	22.8	3.6
1997	31	10.0	1.4	43	22.5	2.6	64	15.1	1.8	25	9.2	1.1	23	16.6	2.0
1998	29	9.6	1.5	37	19.0	2.4	54	13.0	1.5	29	10.3	1.2	21	15.2	1.7
1999	23	7.4	1.1	35	18.1	1.7	51	12.4	1.5	28	9.7	1.3	29	20.5	2.0
2000	34	10.9	2.1	38	18.9	2.1	49	11.8	1.2	21	7.3	0.8	29	20.2	2.8
2001	28	9.0	1.4	36	18.2	2.4	48	11.5	1.2	33	10.4	1.1	33	22.3	2.6
Average annual percent change		-7.4			-6.6			-5.6			-4.0			-1.2	
Average percent change		-81.4			-78.0			-71.8			-59.6			-23.3	

SE is standard error.

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 18. Head and neck injury hospital discharges among females by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	54	21.6	2.1	60	28.5	2.7	52	16.7	1.6	29	12.3	1.4	33	22.3	2.4
1980	51	20.5	2.1	55	26.4	2.6	57	18.0	1.8	25	10.7	1.3	32	20.6	2.3
1981	56	22.2	2.0	55	26.5	2.4	52	15.9	1.4	28	11.8	1.2	35	22.4	2.2
1982	44	17.7	1.6	47	23.1	2.1	53	15.6	1.2	23	10.1	1.0	37	22.9	2.2
1983	40	16.0	1.4	42	21.0	1.8	51	14.5	1.2	26	11.3	1.1	36	21.9	1.9
1984	43	17.0	1.2	50	25.4	1.7	47	13.1	0.9	23	10.0	0.8	40	23.8	1.7
1985	40	15.8	1.1	46	23.4	1.6	44	12.0	0.8	22	9.3	0.8	35	20.8	1.5
1986	36	14.2	1.0	39	19.9	1.4	44	11.7	0.8	21	9.0	0.7	39	22.4	1.6
1987	35	13.7	1.0	36	19.0	1.4	41	10.5	0.7	19	8.0	0.7	32	18.1	1.4
1988	26	10.3	1.3	32	17.2	2.1	32	8.2	0.8	18	7.8	1.3	28	15.3	1.9
1989	38	14.6	1.9	28	15.3	1.7	37	9.3	1.2	14	6.0	1.0	21	11.5	1.2
1990	23	8.5	1.1	28	15.1	2.0	32	7.8	0.8	16	6.6	1.0	32	17.4	1.9
1991	25	9.0	1.4	20	10.9	1.6	41	9.8	1.6	14	5.8	0.8	32	17.3	2.1
1992	23	8.0	1.4	20	11.3	1.4	27	6.4	0.8	10	4.2	0.6	34	17.7	1.7
1993	22	7.8	1.4	19	10.3	1.4	24	5.6	0.8	16	6.3	0.9	29	15.2	1.7
1994	22	7.7	1.2	16	9.0	1.7	20	4.8	0.6	14	5.5	0.8	35	18.1	2.5
1995	19	6.4	1.0	18	10.1	1.7	28	6.6	0.9	*8	*2.9	*0.4	32	16.1	1.4
1996	14	4.9	0.8	13	7.5	1.1	19	4.5	0.6	10	3.7	0.7	36	18.2	2.5
1997	21	7.1	1.4	14	7.7	1.3	14	3.4	0.5	12	4.1	0.6	38	19.1	2.1
1998	16	5.4	0.9	11	5.8	1.0	20	4.7	0.7	14	4.6	0.7	35	17.6	1.8
1999	17	5.8	1.0	14	7.2	1.3	22	5.3	0.9	12	3.9	0.7	40	20.1	2.1
2000	14	4.7	0.9	*9	*4.6	*0.8	14	3.4	0.6	14	4.4	0.8	37	18.6	2.1
2001	16	5.5	1.0	13	6.6	1.6	21	4.9	0.7	14	4.3	0.7	42	20.3	1.9
Average annual percent change		-7.2			-7.6			-7.3			-5.9			-1.1	
Average percent change		-80.6			-82.4			-81.3			-73.8			-22.2	

SE is standard error.
*Figure does not meet standard of reliability or precision ("Appendix A," Standards of reliability).

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 17a. Traumatic brain injury hospital discharges among males by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	73	27.8	2.5	72	35.1	3.1	54	18.4	1.7	19	9.2	1.1	12	12.1	1.6
1980	64	24.4	2.3	65	31.3	3.0	49	16.0	1.6	22	10.6	1.3	15	14.3	1.9
1981	62	23.7	2.1	74	36.3	3.1	53	16.8	1.5	24	11.2	1.1	15	14.1	1.6
1982	62	23.7	1.5	58	28.5	1.8	58	17.9	1.1	21	9.8	1.0	16	14.7	1.7
1983	58	21.9	1.7	58	29.2	2.3	52	15.4	1.2	20	9.3	1.0	15	13.6	1.5
1984	59	22.6	1.4	52	26.2	1.7	52	15.1	1.0	16	7.3	0.7	16	14.6	1.3
1985	49	18.7	1.3	53	27.3	1.8	55	15.4	1.0	21	10.1	0.9	16	13.8	1.3
1986	52	19.7	1.3	57	29.4	1.8	51	14.0	0.9	23	10.6	0.9	17	14.3	1.3
1987	49	18.6	1.3	54	28.1	1.9	53	14.2	0.9	16	7.4	0.7	14	11.9	1.1
1988	44	16.4	2.4	42	22.4	2.9	38	9.9	0.9	19	8.6	1.3	12	10.2	1.4
1989	46	16.9	2.6	35	19.1	2.1	40	10.3	1.2	11	4.8	0.7	16	12.7	1.9
1990	31	10.7	1.6	36	19.1	2.2	48	12.0	1.5	13	5.9	0.8	15	11.7	1.8
1991	27	9.4	1.3	31	16.9	2.1	43	10.5	1.4	15	6.8	1.3	20	15.4	2.5
1992	29	9.8	1.4	28	15.1	1.5	34	8.4	1.0	18	7.7	1.0	16	12.2	1.7
1993	25	8.2	1.5	31	17.0	2.8	39	9.4	1.2	16	6.8	0.8	23	17.0	2.6
1994	27	8.8	1.4	22	11.9	1.3	37	8.8	1.3	17	6.7	0.9	17	12.9	2.0
1995	32	10.4	1.9	24	13.0	1.7	37	9.0	1.2	21	8.2	1.3	19	13.8	1.8
1996	22	7.2	1.3	23	12.5	1.8	33	7.9	1.0	16	6.1	0.9	25	18.4	3.3
1997	20	6.6	1.1	25	13.4	2.3	33	7.9	1.2	18	6.7	0.9	16	11.6	1.7
1998	18	5.9	1.1	21	11.1	2.0	27	6.4	0.9	16	5.8	0.8	13	9.3	1.2
1999	12	3.9	0.7	22	11.1	1.3	28	6.8	0.9	17	6.0	1.0	19	13.4	1.8
2000	21	6.8	1.6	18	9.0	1.3	23	5.6	0.7	13	4.3	0.6	18	12.3	1.9
2001	15	4.9	0.8	20	9.8	1.6	26	6.3	0.8	21	6.7	1.0	22	14.8	2.1
Average annual percent change		-7.9			-6.1			-5.3			-3.0			**-0.4	
Average percent change		-83.5			-75.0			-69.9			-49.0			**-8.6	

SE is standard error.
**Not significant.

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 18a. Traumatic brain injury hospital discharges among females by age, 1979-2001

Year	Under 15 years			15-24 years			25-44 years			45-64 years			65 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	40	15.9	1.6	36	17.1	1.8	27	8.8	1.0	14	6.1	0.8	16	10.7	1.4
1980	37	14.7	1.6	32	15.2	1.7	32	10.1	1.1	14	6.0	0.8	16	10.7	1.4
1981	44	17.5	1.6	31	14.9	1.5	25	7.4	0.8	16	6.9	0.8	20	12.5	1.3
1982	31	12.6	1.2	27	13.4	1.3	29	8.5	0.8	14	5.8	0.7	19	11.9	1.3
1983	30	11.8	1.1	28	14.1	1.3	28	8.1	0.8	17	7.2	0.8	18	11.0	1.2
1984	30	12.1	0.9	32	16.2	1.2	26	7.2	0.6	12	5.4	0.5	24	14.3	1.2
1985	30	11.7	0.9	28	14.4	1.1	28	7.5	0.6	14	5.9	0.6	21	12.6	1.1
1986	27	10.7	0.8	24	12.3	1.0	29	7.5	0.6	14	5.9	0.5	26	15.0	1.2
1987	25	9.8	0.8	23	12.3	1.0	22	5.6	0.5	10	4.4	0.5	21	11.8	1.0
1988	20	7.8	1.1	22	12.0	1.8	19	4.9	0.7	12	4.9	1.0	17	9.3	1.4
1989	27	10.4	1.5	15	8.5	1.2	21	5.1	0.8	9	3.8	0.7	13	6.9	0.9
1990	15	5.4	0.8	18	9.7	1.4	19	4.6	0.8	10	4.3	0.8	20	11.0	1.2
1991	16	5.7	1.0	12	6.3	1.2	27	6.4	1.4	*8	*3.3	*0.6	20	10.8	1.4
1992	15	5.3	1.0	12	6.4	1.2	15	3.5	0.6	*5	*2.2	*0.5	24	12.8	1.5
1993	15	5.1	1.0	11	6.1	1.1	14	3.3	0.6	11	4.5	0.7	17	8.7	1.2
1994	14	4.7	0.9	10	5.7	1.3	12	2.9	0.4	10	3.7	0.8	22	11.1	1.7
1995	12	4.1	0.7	13	7.0	1.4	16	3.9	0.7	*6	*2.3	*0.4	23	11.8	1.2
1996	10	3.3	0.6	10	5.4	0.9	11	2.6	0.4	*8	*2.7	*0.6	25	12.9	1.7
1997	13	4.4	1.0	9	5.1	1.0	*8	*1.9	*0.3	*8	*2.8	*0.6	25	12.7	1.8
1998	10	3.4	0.8	*6	*3.3	*0.6	*9	*2.0	*0.4	*8	*2.9	*0.6	22	11.0	1.5
1999	11	3.7	0.7	9	4.9	1.0	13	3.2	0.6	*7	*2.4	*0.5	25	12.3	1.7
2000	9	3.2	0.7	*	*	*	*6	*1.5	*0.3	*7	*2.3	*0.5	23	11.6	1.9
2001	9	3.1	0.8	*	*	*	11	2.6	0.4	*7	*2.1	*0.4	26	12.4	1.4
Average annual percent change		-8.1			-7.1			-7.2			-5.3			**-0.2	
Average percent change		-84.3			-80.4			-80.8			-70.0			**-5.3	

SE is standard error.

*Figure does not meet standard of reliability or precision ("Appendix A," Standards of reliability).
**Not significant

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

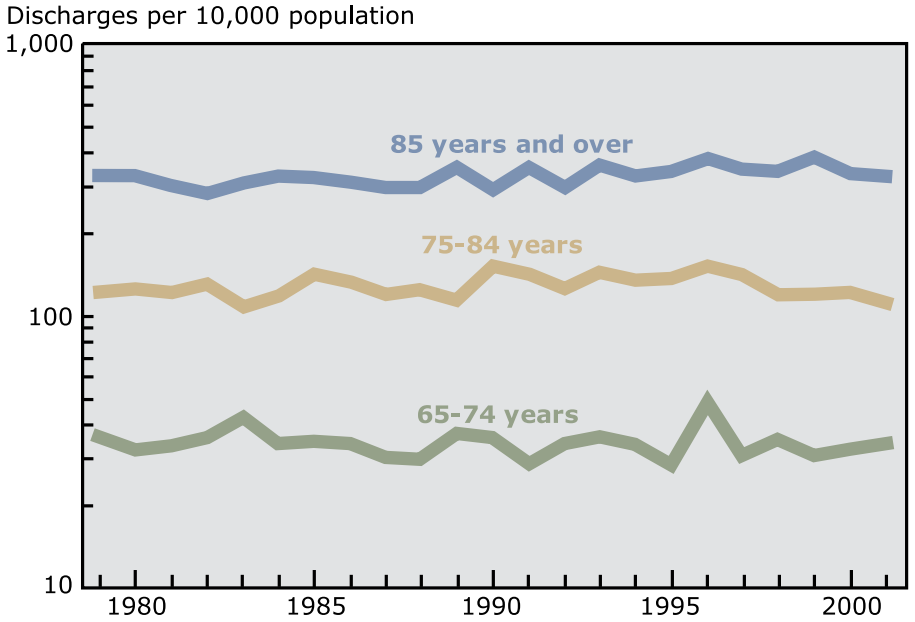
Hip Fractures

When the dimensions of the Barell Matrix are crossed, the cells provide information on both the body region of the injury and the nature of the injury (e.g., hip fractures). Hip fracture discharges accounted for 24 percent of extremity fracture hospital discharges in 1979 and 42 percent in 2001 (data not shown).

When analyzed by age and sex, discharge rates for hip fractures were consistently higher for females 65 years and over than for males (data not shown). Among females 65 years and over, hip fractures accounted for the majority of all extremity fractures (Appendix table 19a). From 1979 to 2001 females 85 years of age and over had the highest discharge rate for hip fractures, approximately 2 to 3 times the rate among females 75–84 years and 10 times the rate among females 65–74 years of age.

From 1979 to 2001, hospital discharge rates for hip fractures among females remained relatively unchanged among those 65–74 and 75–84 years of age. However, among those 85 years and over the rate increased on average 0.7 percent per year (for a total increase of 16 percent) to 336.5 per 10,000 population in 2001.

Figure 19. Hip fracture hospital discharge rates among females 65 years and over by age, 1979-2001



NOTES: Data are plotted on the log scale. See data table for data points graphed and additional notes. ICD-9-CM code for hip fracture is 820.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 19. Hip fracture hospital discharges among females 65 years and over by age, 1979-2001

Year	65 years and over			65-74 years			75-84 years			85 years and over		
	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE	Number in thousands	Rate	Rate SE
1979	139	93.1	7.3	31	36.0	3.9	58	121.9	11.4	50	328.4	31.8
1980	143	93.0	7.6	29	32.2	3.7	62	126.5	12.2	52	330.0	33.1
1981	142	90.3	7.1	30	33.6	3.3	61	122.0	10.8	50	303.6	27.6
1982	149	93.1	6.7	33	36.2	3.5	67	130.5	9.9	49	283.6	25.1
1983	152	92.6	5.7	39	42.3	3.7	57	108.3	8.5	55	307.8	24.4
1984	158	94.5	4.7	32	34.3	2.6	65	118.7	7.4	61	329.3	20.9
1985	175	102.7	5.1	33	34.6	2.6	80	143.0	8.6	62	325.1	20.7
1986	172	98.9	4.7	33	34.2	2.5	77	134.4	7.8	62	314.1	19.3
1987	162	91.4	4.6	30	30.5	2.4	72	121.6	7.5	60	298.6	19.2
1988	166	92.2	5.9	30	30.0	3.7	75	123.8	10.1	62	297.4	25.3
1989	184	100.1	6.1	38	37.5	4.1	70	113.7	8.9	76	355.5	30.3
1990	194	105.2	8.4	36	35.7	4.2	95	152.5	16.5	63	290.9	25.0
1991	199	106.5	6.9	29	28.8	3.4	91	143.5	12.4	79	351.4	37.9
1992	186	97.6	7.6	35	34.3	4.6	82	126.3	10.3	69	295.7	27.2
1993	219	113.5	9.1	37	35.8	3.4	96	146.5	14.5	86	356.5	31.7
1994	209	107.6	7.5	35	33.8	3.6	91	136.8	10.7	84	332.6	34.8
1995	211	107.6	7.7	29	28.5	3.1	93	138.7	13.1	88	341.4	29.8
1996	254	128.4	8.1	49	47.7	5.8	104	151.9	9.2	101	377.0	31.3
1997	227	114.3	7.5	31	30.8	3.6	101	144.1	11.5	95	346.7	28.8
1998	217	108.6	7.1	35	35.3	4.0	85	119.8	10.6	96	339.4	28.6
1999	230	114.8	8.4	30	30.7	4.4	87	121.0	9.4	112	385.3	36.5
2000	221	110.0	8.5	32	32.4	5.1	89	122.7	10.1	100	335.1	32.3
2001	225	108.5	7.3	34	34.2	3.7	86	113.4	9.8	104	336.5	28.2
Average annual percent change		1.2			**-0.3			**0.3			0.7	
Average percent change		29.1			**-5.7			**6.5			15.9	

SE is standard error.
**Not significant.

NOTES: Hip fracture - ICD-9-CM code 820.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).
Rate per 10,000 civilian resident population.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 19a. Extremity fracture hospital discharges among females 65 years and over by body region, 1979-2001

Year	Upper extremity			Lower extremity					
				Hip			Other lower extremity		
	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE
1979	55	22.8	1.4	139	57.4	1.9	48	19.9	1.3
1980	59	23.8	1.5	143	57.9	2.0	45	18.3	1.3
1981	53	22.3	1.2	142	59.2	1.6	44	18.5	1.0
1982	54	21.8	0.7	149	60.0	1.7	45	18.2	1.1
1983	57	23.0	1.3	152	60.7	1.7	41	16.3	1.1
1984	55	21.1	1.0	158	60.3	1.4	49	18.6	0.9
1985	48	17.9	0.9	175	65.5	1.3	44	16.6	0.9
1986	37	14.4	0.8	172	67.0	1.3	47	18.5	0.9
1987	39	15.9	0.9	162	65.9	1.4	45	18.3	0.9
1988	33	13.7	1.3	166	69.0	1.9	42	17.3	1.4
1989	33	12.3	1.1	184	69.1	2.0	49	18.6	1.9
1990	38	13.5	1.1	194	69.3	2.1	48	17.2	1.5
1991	32	11.4	1.1	199	71.4	1.7	48	17.3	1.4
1992	36	13.6	1.4	186	69.3	2.0	46	17.1	1.5
1993	36	11.7	1.1	219	70.4	1.7	56	17.9	1.6
1994	33	11.0	1.1	209	69.9	1.6	57	19.1	1.2
1995	41	13.5	1.1	211	69.9	1.7	50	16.6	1.4
1996	40	11.4	1.0	254	72.8	1.5	55	15.8	1.2
1997	44	13.3	1.1	227	67.9	1.7	63	18.8	1.6
1998	40	12.9	1.1	217	69.9	1.7	54	17.3	1.4
1999	45	13.6	1.2	230	69.1	1.6	57	17.3	1.4
2000	40	12.6	1.2	221	69.5	1.7	57	17.9	1.2
2001	49	14.6	1.4	225	67.5	1.6	59	17.9	1.1
Average annual percent change		-3.5			0.8			**-0.2	
Average percent change		-54.3			18.9			**-5.0	

SE is standard error.
** Not significant.
NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes in each category.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

External Cause of Injury

The ICD-9 External Cause Matrix is a two-dimensional array describing both the mechanism or external cause of the injury (e.g., fall, motor vehicle traffic, etc.) and the manner or intent of the injury (e.g., self-inflicted, assault, etc.). (See "Appendix A," ICD-9-CM External Cause of Injury Matrix). While this matrix was originally developed for mortality, it has been adapted for use with the ICD-9-CM (1).

In 2001 approximately one third of injury hospitalizations did not have an external cause code. Of all injury hospitalizations, 30 percent were coded to falls, the leading mechanism of injury coded (figure 20), and, in addition, 58 percent of all injuries were coded as unintentional or accidents (figure 21).

Fractures accounted for about a million injury hospital discharges. Forty-five percent of fractures were coded as fall-related, 9 percent as motor vehicle traffic-related, 12 percent as another external cause, and 34 percent had no external cause of injury code (appendix table 20c).

In 2001, 1.2 million patients, or 68 percent of patients hospitalized due to injury, had at least one recorded external cause code (appendix table 20a). This percent was similar for males and females, and for white and black persons. In the West over three-quarters had these codes. In the Northeast and Midwest external cause codes were recorded for about two-thirds of the injury discharges, and over 60 percent of discharges in the South contained at least one of these codes. The elderly had a lower percentage of injury discharges with an external cause code than those 15–24, 25–44, and 45–64 years of age (appendix table 20f).

Reference

1. Recommended framework of E-code groupings for presenting injury mortality and morbidity data. May 15, 2003. See http://www.cdc.gov/ncipc/whatsnew/matrix2.htm and "Appendix C," ICD-9-CM External Cause of Injury Matrix.

Figure 20. Percent distribution of injury hospital discharges by mechanism, 2001

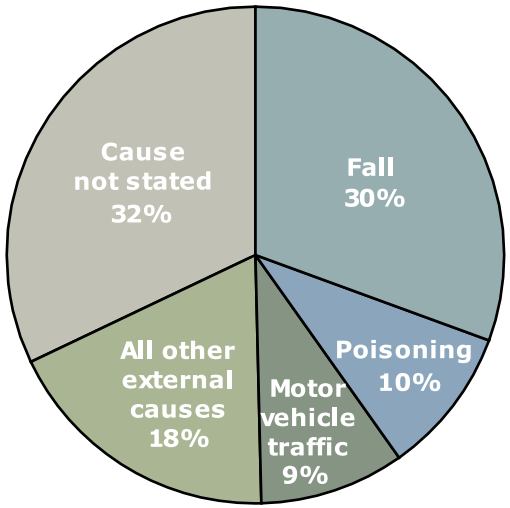
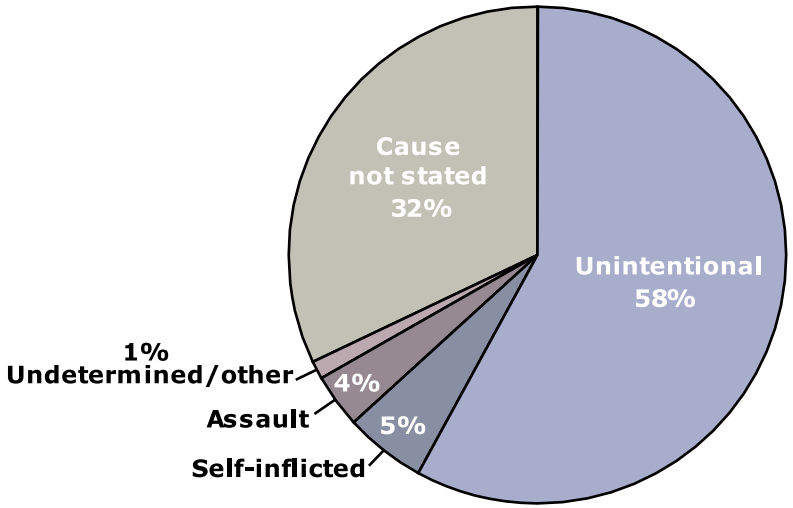


Figure 21. Percent distribution of injury hospital discharges by intent, 2001



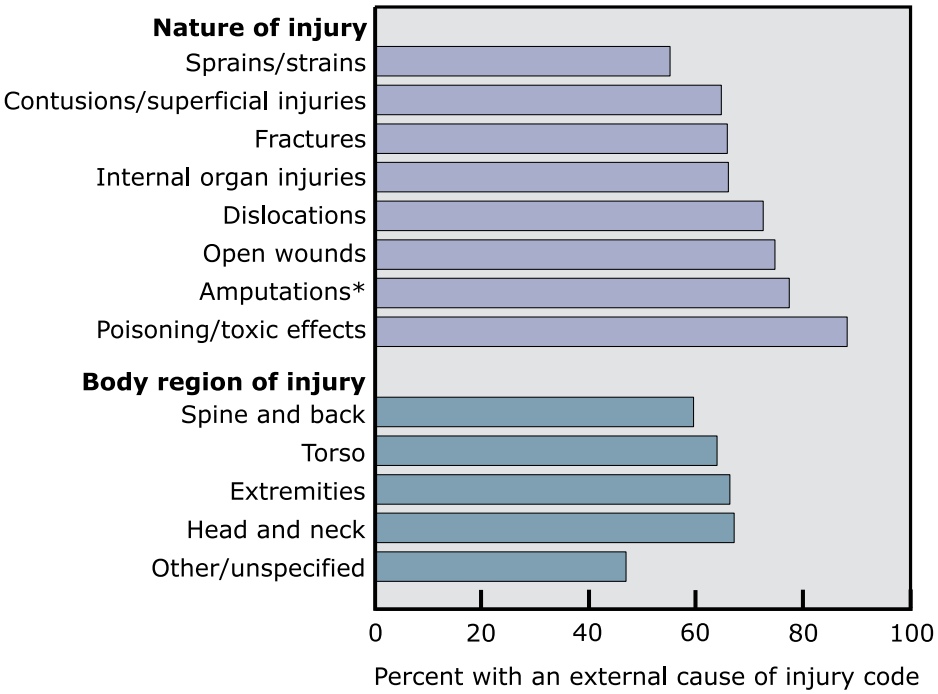
NOTES: See "Appendix A," External cause of injury code. See "Appendix C" for the ICD-9-CM external cause codes in each category.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

External Cause of Injury

There was considerable variation among the various types of injuries in the completion of external cause codes (figure 22). Only 55 percent of sprains and strains had an external cause compared with about 88 percent of those with poisoning and toxic effects. Other categories with at least two-thirds external cause completion were open wounds and dislocations.

Figure 22. Percent of injury hospital discharges with an external cause of injury code, by nature of injury diagnosis and body region of injury, 2001



*Data do not meet standard of reliability.

NOTES: See data table for data points graphed and additional notes. See "Appendix A," External cause of injury code. See "Appendix B" for the ICD-9-CM diagnosis codes in each category.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 20. Injury hospital discharges by mechanism, 2001

External cause	Number in thousands	Percent	Percent SE
Total	1,814	100.0	---
Fall	553	30.5	1.5
Poisoning	177	9.8	0.5
Motor vehicle traffic	171	9.4	0.5
All other external causes	333	18.4	0.8
Cause not stated	580	32.0	1.9

Data table for figure 21. Injury hospital discharges by intent, 2001

Intent	Number in thousands	Percent	Percent SE
Total	1,814	100.0	---
Unintentional	1,049	57.9	1.9
Self-inflicted	97	5.4	0.4
Assault	65	3.6	0.4
Undetermined/other	22	1.2	0.2
Cause not stated	580	32.0	1.9

--- Category not applicable.

SE is standard error.

NOTES: See "Appendix A," External cause of injury code.
See "Appendix C" for the ICD-9-CM external cause codes in each category.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 22. Injury hospital discharges with an external cause of injury code, by nature of injury diagnosis and body region of injury, 2001

Nature of injury and body region of injury	Number in thousands	Percent	Percent SE
Nature of injury			
Fractures	658	65.9	2.2
Dislocations	15	72.6	5.5
Sprains and strains	30	55.2	5.0
Internal organ injuries	137	66.1	2.7
Open wounds	70	74.8	3.0
Amputations	*5	*77.5	*8.0
Blood vessel injuries	*	*	*
Contusions and superficial injuries	43	64.8	5.2
Crush injuries	*	*	*
Burns	*	*	*
Nerve injuries	*	*	*
Unspecified injuries	20	57.3	6.9
Poisoning and toxic effects	182	88.3	1.6
Body region of injury			
Head and neck	190	67.2	2.4
Spine and back	54	59.6	3.7
Torso	139	64.0	2.9
Extremities	615	66.4	2.2
Other and unspecified	20	47.0	8.9

SE is standard error.
* Figure does not meet standard of reliability or precision ("Appendix A," Standards of reliability).

NOTES: See "Appendix A," External cause of injury code.
See "Appendix B" for the ICD-9-CM diagnosis codes in each category.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 20a. Injury hospital discharges with an external cause of injury code, 1979-2001

Year	External cause of injury code		
	Number in thousands	Percent	Percent SE
1979	469	14.2	0.6
1980	518	16.0	0.7
1981	538	16.8	0.6
1982	603	19.0	0.7
1983	600	19.7	0.6
1984	631	20.8	0.5
1985	656	23.1	0.6
1986	752	27.4	0.6
1987	789	31.1	0.7
1988	786	33.9	1.8
1989	825	35.7	1.9
1990	868	39.2	2.0
1991	829	38.2	2.1
1992	781	37.6	2.1
1993	872	42.0	2.3
1994	932	47.5	2.4
1995	1,039	53.7	2.5
1996	1,217	64.5	2.0
1997	1,153	63.3	2.1
1998	1,186	66.2	1.9
1999	1,203	66.1	2.2
2000	1,169	66.6	1.9
2001	1,233	68.0	1.9
Average annual percent change		7.7	
Average percent change		413.6	

SE is standard error.

NOTES: See "Appendix A," External cause of injury code.
There were a small number of ICD-9-CM coding changes over the study period and they minimally affected the total number of external cause codes ("Appendix A," ICD-9-CM addenda affecting injuries).
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 20b. System wide injury hospital discharges by mechanism and intent, 2001

Mechanism and intent	Number in thousands	Percent	Percent SE
Mechanism			
Total	255	100.0	---
Poisoning	174	68.4	2.3
All other mechanisms	41	16.1	1.8
External cause not stated	40	15.6	1.8
Intent			
Total	255	100.0	---
Unintentional	108	42.2	2.3
Self-inflicted	88	34.4	2.2
All other intent categories	20	7.8	1.2
External cause not stated	40	15.6	1.8

Appendix table 20c. Fracture hospital discharges by mechanism, 2001

Mechanism	Number in thousands	Percent	Percent SE
Total	999	100.0	---
Fall	449	45.0	2.1
Motor vehicle traffic	88	8.8	0.6
All other mechanisms	121	12.1	0.7
External cause not stated	341	34.1	2.2

--- Category not applicable.

SE is standard error.

NOTES: See "Appendix A," External cause of injury code.
See "Appendix B" for the ICD-9-CM diagnosis codes.
See "Appendix C" for the ICD-9-CM external cause codes in each category.
System wide injuries include poisoning, toxic effects, foreign bodies, early complications of trauma, other and unspecified effects of external causes, late effects of injury, poisoning, toxic effects, and other external causes, and child and adult maltreatment.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 20d. Poisoning and toxic effects hospital discharges by intent, 2001

Intent	Number in thousands	Percent	Percent SE
Total poisoning and toxic effects discharges[1]	206	100.0	---
Unintentional	79	38.2	2.3
Self-inflicted	87	42.2	2.3
Undetermined	16	7.8	1.4
Other[2]	*	*	*
Cause not stated	24	11.7	1.6

Appendix table 20e. Poisoning and toxic effects hospital discharges by mechanism, 2001

Mechanism	Number in thousands	Percent	Percent SE
Total poisoning and toxic effects discharges[1]	206	100.0	---
Poisoning[3]	174	84.4	1.9
All other mechanisms[3]	*8	*3.9	*1.0
Cause not stated[3]	24	11.7	1.6

--- Category not applicable.
* Figure does not meet standard of reliability or precision. ("Appendix A," Standards of reliability).
SE is standard error.
[1]First-listed diagnosis.
[2]Assault, legal intervention, and operations of war.
[3]External cause.

NOTES: See "Appendix A," External cause of injury code.
See "Appendix B" for the ICD-9-CM diagnosis codes.
See "Appendix C" for the ICD-9-CM external cause codes in each category.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 20f. Injury hospital discharges with an external cause of injury code by selected patient characteristics, 2001

Characteristic	Number in thousands	Percent	Percent SE
Sex			
Male	613	70.2	2.1
Female	621	66.0	2.1
Age groups			
Under 15 years	137	73.1	6.1
15-24 years	153	73.4	2.8
25-44 years	287	76.1	1.9
45-64 years	226	69.8	2.4
65 years and over	430	60.1	2.4
Race			
White	772	66.6	2.2
Black	131	72.5	2.7
Other	42	64.4	5.9
Not stated	288	70.5	4.3
Region			
West	267	78.2	3.4
South	423	62.2	2.6
Midwest	303	70.8	4.8
Northeast	241	66.1	4.6
Total	1,233	100.0	---

--- Category not applicable.
SE is standard error.

NOTES: See "Appendix A," Geographic region.
See "Appendix A," External cause of injury code.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

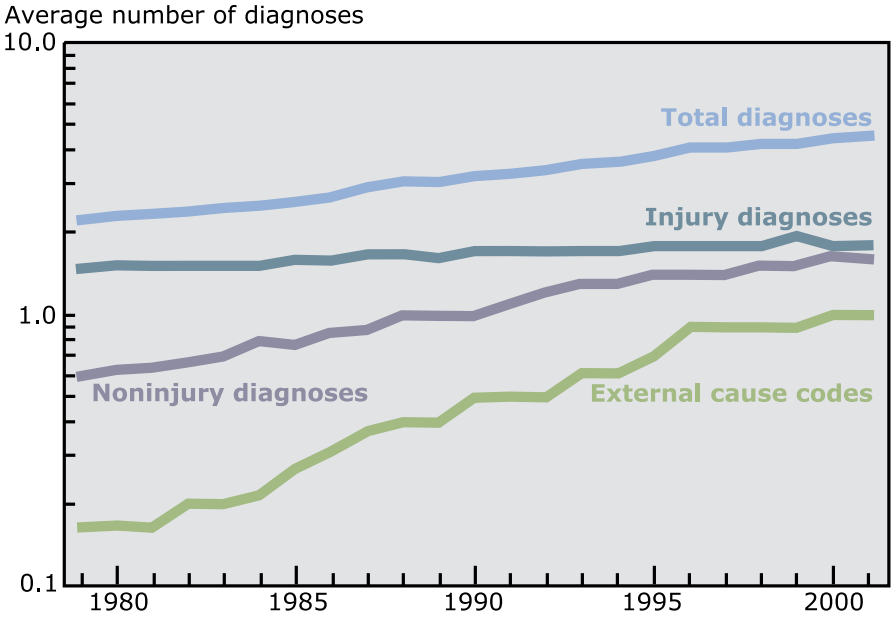
Average Number of Diagnoses

Most of this report is based on hospitalizations with a first-listed injury diagnosis, but the National Hospital Discharge Survey (NHDS) also gathers data on up to six additional diagnoses. For this figure, average number of diagnoses was obtained by dividing the total number of diagnoses (all listed) by the number of discharges. From 1979 to 2001 the average number of total diagnoses for injury discharges doubled from 2.2 diagnoses to 4.5 diagnoses per discharge, as compared with the increase from 2.2 to 3.9 diagnoses per noninjury discharge.

Starting in the late 1980's the average number of total diagnoses for injury discharges was consistently higher than the average number of total diagnoses for noninjury discharges. This difference is due to increases in injury and noninjury diagnoses as well as to increases in external cause codes among injury discharges.

From 1979 to 2001 the average number of injury diagnoses per injury discharge increased on average 1.0 percent per year (for a total increase of 24 percent) from 1.5 to 1.8 diagnoses per injury discharge. There was also an increase in the average number of noninjury diagnoses (0.6 to 1.7 diagnoses) and in external cause codes (0.2 to 1.0 diagnoses) for injury discharges.

Figure 23. Average number of diagnoses among injury hospital discharges, 1979-2001



NOTES: Data are ploted on the log scale. Average number of diagnoses is age adjusted using the 2000 standard population ("Appendix A," Age adjustment). See data table for data points graphed and additional notes. See "Table 1" for the ICD-9-CM codes in each category. External cause codes for this figure are all codes from E800-E999. Average number of total diagnoses among injury discharges include injury diagnoses codes, external cause codes, and noninjury codes.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 23. Average number of diagnoses for injury and noninjury hospital discharges, 1979-2001

Year	Total diagnoses for injury discharges		Injury only diagnoses for injury discharges		External cause codes for injury discharges (E800-E999)		Noninjury diagnoses for injury discharges		Total diagnoses for noninjury discharges	
	Mean	Mean SE	Mean	Mean SE	Mean	Mean SE	Mean	Mean SE	Mean	Mean SE
1979	2.2	0.18	1.5	0.12	0.2	0.02	0.6	0.05	2.2	0.12
1980	2.3	0.20	1.5	0.13	0.2	0.02	0.6	0.06	2.2	0.14
1981	2.3	0.18	1.5	0.12	0.2	0.02	0.6	0.06	2.3	0.13
1982	2.4	0.17	1.5	0.11	0.2	0.02	0.7	0.06	2.3	0.12
1983	2.4	0.15	1.5	0.10	0.2	0.02	0.7	0.05	2.4	0.11
1984	2.5	0.13	1.5	0.08	0.2	0.02	0.8	0.05	2.6	0.08
1985	2.6	0.13	1.6	0.09	0.3	0.02	0.8	0.05	2.6	0.09
1986	2.7	0.13	1.6	0.08	0.3	0.02	0.8	0.05	2.7	0.09
1987	2.9	0.20	1.7	0.12	0.4	0.03	0.9	0.07	2.8	0.14
1988	3.1	0.05	1.7	0.02	0.4	0.02	1.0	0.02	2.9	0.02
1989	3.1	0.05	1.6	0.02	0.4	0.02	1.0	0.03	3.0	0.03
1990	3.2	0.05	1.7	0.02	0.5	0.02	1.0	0.02	3.0	0.03
1991	3.3	0.06	1.7	0.02	0.5	0.03	1.1	0.03	3.1	0.03
1992	3.3	0.06	1.7	0.03	0.5	0.03	1.2	0.03	3.1	0.03
1993	3.5	0.06	1.7	0.03	0.6	0.03	1.3	0.03	3.2	0.04
1994	3.7	0.06	1.7	0.03	0.6	0.03	1.3	0.03	3.3	0.04
1995	3.9	0.07	1.8	0.04	0.7	0.03	1.4	0.03	3.4	0.04
1996	4.1	0.07	1.8	0.03	0.9	0.03	1.4	0.04	3.5	0.04
1997	4.1	0.07	1.8	0.03	0.9	0.03	1.4	0.03	3.6	0.03
1998	4.2	0.07	1.8	0.04	0.9	0.03	1.5	0.03	3.7	0.04
1999	4.2	0.08	1.9	0.04	0.9	0.04	1.5	0.04	3.7	0.04
2000	4.4	0.07	1.8	0.04	1.0	0.04	1.6	0.04	3.8	0.04
2001	4.5	0.07	1.8	0.03	1.0	0.04	1.7	0.03	3.9	0.04
Average annual percent change	3.3		1.0		9.2		4.6		2.4	
Average percent change	106.5		24.0		599.7		168.2		68.8	

SE is standard error.

NOTES: Average number of diagnoses is age adjusted using the 2000 standard population ("Appendix A", Age adjustment).
Dividing the total number of diagnoses (a maximum of seven are collected on the abstract form) by the number of discharges yields the average number of diagnoses for each patient.
See table 1 for the ICD-9-CM codes in each category.
See "Appendix A," External cause of injury code.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 23a. Total number of diagnoses coded for injury hospital discharges, 1979-2001

Year	1-2 diagnoses			3-5 diagnoses			6-7 diagnoses		
	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE
1979	2,213	67.0	1.1	913	27.7	0.9	176	5.3	0.3
1980	2,125	65.5	1.1	918	28.3	0.9	201	6.2	0.4
1981	2,064	64.5	1.0	919	28.7	0.8	216	6.7	0.3
1982	1,998	63.0	1.0	936	29.5	0.8	237	7.5	0.4
1983	1,873	61.6	0.9	923	30.4	0.8	243	8.0	0.3
1984	1,767	58.3	0.7	972	32.1	0.6	290	9.6	0.3
1985	1,592	55.9	0.7	962	33.8	0.7	293	10.3	0.3
1986	1,460	53.2	0.7	958	34.9	0.7	325	11.9	0.4
1987	1,248	49.2	0.7	929	36.6	0.7	360	14.2	0.5
1988	1,044	45.0	1.2	917	39.5	0.9	360	15.5	0.7
1989	997	43.2	1.1	947	41.0	1.0	365	15.8	0.9
1990	867	39.2	1.0	964	43.5	0.9	383	17.3	0.8
1991	784	36.2	1.2	970	44.7	1.0	414	19.1	0.9
1992	745	35.8	1.1	911	43.8	1.0	423	20.3	1.1
1993	652	31.4	1.3	903	43.5	1.1	520	25.1	1.2
1994	559	28.4	1.0	845	43.0	0.8	561	28.6	1.0
1995	479	24.8	1.2	828	42.9	0.9	625	32.4	1.4
1996	392	20.8	1.3	807	42.8	1.0	686	36.4	1.3
1997	370	20.3	1.4	749	41.2	1.2	702	38.5	1.1
1998	338	18.9	1.2	728	40.6	1.0	726	40.5	1.1
1999	363	20.0	1.8	675	37.1	1.3	780	42.9	1.5
2000	272	15.5	1.3	689	39.2	1.1	795	45.2	1.3
2001	279	15.4	1.4	668	36.9	1.0	866	47.7	1.4
Average annual percent change		-5.8			1.9			10.7	
Average percent change		-72.8			51.0			841.2	

SE is standard error.

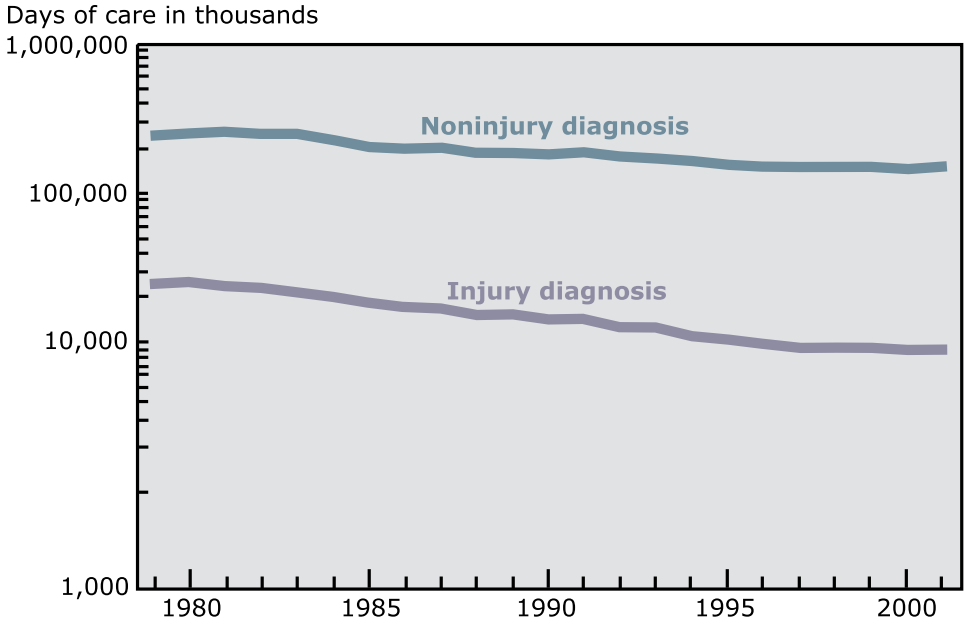
NOTES: Average annual percent change is from 1979-2001 ("Appendix A," Test of trend). Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Days of Care

From 1979 to 2001 the total number of days of hospital care decreased for both injury (24.8 to 9.0 million days of care per year) and noninjury discharges (239 to 150 million days of care per year) on average 5.2 and 2.8 percent per year, respectively (for total decreases of 69 and 46 percent). The total days of care for injury hospitalizations accounted for 9 percent of the total days of care for all hospitalizations in 1979 and for 6 percent in 2001.

Figure 24. Number of days of care for injury and noninjury hospital discharges, 1979-2001



NOTES: Data are plotted on the log scale. See data table for data points graphed and additional notes and "table 1" for the ICD-9-CM codes in each category.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 24. Number of days of care for injury and noninjury hospital discharges, 1979-2001

Year	Noninjury		Injury diagnosis	
	Number in thousands	SE	Number in thousands	SE
1979	239,419	8,792	24,755	1,278
1980	249,473	11,421	25,036	1,479
1981	253,197	7,695	24,033	1,055
1982	249,424	7,996	23,203	1,074
1983	246,656	7,964	21,682	971
1984	224,301	4,409	20,351	663
1985	207,638	5,437	18,579	684
1986	201,186	4,680	17,310	582
1987	198,362	7,985	16,580	901
1988	188,456	6,528	15,221	676
1989	185,784	6,348	15,042	710
1990	183,017	5,180	14,405	559
1991	184,628	5,558	14,471	722
1992	177,768	5,341	12,618	628
1993	171,823	5,622	12,778	708
1994	166,198	5,429	10,981	520
1995	154,093	5,184	10,534	559
1996	150,064	4,929	9,819	494
1997	148,373	5,045	9,085	443
1998	151,763	5,223	9,151	477
1999	150,885	5,198	9,243	571
2000	146,852	6,396	9,005	514
2001	150,405	5,556	8,959	463
Average annual percent change	-2.8		-5.2	
Average percent change	-46.0		-69.3	

SE is standard error.

NOTES: See "table 1" for the ICD-9-CM codes in each category.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 24a. Number of days of care for injury hospital discharges by nature of injury diagnosis, 1979-2001

Year	Fractures		Internal organ injuries		Sprains and strains		Open wounds		System wide injuries		All other injuries	
	Number in thousands	SE	Number in thousands	SE	Number in thousands	SE	Number in thousands	SE	Number in thousands	SE	Number in thousands	SE
1979	12,366	715	2,392	188	3,077	231	1,535	131	1,492	128	3,894	279
1980	12,583	819	2,500	209	2,845	233	1,505	137	1,489	136	4,114	318
1981	12,082	596	2,541	170	2,818	184	1,537	113	1,521	112	3,533	221
1982	11,403	596	2,575	179	2,861	195	1,594	121	1,621	123	3,149	211
1983	11,141	551	2,237	145	2,602	164	1,278	91	1,581	109	2,844	177
1984	10,373	393	2,128	118	2,245	123	1,278	80	1,617	95	2,710	141
1985	9,864	403	2,328	122	1,826	100	1,050	64	1,273	74	2,239	118
1986	9,410	353	2,191	107	1,477	78	1,132	63	1,173	65	1,927	97
1987	9,403	556	2,169	161	1,159	95	861	75	1,242	100	1,746	134
1988	8,558	414	1,962	171	771	53	811	89	1,279	98	1,841	170
1989	8,691	439	2,139	225	666	63	728	54	1,169	77	1,650	168
1990	8,435	384	1,894	144	599	55	857	63	1,030	62	1,590	193
1991	8,733	479	1,840	151	629	58	833	208	940	63	1,495	225
1992	7,842	461	1,512	134	495	53	576	54	1,039	86	1,154	128
1993	7,594	504	1,791	204	415	47	503	43	1,012	80	1,463	183
1994	6,908	393	1,437	114	326	31	424	33	973	75	914	77
1995	6,254	373	1,734	189	283	32	463	49	793	52	1,008	155
1996	5,952	307	1,596	167	279	45	362	32	914	86	717	71
1997	5,786	321	1,196	110	240	35	423	58	761	57	679	73
1998	5,561	296	1,139	88	183	22	336	33	798	95	1,134	229
1999	5,472	338	1,542	146	181	25	351	41	657	53	1,041	255
2000	5,658	370	1,164	98	154	17	300	33	724	67	1,004	199
2001	5,369	300	1,269	102	165	32	291	37	775	58	1,090	257
Average annual percent change	-4.1		-3.6		-14.8		-8.4		-4.1		-8.6	
Average percent change	-60.1		-55.5		-97.1		-85.4		-59.8		-86.1	

SE is standard error.

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes in each category.
System wide injuries include poisoning, toxic effects, foreign bodies, early complications of trauma, other and unspecified effects of external causes, late effects of injury, poisoning, toxic effects, other external causes, and child and adult maltreatment.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 24b. Number of days of care for injury hospital discharges by body region of injury, 1979-2001

Year	Extremities		Head and neck		Torso		Spine and back		Other and unspecified	
	Number in thousands	SE	Number in thousands	SE	Number in thousands	SE	Number in thousands	SE	Number in thousands	SE
1979	12,408	717	3,325	246	4,139	294	2,045	166	1,345	118
1980	12,957	840	3,289	263	4,124	318	1,838	162	1,338	124
1981	12,028	594	3,374	213	3,951	242	1,882	133	1,277	98
1982	11,485	600	3,053	205	4,039	257	1,779	133	1,226	98
1983	10,763	536	2,864	178	3,430	207	1,843	124	1,201	87
1984	10,179	388	2,615	138	3,140	158	1,629	96	1,170	75
1985	9,295	383	2,576	132	2,800	142	1,872	102	762	49
1986	8,727	332	2,552	121	2,631	124	1,461	77	767	46
1987	8,209	496	2,462	178	2,618	188	1,453	114	596	55
1988	7,970	394	2,126	168	2,003	127	1,142	100	700	109
1989	7,802	394	2,307	246	2,220	179	984	98	560	143
1990	7,705	380	1,933	148	2,254	197	981	87	502	97
1991	7,986	454	2,028	191	1,946	117	1,136	136	435	164
1992	6,743	378	1,742	170	1,839	132	881	79	374	84
1993	6,755	435	1,969	236	1,692	129	857	99	493	160
1994	5,977	322	1,589	139	1,375	90	788	94	281	46
1995	5,388	329	1,690	175	1,682	150	622	62	361	109
1996	5,093	264	1,597	145	1,438	125	610	60	168	34
1997	4,974	280	1,329	126	1,229	92	698	77	94	16
1998	4,784	269	1,426	135	1,218	90	590	69	*	*
1999	4,616	267	1,469	165	1,525	137	620	77	*	*
2000	4,860	344	1,303	114	1,381	117	484	44	*	*
2001	4,569	256	1,469	140	1,184	101	614	71	*	*
Average annual percent change	-4.9		-4.5		-6.1		-6.8		-11.1	
Average percent change	-67.2		-63.4		-74.9		-78.5		-92.5	

SE is standard error.
* Figure does not meet standard of reliability or precision ("Appendix A," Standards of reliability).

NOTES: See "Appendix B" for the ICD-9-CM diagnosis codes in each category.
"Other and unspecified" does not include system wide injuries. Those estimates are in appendix table 24a.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Average Length of Stay by Age and Sex

From 1979 to 2001 the average length of stay (ALOS) for patients hospitalized for injury was longer for those 65 years and over compared with those under 65 years of age. The ALOS for those 65 years and over decreased on average 4.4 percent per year (for a total decline of 63 percent) to 6.1 days in 2001, and the ALOS for those under 65 decreased on average only 1.9 percent per year (for a total decrease of 34 percent) to 4.2 days.

For most years the average length of stay for males and females was similar. From 1979 to 2001 the ALOS decreased a total of 38 percent for males and 46 percent for females.

Figure 25. Average length of stay in days for injury hospital discharges by age, 1979-2001

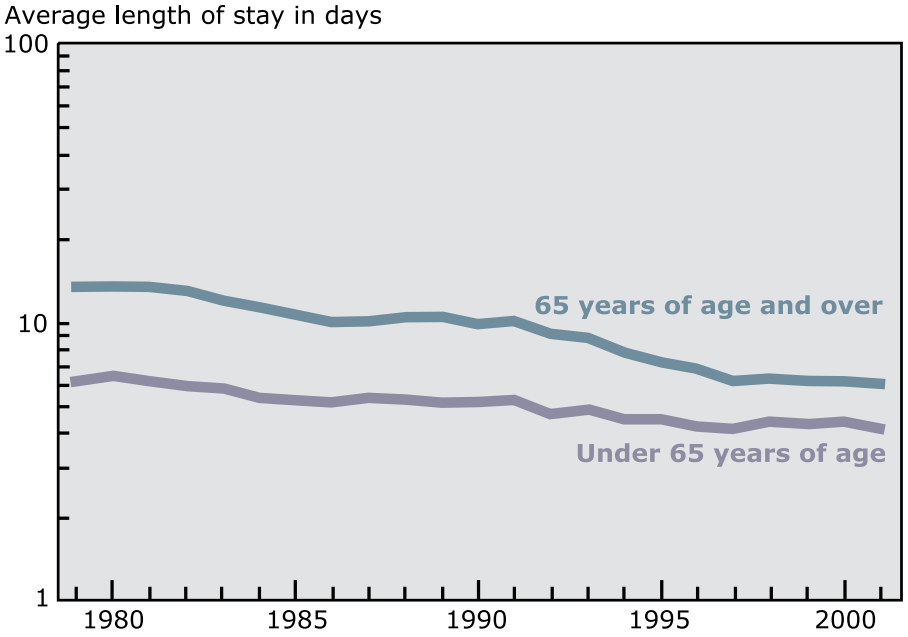
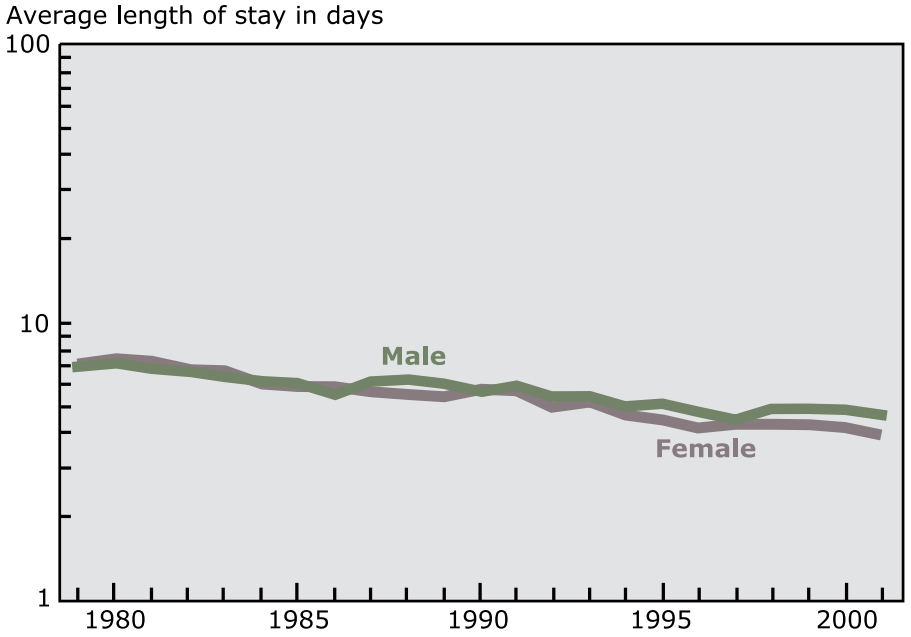


Figure 26. Average length of stay in days for injury hospital discharges by sex, 1979-2001



NOTES: Data are plotted on the log scale. See data table for data points graphed and additional notes. In figure 26 average length of stay in days is age adjusted using the 2000 standard population ("Appendix A", Age adjustment).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figures 25 and 26. Average length of stay in days for injury hospital discharges by age and sex, 1979-2001

Year	Under 65 years of age		65 years of age and over		Male		Female	
	Mean	Mean SE	Mean	Mean SE	Mean	Mean SE	Mean	Mean SE
1979	6.2	0.4	13.6	1.2	7.0	0.5	7.2	0.6
1980	6.4	0.5	13.5	1.3	7.1	0.6	7.5	0.6
1981	6.1	0.5	13.5	1.1	6.8	0.5	7.3	0.6
1982	5.9	0.4	12.9	1.0	6.7	0.5	6.9	0.5
1983	5.8	0.3	12.1	0.8	6.4	0.4	6.7	0.4
1984	5.4	0.3	11.3	0.6	6.2	0.3	6.1	0.3
1985	5.3	0.3	10.7	0.6	6.0	0.3	5.9	0.3
1986	5.2	0.2	10.1	0.5	5.6	0.3	5.8	0.3
1987	5.4	0.4	10.2	0.5	6.1	0.4	5.6	0.4
1988	5.3	0.1	10.5	0.2	6.2	0.2	5.5	0.2
1989	5.2	0.2	10.4	0.3	6.1	0.2	5.5	0.1
1990	5.2	0.1	9.9	0.3	5.7	0.2	5.8	0.2
1991	5.3	0.2	10.0	0.3	5.9	0.2	5.6	0.3
1992	4.7	0.2	9.2	0.3	5.4	0.2	5.0	0.2
1993	4.9	0.2	8.8	0.3	5.4	0.2	5.2	0.2
1994	4.5	0.1	7.8	0.2	5.0	0.2	4.7	0.2
1995	4.5	0.2	7.2	0.2	5.1	0.2	4.5	0.2
1996	4.3	0.1	6.8	0.2	4.7	0.2	4.2	0.2
1997	4.2	0.1	6.2	0.2	4.5	0.1	4.3	0.2
1998	4.4	0.2	6.3	0.2	4.9	0.2	4.3	0.2
1999	4.4	0.2	6.2	0.2	4.8	0.3	4.3	0.3
2000	4.4	0.2	6.2	0.3	4.9	0.2	4.2	0.2
2001	4.2	0.2	6.1	0.2	4.7	0.2	4.0	0.1
Average annual percent change	-1.9		-4.4		-2.1		-2.7	
Average percent change	-34.0		-63.0		-37.6		-45.5	

SE is standard error.

NOTES: Data by sex is age adjusted using the 2000 standard population ("Appendix A," Age adjustment)
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Appendix table 25a. Average length of stay in days among injury and noninjury hospital discharges, 1979-2001

Year	Injury discharge		Noninjury discharge	
	Mean	Mean SE	Mean	Mean SE
1979	7.1	0.5	6.4	0.3
1980	7.3	0.6	6.3	0.4
1981	7.1	0.5	6.3	0.4
1982	6.8	0.4	6.2	0.3
1983	6.6	0.4	6.1	0.2
1984	6.1	0.3	5.8	0.2
1985	5.9	0.3	5.8	0.2
1986	5.8	0.3	5.7	0.2
1987	6.0	0.4	5.7	0.3
1988	6.0	0.1	5.8	0.1
1989	5.9	0.2	5.7	0.1
1990	5.8	0.1	5.6	0.1
1991	5.9	0.2	5.6	0.1
1992	5.3	0.2	5.4	0.1
1993	5.3	0.2	5.3	0.1
1994	4.9	0.1	5.1	0.1
1995	4.9	0.2	4.7	0.1
1996	4.5	0.1	4.7	0.1
1997	4.4	0.1	4.5	0.1
1998	4.6	0.2	4.5	0.1
1999	4.6	0.2	4.4	0.1
2000	4.6	0.2	4.4	0.1
2001	4.4	0.2	4.4	0.1
Average annual percent change	-2.6		-2.0	
Average percent change	-44.5		-36.3	

SE is standard error.

NOTES: Average length of stay in days is age adjusted using the 2000 standard population ("Appendix A," Average length of stay and Age adjustment).
See table 1 for the ICD-9-CM codes in each category.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Average Length of Stay by Injury Diagnosis

The length of stay for each injury type decreased over the time period. From 1979 to 2001 the length of stay for internal organ injuries and open wounds decreased on average 0.7 and 2.3 percent per year, respectively (for total decreases of 14 and 40 percent). Fractures decreased on average 3.4 percent per year (for a total decrease of 54 percent), and system wide injuries decreased on average 2.4 percent per year (for a total decrease of 42 percent).

Figure 27. Average length of stay in days for injury hospital discharges by diagnosis, 1979-2001

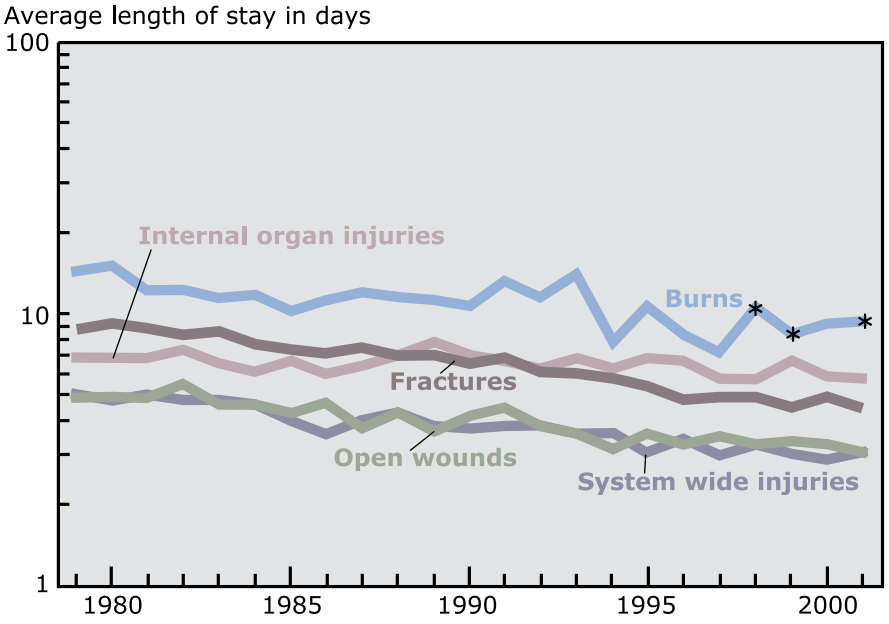


*Figure does not meet standard of reliability or precision ("Appendix A," Standards of reliability).

NOTES: Data are plotted on the log scale. See data table for data points graphed and additional notes. System wide injuries include poisoning, toxic effects, foreign bodies, early complications of trauma, other and unspecified effects of external cause, late effects of injury, poisoning, toxic effects, and other external causes, and child and adult maltreatment. Average length of stay in days is age adjusted using the 2000 standard population ("Appendix A," Age adjustment). See "Appendix B" for the ICD-9-CM diagnosis codes in each category.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 27. Average length of stay in days for injury hospital discharges by diagnosis, 1979-2001

Year	All injuries		Burns		Fractures		Internal organ injuries		Open wounds		System wide injuries		All other injuries	
	Mean	Mean SE	Mean	Mean SE	Mean	Mean SE	Mean	Mean SE	Mean	Mean SE	Mean	Mean SE	Mean	Mean SE
1979	7.1	0.5	14.1	1.8	8.8	0.7	6.8	0.7	4.9	0.5	5.0	0.5	5.7	0.5
1980	7.3	0.6	15.0	1.9	9.2	0.8	6.9	0.7	4.9	0.6	4.8	0.6	5.6	0.5
1981	7.1	0.5	12.3	1.4	8.8	0.7	6.9	0.7	4.9	0.5	5.0	0.5	5.6	0.5
1982	6.8	0.4	12.1	1.4	8.3	0.6	7.3	0.7	5.5	0.5	4.8	0.5	5.3	0.5
1983	6.6	0.4	11.5	1.2	8.6	0.6	6.6	0.5	4.6	0.4	4.8	0.4	4.9	0.4
1984	6.1	0.3	11.8	1.1	7.7	0.4	6.1	0.4	4.6	0.4	4.6	0.3	4.6	0.3
1985	5.9	0.3	10.2	0.9	7.3	0.4	6.7	0.5	4.3	0.3	4.0	0.3	4.4	0.3
1986	5.8	0.3	11.1	0.9	7.1	0.4	6.0	0.4	4.7	0.3	3.6	0.3	4.1	0.3
1987	6.0	0.4	12.0	1.3	7.5	0.5	6.4	0.6	3.8	0.4	4.0	0.4	4.1	0.4
1988	6.0	0.1	11.5	1.1	7.0	0.2	7.0	0.5	4.3	0.3	4.3	0.3	4.1	0.2
1989	5.9	0.2	11.2	1.8	7.0	0.2	7.8	0.7	3.7	0.2	3.9	0.2	3.9	0.3
1990	5.8	0.1	10.8	1.5	6.6	0.2	7.0	0.5	4.2	0.2	3.8	0.2	4.2	0.4
1991	5.9	0.2	12.9	2.7	6.8	0.2	6.7	0.4	4.5	0.6	3.9	0.2	3.7	0.2
1992	5.3	0.2	11.4	1.3	6.2	0.2	6.3	0.4	3.9	0.4	3.9	0.3	3.0	0.2
1993	5.3	0.2	13.9	1.7	6.0	0.2	6.8	0.6	3.6	0.2	3.6	0.2	3.2	0.2
1994	4.9	0.1	7.8	0.7	5.8	0.2	6.3	0.4	3.2	0.2	3.6	0.2	2.9	0.2
1995	4.9	0.2	10.6	2.0	5.4	0.2	6.8	0.5	3.6	0.3	3.1	0.1	2.9	0.2
1996	4.5	0.1	8.4	0.9	4.8	0.2	6.7	0.5	3.3	0.2	3.4	0.2	2.9	0.2
1997	4.4	0.1	7.2	0.6	4.9	0.2	5.7	0.3	3.5	0.3	3.0	0.2	3.0	0.2
1998	4.6	0.2	*	*	4.9	0.2	5.7	0.3	3.3	0.2	3.3	0.4	3.2	0.3
1999	4.6	0.2	*	*	4.5	0.2	6.7	0.4	3.4	0.2	3.0	0.2	2.8	0.2
2000	4.6	0.2	9.2	1.0	4.9	0.2	5.9	0.3	3.3	0.2	2.9	0.2	2.9	0.2
2001	4.4	0.2	*	*	4.5	0.2	5.7	0.3	3.1	0.2	3.1	0.2	2.8	0.2
Average annual percent change	-2.6		-2.2		-3.4		-0.7		-2.3		-2.4		-3.5	
Average percent change	-43.7		-38.4		-53.7		-13.7		-39.9		-41.8		-54.1	

SE is standard error.

* Figure does not meet standard of reliability or precision ("Appendix A," Standards of reliability).

NOTES: Average length of stay in days is age adjusted using the 2000 standard population ("Appendix A," Average length of stay and Age adjustment).
System wide injuries include poisoning, toxic effects, foreign bodies, early complications of trauma, other and unspecified effects of external causes, late effects of injury, poisoning, toxic effects, and other external causes, and child and adult maltreatment.
See "Appendix B" for the ICD-9-CM diagnosis codes in each category.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).

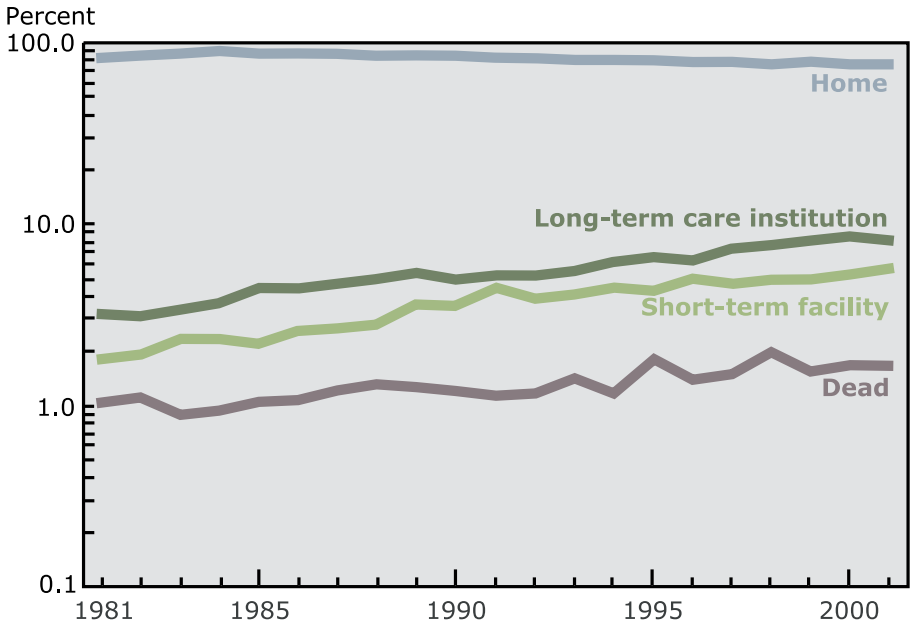
SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Discharge Disposition

Most patients hospitalized for an injury are discharged home. From 1981 to 2001 the percent of injury hospitalizations that were discharged home decreased from 83 percent to 75 percent. Discharges to long-term care institutions increased from 3 to 8 percent and discharges to short-term facilities increased from 2 to 6 percent. Injury hospitalizations that ended with death increased from 1.0 to 1.7 percent.

From 1981 to 2001 the proportion discharged home decreased on average 0.8 percent per year (for a total decline of 15 percent) while the proportion discharged to a short-term facility increased on average 5.9 percent per year (for a total increase of 216 percent) and the proportion discharged to a long-term care institution increased on average 4.9 percent per year (for a total increase of 162 percent).

Figure 28. Percent distribution of injury hospital discharges by selected discharge disposition, 1981-2001



NOTES: 1981 was the first year the National Hospital Discharge Survey collected discharge disposition data. Percents are plotted on the log scale. See data table for data points graphed and additional notes. Percent distributions are age adjusted using the 2000 standard population "Appendix A," Age adjustment. Discharge disposition is defined in "Appendix A," Discharge disposition.

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 28. Injury hospital discharges by selected discharge disposition, 1981-2001

Year	Home			Long-term care institution			Short-term facility			Dead		
	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE
1981	2,603	82.7	0.9	135	3.2	0.2	64	1.8	0.1	39	1.0	0.1
1982	2,679	86.0	0.8	138	3.1	0.2	66	1.9	0.1	40	1.1	0.1
1983	2,593	87.2	0.7	150	3.3	0.2	75	2.3	0.2	33	0.9	0.1
1984	2,611	88.6	0.5	171	3.6	0.1	74	2.3	0.1	35	0.9	0.1
1985	2,425	88.2	0.6	191	4.4	0.2	74	2.2	0.1	36	1.1	0.1
1986	2,311	87.3	0.6	190	4.4	0.2	79	2.6	0.1	38	1.1	0.1
1987	2,115	87.0	0.7	187	4.7	0.2	78	2.7	0.1	39	1.2	0.1
1988	1,897	86.0	0.8	183	4.9	0.3	74	2.8	0.3	36	1.3	0.1
1989	1,840	84.6	0.9	200	5.3	0.5	93	3.6	0.5	36	1.3	0.2
1990	1,732	83.9	0.8	193	5.0	0.3	94	3.6	0.7	35	1.2	0.1
1991	1,661	83.3	1.0	204	5.2	0.3	119	4.5	0.8	34	1.1	0.1
1992	1,584	83.4	0.7	204	5.2	0.3	101	3.9	0.3	31	1.2	0.1
1993	1,510	81.4	0.9	236	5.5	0.3	106	4.1	0.4	40	1.4	0.2
1994	1,425	81.4	0.8	249	6.2	0.3	106	4.4	0.4	30	1.2	0.1
1995	1,346	80.7	0.7	274	6.5	0.3	108	4.3	0.4	44	1.8	0.2
1996	1,264	78.7	0.8	269	6.3	0.3	130	4.9	0.5	39	1.4	0.2
1997	1,209	78.6	0.7	297	7.3	0.4	111	4.7	0.4	35	1.5	0.2
1998	1,153	76.9	0.8	292	7.6	0.4	126	5.0	0.4	39	2.0	0.3
1999	1,168	77.4	0.8	316	8.0	0.6	119	4.9	0.4	37	1.5	0.2
2000	1,086	75.9	0.8	331	8.6	0.4	119	5.3	0.5	37	1.6	0.2
2001	1,114	75.3	0.7	325	8.2	0.5	139	5.7	0.5	40	1.7	0.4
Average annual percent change		-0.8			4.9			5.9			2.8	
Average percent change		-14.7			161.5			216.2			74.4	

SE is standard error.

NOTES: 1981 was the first year the National Hospital Discharge Survey collected discharge disposition data.
All discharge dispositions are not shown in this table, see "Appendix A" for discharge disposition definition.
Percent distributions are age adjusted using the 2000 standard population ("Appendix A," Age adjustment).
Average annual percent change is from 1981-2001 ("Appendix A," Test of trend).
Average percent change is for 1981-2001 ("Appendix A," Average percent change over time).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Discharge Disposition by Age

From 1981 to 2001 the decline in injury hospitalizations discharged home was greater for those 65 years and over than for those younger. The decline among those 65 years and over was on average 4 percent per year (for a total decline of 56 percent) compared with those under 65 years of age with a decline on average of 0.5 percent per year (for a total decline of 10 percent).

Discharges to long-term care institutions among those 65 years and over more than doubled from 1981 to 2001 rising to nearly 40 percent of this age group's injury hospital discharges. Discharges to short-term facilities for this age group increased from 3 percent in 1981 to 11 percent in 2001.

Figure 29. Percent of injury hospitalizations discharged home by age, 1981-2001

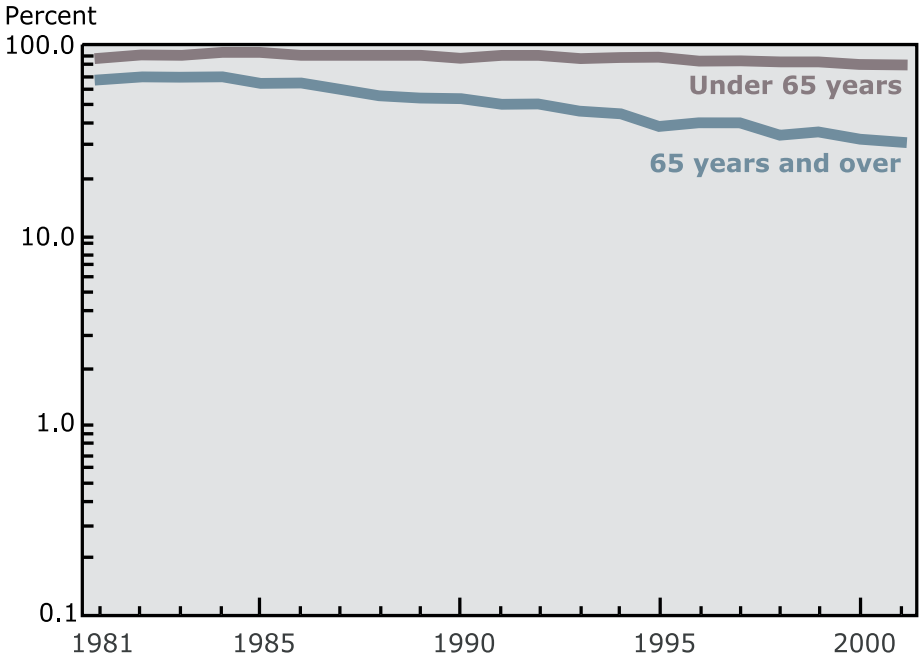
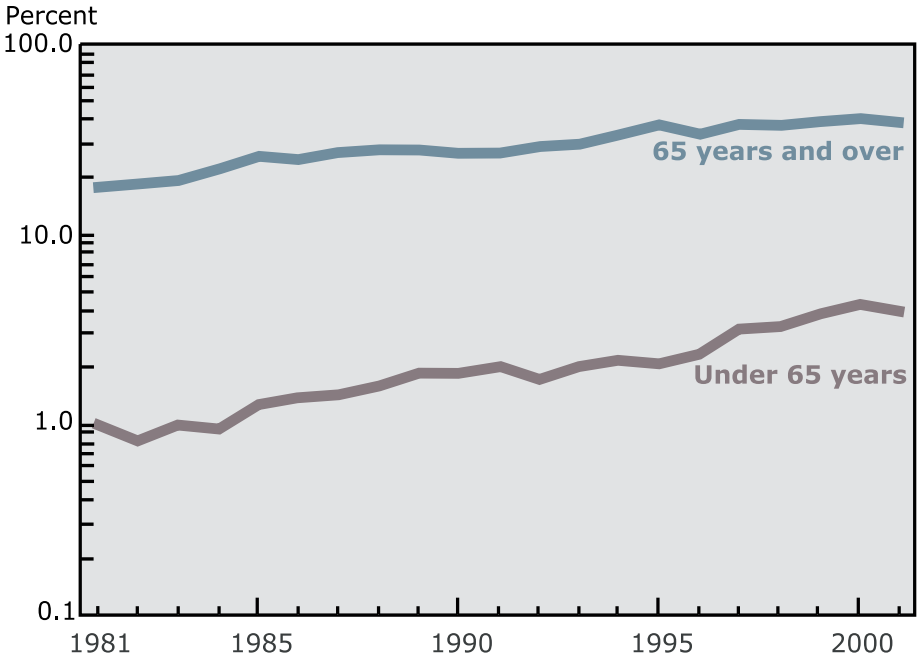


Figure 30. Percent of injury hospitalizations discharged to a long-term care institution by age, 1981-2001



NOTES: 1981 was the first year the National Hospital Discharge Survey collected discharge disposition data. Percents are plotted on the log scale. See data table for data points graphed and additional notes. Discharge disposition is defined in "Appendix A."

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figures 29 and 30. Injury hospital discharges among selected discharge dispositions by age, 1981-2001

Year	Home						Long-term care institution						Short-term facility					
	Under 65 years			65 years and over			Under 65 years			65 years and over			Under 65 years			65 years and over		
	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE
1981	2,205	85.0	0.8	398	65.9	1.4	26	1.0	0.1	109	18.1	0.9	46	1.8	0.1	18	2.9	0.2
1982	2,244	88.3	0.7	435	69.3	1.3	21	0.8	0.1	117	18.6	0.9	49	1.9	0.1	17	2.7	0.3
1983	2,140	89.6	0.6	452	69.6	1.2	24	1.0	0.1	127	19.5	0.9	54	2.2	0.2	21	3.3	0.3
1984	2,160	91.3	0.5	451	67.9	1.0	22	0.9	0.1	148	22.3	0.8	54	2.3	0.1	20	3.0	0.2
1985	2,025	91.5	0.5	399	63.0	1.1	29	1.3	0.1	162	25.6	0.9	47	2.1	0.1	26	4.2	0.3
1986	1,911	90.6	0.5	400	63.0	1.0	29	1.4	0.1	161	25.4	0.8	54	2.6	0.1	25	3.9	0.3
1987	1,759	90.5	0.5	356	60.2	1.3	28	1.4	0.1	159	26.8	0.9	51	2.6	0.2	27	4.6	0.3
1988	1,589	90.1	0.8	308	55.2	1.8	28	1.6	0.2	155	27.9	1.4	47	2.7	0.3	27	4.9	0.8
1989	1,525	88.9	0.9	315	53.1	2.0	32	1.9	0.4	168	28.2	1.9	58	3.4	0.5	35	5.9	0.9
1990	1,403	87.7	0.9	330	53.6	1.2	30	1.9	0.2	163	26.4	1.3	53	3.3	0.7	41	6.6	1.0
1991	1,349	87.8	1.0	312	49.4	1.6	32	2.1	0.3	172	27.3	1.4	63	4.1	0.8	56	8.9	1.2
1992	1,280	88.1	0.7	304	48.5	1.4	25	1.7	0.3	179	28.6	1.5	51	3.5	0.4	51	8.1	0.9
1993	1,191	85.7	0.9	319	46.5	1.5	28	2.0	0.2	209	30.4	1.4	52	3.7	0.4	54	7.8	1.1
1994	1,138	86.3	0.8	287	44.5	1.5	29	2.2	0.3	220	34.1	1.6	52	4.0	0.4	54	8.3	1.1
1995	1,094	86.1	0.8	252	38.1	1.3	26	2.1	0.3	248	37.4	1.8	47	3.7	0.3	61	9.1	1.0
1996	987	83.6	0.9	277	39.3	1.5	28	2.4	0.2	241	34.2	1.6	52	4.4	0.5	78	11.1	1.3
1997	941	83.5	0.8	268	38.6	1.3	36	3.2	0.3	262	37.8	1.7	48	4.3	0.4	63	9.0	1.1
1998	922	82.2	0.9	231	34.5	1.1	37	3.3	0.4	255	38.1	1.7	48	4.2	0.4	79	11.8	1.3
1999	917	82.5	1.0	251	35.5	1.4	42	3.8	0.6	274	38.7	1.5	49	4.4	0.5	70	9.9	1.3
2000	854	81.2	1.0	232	32.9	1.3	44	4.2	0.5	286	40.6	1.6	52	4.9	0.5	67	9.5	1.0
2001	885	80.7	0.9	229	31.9	1.3	44	4.0	0.5	282	39.3	1.7	56	5.1	0.5	82	11.5	1.3
Average annual percent change		-0.5			-4.0			7.8			3.8			5.2			8.1	
Average percent change		-10.4			-56.1			347.3			111.3			175.2			371.8	

SE is standard error.

NOTES: 1981 was the first year the National Hospital Discharge Survey collected discharge disposition data.
All discharge dispositions are not shown in this table, see "Appendix A" for discharge disposition definition.
Average annual percent change is from 1981-2001 ("Appendix A," Test of trend).
Average percent change is for 1981-2001 ("Appendix A," Average percent change over time).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

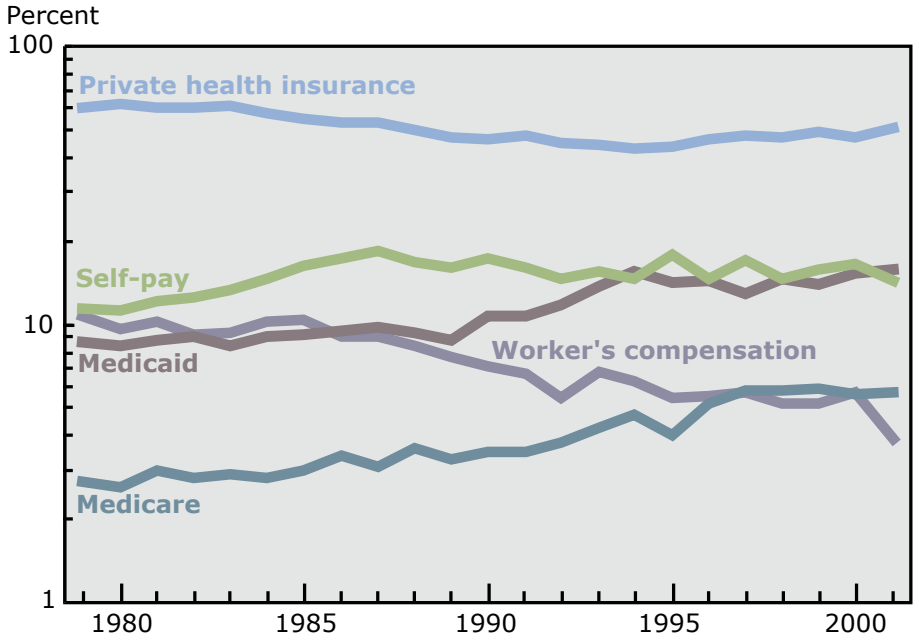
Expected Source of Payment

For persons under 65 years of age, private health insurance was the most common expected source of payment for injury hospital discharges throughout 1979 to 2001. Private health insurance declined as the expected source of payment on average 1.6 percent per year (for a total decrease of 30 percent) to 50 percent in 2001. The proportion of injury discharges under 65 with Medicare§, Medicaid, and self-pay as the principal expected payment source increased to 6, 16 and 14 percent, respectively in 2001. Worker's compensation declined on average 3.9 percent per year (for a total decline of 58 percent) to 4 percent in 2001.

The vast majority of injury hospital discharges for those 65 years and over indicated Medicare§ as the principal expected payor, 85 percent in 2001 (appendix table 31a).

§ The number of Medicare discharges may be underestimated in recent years because of increased enrollment of Medicare patients in health maintenance organizations (HMOs) or other forms of managed care. These plans may be listed on medical records as the principal expected source of payment even though Medicare remains the primary payor.

Figure 31. Percent distribution of injury hospital discharges among those under 65 years of age by principal expected source of payment, 1979-2001



NOTES: Data are plotted on the log scale. See data table for data points graphed and additional notes. Expected source of payment is defined in "Appendix A."

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

Data table for figure 31. Injury hospital discharges among those under 65 years of age by principal expected source of payment, 1979-2001

Year	Worker's compensation			Medicare			Medicaid			Private health insurance			Self-pay		
	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE
1979	293	10.8	0.5	74	2.7	0.2	233	8.6	0.4	1,631	60.2	1.1	308	11.4	0.5
1980	254	9.6	0.5	69	2.6	0.2	222	8.4	0.5	1,636	62.0	1.2	296	11.2	0.6
1981	264	10.2	0.5	78	3.0	0.2	227	8.8	0.4	1,571	60.6	1.0	314	12.1	0.5
1982	235	9.2	0.4	70	2.8	0.2	229	9.0	0.4	1,530	60.2	1.0	318	12.5	0.5
1983	222	9.3	0.4	69	2.9	0.2	201	8.4	0.4	1,456	61.0	0.9	324	13.5	0.5
1984	244	10.3	0.4	67	2.8	0.2	212	9.0	0.3	1,365	57.7	0.8	349	14.7	0.4
1985	230	10.4	0.4	65	3.0	0.2	204	9.2	0.3	1,216	54.9	0.8	358	16.2	0.5
1986	190	9.0	0.3	73	3.4	0.2	198	9.4	0.3	1,126	53.4	0.8	368	17.4	0.5
1987	175	9.0	0.3	61	3.1	0.2	191	9.8	0.4	1,026	52.8	0.8	356	18.3	0.6
1988	146	8.3	0.6	63	3.6	0.4	164	9.3	0.6	884	50.2	1.2	293	16.6	1.2
1989	132	7.7	0.6	57	3.3	0.6	149	8.7	0.5	816	47.6	1.4	273	15.9	0.9
1990	114	7.1	0.5	55	3.5	0.4	171	10.7	0.6	746	46.6	1.0	278	17.4	0.9
1991	103	6.7	0.5	53	3.5	0.3	167	10.8	0.7	746	48.6	1.1	247	16.0	0.9
1992	78	5.4	0.4	56	3.8	0.3	173	11.9	0.9	662	45.6	1.3	214	14.8	1.0
1993	95	6.8	0.7	59	4.3	0.3	193	13.9	0.8	621	44.8	1.2	214	15.4	1.0
1994	83	6.3	0.6	62	4.7	0.4	204	15.4	1.0	572	43.3	1.2	194	14.7	1.0
1995	69	5.4	0.5	51	4.0	0.3	180	14.2	0.8	562	44.2	1.4	227	17.9	1.1
1996	65	5.5	0.5	61	5.2	0.5	171	14.5	0.9	554	46.9	1.3	174	14.8	0.8
1997	64	5.7	0.5	65	5.8	0.5	147	13.0	0.8	542	48.1	1.3	193	17.1	0.8
1998	58	5.2	0.5	65	5.8	0.5	166	14.8	0.9	533	47.5	1.4	165	14.7	0.9
1999	57	5.2	0.4	66	5.9	0.5	157	14.1	0.9	541	48.7	1.6	174	15.7	0.7
2000	60	5.7	0.6	59	5.6	0.5	158	15.1	1.1	498	47.4	1.4	172	16.4	1.0
2001	43	3.9	0.5	62	5.7	0.5	173	15.7	1.1	553	50.4	1.5	158	14.4	0.8
Average annual percent change		-3.9			4.0			3.3			-1.6			1.0	
Average percent change		-57.8			136.2			102.1			-29.8			25.4	

SE is standard error.

NOTES: See "Appendix A," Expected source of payment for definitions.
For years 1979-97 private health insurance includes Blue Cross/Blue Shield, and other private insurance.
For years 1998-2001 private health insurance includes Blue Cross/Blue Shield, HMO/PPO, and other private insurance.
The number and percent of discharges with principal expected sources of payment of "other government," "other," "no charge," or "not stated" are not shown in this table.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.

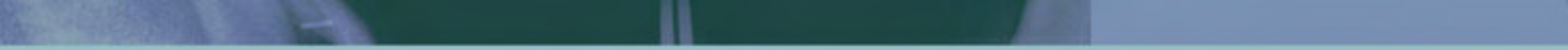
Appendix table 31a. Injury hospital discharges among those 65 years of age and over by principal expected source of payment, 1979-2001

Year	Medicare[1]			Private health insurance[1]			All other		
	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE	Number in thousands	Percent	Percent SE
1979	553	93.2	0.8	18	3.0	0.3	23	3.8	0.4
1980	561	92.6	0.9	19	3.2	0.3	26	4.3	0.4
1981	563	93.2	0.8	20	3.2	0.3	21	3.6	0.3
1982	594	94.7	0.7	16	2.6	0.2	17	2.8	0.3
1983	612	94.2	0.7	19	2.9	0.3	19	2.9	0.3
1984	624	93.9	0.5	21	3.2	0.2	19	2.8	0.2
1985	595	93.9	0.6	19	3.0	0.2	20	3.2	0.2
1986	588	92.7	0.6	25	4.0	0.3	21	3.3	0.2
1987	543	91.8	0.6	30	5.1	0.3	19	3.1	0.3
1988	499	89.6	1.1	25	4.6	0.6	33	5.8	0.9
1989	521	87.8	1.6	25	4.2	0.6	48	8.0	1.5
1990	542	88.1	1.3	33	5.3	0.8	40	6.5	1.0
1991	546	86.6	1.3	36	5.7	0.9	49	7.7	1.1
1992	530	84.6	1.8	27	4.4	0.5	69	11.1	1.8
1993	600	87.3	1.1	41	6.0	0.7	46	6.7	0.9
1994	547	84.8	1.8	64	9.9	1.8	35	5.4	0.8
1995	555	83.8	2.0	62	9.3	1.4	46	6.9	1.0
1996	578	82.0	2.0	88	12.4	1.9	39	5.6	0.8
1997	581	83.8	1.1	83	12.0	1.0	29	4.1	0.5
1998	562	83.9	1.2	79	11.8	0.9	29	4.3	0.6
1999	596	84.3	1.3	84	11.9	1.2	27	3.8	0.5
2000	593	84.0	1.4	79	11.2	1.1	33	4.7	0.8
2001	611	85.3	1.2	78	10.9	1.0	27	3.8	0.6
Average annual percent change		-0.6			8.2			2.7	
Average percent change		-13.2			462.5			78.8	

SE is standard error.
[1]The number of Medicare discharges may be underestimated in recent years because of increased enrollment of Medicare patients in health maintenance organizations (HMOs) or other forms of managed care. These plans may be listed on medical records as the principal expected source of payment even though Medicare remains the primary payor.

NOTES: See "Appendix A," Expected source of payment for definitions.
"All other" includes worker's compensation, Medicaid, self-pay, other government, no charge, other, and not stated.
For years 1979-1997 private health insurance includes Blue Cross/Blue Shield and other private insurance.
For years 1998-2001 private health insurance includes Blue Cross/Blue Shield, HMO/PPO, and other private insurance.
Average annual percent change is from 1979-2001 ("Appendix A," Test of trend).
Average percent change is for 1979-2001 ("Appendix A," Average percent change over time).

SOURCE: Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey.



Appendixes

Appendix A: Data Sources, Definitions, and Methods

Data Source: The National Hospital Discharge Survey

The National Hospital Discharge Survey (NHDS) is a national probability survey designed to collect and produce national annual estimates of information on inpatients discharged from non-Federal short-stay hospitals in the United States. This survey, which has been conducted annually by the National Center for Health Statistics (NCHS) since 1965, covers the 50 States and the District of Columbia. Since 1988 hospitals with an average length of stay of less than 30 days for all inpatients, general hospitals, or children's general hospitals have been included in the survey. Prior to that time, only hospitals with an average length of stay of less than 30 days were included regardless of specialty. Federal, military, and Department of Veterans Affairs hospitals, as well as hospital units of institutions (such as prison hospitals), and hospitals with fewer than six beds staffed for patient use, are excluded.

Patient-level data collected include age, sex, race, diagnoses and procedures, length of stay, discharge disposition, and expected source of payment. Administrative and hospital data collected include number of hospital beds, type of ownership, and the geographic region of the hospital.

The design of the survey implemented in 1965 continued through 1987; the redesign with a new sample of hospitals, fielded in 1988, is currently in place. The sample for the 1965 NHDS was selected in 1964 from a frame of short-stay hospitals listed in the National Master Facility Inventory. A two-stage stratified sample design was used, with hospitals stratified according to bed size and geographic region. Sample hospitals were selected with probabilities ranging from 1 to 40. Within each participating hospital, a systematic random sample was selected from a daily listing sheet of discharges. Within-hospital sampling rates for discharges varied inversely with the probability of hospital selection, so that the overall probability of selecting a discharge was approximately the same across the sample.

Data collection was conducted by means of manual abstraction of patient information from sampled medical records. Sample selection and transcription of information from inpatient medical records to NHDS survey forms were performed by either the hospital staff or representatives of NCHS or both. In 1985 a new data-collection procedure was introduced. The procedure involved the purchase of computer data tapes from commercial abstracting services that contained the NHDS dataset from some hospitals in the NHDS sample. Discharges on these computer files were subjected to the NHDS sampling specifications, as well as the computer edits and estimation procedures. These two data collection methods, manual and automated, continue to be used in the NHDS.

A redesign of the NHDS was implemented for the 1988 survey (1). Under the redesign hospitals were selected using a modified three-stage sampling design. Units selected at the first stage consisted of primary sampling units (PSUs), which could be either hospitals or geographic areas like counties or townships. PSUs were used for the National Health Interview Survey (NHIS), also conducted by NCHS. Hospitals within PSUs were then selected at the second stage. Strata at this stage were defined by geographic region, PSU size, abstracting service status, PSU, and hospital specialty-size groups. Within these strata, hospitals were selected with probabilities proportional to their annual number of discharges. At the third stage, a sample of discharges was selected by a systematic random sampling technique.

Appendix A: Data Sources, Definitions, and Methods

The sampling rate was determined by the hospital's sampling stratum and the type of data collection system (manual or automated) used. Discharge records from hospitals submitting data via commercial abstracting services and selected State data systems (approximately 40 percent of sample hospitals) were arrayed by primary diagnoses, patient sex and age group, and date of discharge before sampling.

Although the old and new designs remain quite similar, it is still important to take the redesign into account when conducting trend analyses. Some of the differences between NHDS statistics based on the sample used for the 1965-87 samples, and those based on the sample drawn in 1988, may be due to the survey redesign rather than actual changes in hospital utilization. The injury chartbook tracks and reports on long-term trends in injury hospitalizations over the entire period from 1979-2001 so that the years around the redesign are only analyzed within a larger context. If researchers use NHDS data (including the tables in this chartbook) to compare the years immediately before and after the redesign, they should seek substantiation of the differences they find from other data sources. They should also review the findings from a report comparing estimates from the original and the new design to see the extent to which the redesign made a difference in injury estimates (2).

The NHDS hospital sample is updated every 3 years by continuing the sampling process among hospitals that become eligible for the survey during the intervening years and by deleting hospitals that are no longer NHDS-eligible.

The basic unit of estimation for NHDS is a sampled discharge. The basic estimation procedure involves inflation by the reciprocals of the probabilities of selection. There are adjustments for nonresponding hospitals and discharges, and a post-ratio adjustment to fixed totals is employed.

Since 1979 the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) has been used for classifying diagnoses and procedures in the NHDS (3). Beginning in 1986 the ICD-9-CM has undergone minor annual modifications. These modifications become effective in October of each year and are published in an addendum. Users of the NHDS who wish to conduct trend analyses or other multiple year studies should look up the diagnoses and procedures they are studying in the addenda to be sure they include data on the correct codes for each of the years studied. ICD-9-CM Addenda and a conversion table can be found online at: http://www.cdc.gov/nchs/icd9.htm ; see "Appendix A," ICD-9-CM addenda affecting injuries.

Appendix A: Data Sources, Definitions, and Methods

Definitions and Methods

Alphabetical listing of terms and methodologies used in this report:

Age- Patient's age at the birthday prior to admission to the hospital.

Age adjustment-Age adjustment, using the direct method, is the application of age-specific rates in a population of interest to a standardized age distribution in order to eliminate differences in observed rates that result from age differences in population composition. This adjustment is usually done when comparing two or more populations at one point in time or one population at two or more points in time. Age-adjusted rates are calculated by the direct method as follows:

$$\sum_{i=1}^{n} r_i \times (p_i/P)$$

where r_i = rate in age group i in the population of interest

p_i = standard population in age group i

$$P=\sum_{i=1}^{n} p_i$$

n = total number of age groups over the age range of the age-adjusted rate

Age adjustment by the direct method requires use of a standard age distribution. The standard for age-adjusting estimates from NCHS surveys is the year 2000 projected U.S. resident population. The standardized age distribution used in this report is listed in Table I, page 13.

For more information on implementing the 2000 population standard for age-adjusting death rates, see Anderson RN, Rosenberg HM. Age Standardization of Death Rates: Implementation of the Year 2000 Standard. National vital statistics reports; vol. 47 no. 3. Hyattsville, Maryland: National Center for Health Statistics.1998 (available online at www.cdc.gov/nchs/data/nvsr/nvsr47/nvs47_03.pdf). For more information on the derivation of age adjustment weights for use with NCHS survey data, see Klein RJ, Schoenborn CA. Age Adjustment Using the 2000 Projected U.S. Population. Healthy People Statistical Notes no. 20. Hyattsville, Maryland: National Center for Health Statistics. 2001 (available online at http://www.cdc.gov/nchs/data/statnt/statnt20.pdf). The year 2000 projected U.S. resident population is available through the Bureau of the Census home page at www.census.gov/.

Appendix A: Data Sources, Definitions, and Methods

Table I. Projected year 2000 U.S. population and proportion distribution by age for age-adjusting rates (adapted for NHDS data)

Age	Population	Proportion distribution (weights)	Standard million
Total	274,634,000	1.000000	1,000,000
Under 15 years	58,964,000	0.214700	214,700
15-24 years	38,077,000	0.138646	138,646
25-44 years	81,892,000	0.298186	298,186
45-64 years	60,991,000	0.222081	222,081
65 years and over	34,710,000	0.126387	126,387

SOURCE: Anderson RN, Rosenberg HM. Age Standardization of Death Rates: Implementation of the Year 2000 Standard. National vital statistics reports; vol 47 no 3. Hyattsville, Maryland: National Center for Health Statistics. 1998.

Age-adjusted percents and means were calculated using rounded values (one decimal place). Age-adjusted rates were calculated using unrounded values. Data that are age adjusted are noted in the figure and table notes. The relative standard errors (RSE) for the unadjusted percents, means, and rates were applied to the age-adjusted percents, means, and rates.

Average length of stay- Mean length of stay for discharges. It is calculated by dividing the total number of days of care, counting the date of admission but not the date of discharge, by the number of discharges. See related Days of care.

Average percent change over time, test of trend, and test of significance between two statistics- In this report, trends in injury statistics (expressed here as rates, means, or percents) are summarized by two measures of average percent change (rather than by absolute change) as a "total" percent change, referred to in the tables as average percent change (e.g., a total decline of 30 percent for the 22 year period 1979-2001) and as an "average annual" percent change (e.g., an average increase of 2 percent per year).

Weighted least squares regression was used to assess trends in annual estimates (4,5) by fitting a linear model to the logarithm of annual estimates (5-7). The inverse of the variance of the logarithm of the annual estimates was used as the weights in a weighted least squares algorithm to obtain the parameter estimate, ß, and corresponding test statistics and standard errors for the linear regression model.

From the fitted regression equation, the average annual percent change (7) in the outcome, $(100\ (e^{ß}\ -1))$, and the total percent change over the 22 year time period, $100\ (e^{ß*22}\ -1)$, were calculated for this report.

The regression model used in this report makes use of all data points for the calculation of the percent change. Another approach that could have been used to calculate change in the rates subtracts the

rate (or percent) for the last year from the value for the first year, dividing by the value at the first year and multiplied by 100 percent.

An estimate of the total percent change based only on the first and last data points differs from an estimate of total percent change based on all data points; this difference can be large if either the first or last data point differs significantly from the trend of the intervening years.

For each model tested, the standard error of the parameter estimate, ß, was used to determine whether the parameter estimate differed from zero; this determination was used to indicate whether or not there was a statistically significant trend in the injury statistic over the time period. [See"Appendix A," Sampling errors] Terms such as "increases" and "decreases" indicate injury trends that were statistically significant at the .05 level. The determination of statistical inference is based on the two tailed t-test. The Bonferroni technique for multiple comparisons was used to establish the critical value for statistically significant differences (0.05 level of significance) for each set of comparisons within each table. Terms relating to differences such as "higher than" indicate that the difference is statistically significant. Terms such as "similar" or "no difference" indicate that the difference is not statistically significant. Terms such as "generally higher" or "in most instances" refer to tests involving multiple comparisons that were significant at least 70% of the time. A lack of comment regarding the difference between any two estimates does not mean that the difference was tested and found to be not significant.

Barell Matrix - The two-dimensional array of ICD-9-CM injury codes (as of 1998). Codes are grouped by body region of the injury and the nature of the injury. This matrix provides a standard format for reporting injury data. This injury diagnosis matrix is a product of the participants in the International Collaborative Effort (ICE) on Injury Statistics. For more information about the Barell Matrix refer to the Web site page: www.cdc.gov/nchs/about/otheract/ice/barellmatrix.htm (8), "See Appendix B," Barell Matrix.

Days of care - The total number of days a patient spent in the hospital. A stay of less than 1 day (patient admission and discharge on the same day) is counted as 1 day. For patients admitted and discharged on different days, the number of days of care is computed by counting all the days from (and including) the day of admission to (but not including) the day of discharge. See related: Average length of stay, Discharge, Hospital, Patient.

Discharge - A completed inpatient hospitalization. A hospitalization may be completed by death or by releasing the patient to the customary place of residence, a nursing home, another hospital, or other location, or if the patient leaves against medical advice. Persons with multiple discharges during a calendar year may be sampled more than once, thus estimates are for discharges, not individual persons. See related Average length of stay, Days of care, Patient.

Discharge Diagnosis - See First-listed diagnosis.

Appendix A: Data Sources, Definitions, and Methods

Discharge Disposition - The disposition of a patient on termination of hospitalization into one of the following categories:

- Home or routine discharge - patient returned to previous place of residence after discharge from the hospital.
- Long-term care institution - patient entered a nursing home including skilled nursing facilities, extended care facilities, custodial care facilities, or other long term care placement upon discharge from the hospital.
- Short-term facility - patient transferred to another short-term hospital at discharge, including short-term maternity hospitals.
- Dead - patient who died during the inpatient stay.
- Other or not stated - patient who has no discharge disposition listed or other disposition which does not fit into the above categories.

Expected source of payment - The principal expected source of payment for the hospitalization. Terms used in figure 31, data table 31, and in appendix table 31 are defined below.

- Medicare - The health insurance program for the aged and disabled administered by the Centers for Medicare and Medicaid Services (formerly the Health Care Financing Administration).
- Medicaid - A jointly funded Federal-State health insurance program providing medical care to those unable to afford it.
- Worker's compensation - A State or municipal disability insurance or industrial accident insurance.
- Private health insurance- Includes HMO/PPO, Blue Cross/Blue Shield, and other private.
  - -HMO/PPO - Any health maintenance organization (HMO) or preferred provider organization (PPO) sponsored by consumers, communities, physicians, or hospitals.
  - -Blue Cross/Blue Shield and other private - A private insurance plan not specified as an HMO/PPO. This includes Blue Cross/Blue Shield plans, medical coverage provided by life insurance companies, casualty insurance companies, health insurance companies, and independent plans such as employer/union-sponsored plans and/or self-funded plans (partial or total).
- Self-pay - The majority of the costs for the hospitalization were expected to be paid by the patient, spouse, family, or next-of-kin.
- Other government- Other Federal, State, or local government other than worker's compensation, Medicare, and Medicaid not listed separately including casualty insurance paid by the State, Federal or State medical research grant.
- No charge- Patients admitted with the understanding that payment would not be expected because the medical services are free, e.g., charity patients or research or teaching patients.
- Other and not stated- Other nonprofit source of payment, e.g., church, Shriner's, etc., and no source of payment indicated.

External cause of injury code - External cause of injury and poisoning codes are a supplemental component of the ICD-9-CM. Each code begins with an "E" and is followed by a three- or four-digit number (e.g., E800.1). External cause codes are intended to be used in addition to a code from the main chapters of the ICD-9-CM (3). External cause codes provide information on the circumstances and causes of injuries.

ICD-9-CM codes E800-E999 excluding E849 (place of occurrence code), E869.4 (Accidental poisoning by second-hand tobacco smoke), E870-E879 (Misadventures to patients during surgical and medical care), E930-E949 (Drugs, medicinal, and biological substances causing adverse effects in therapeutic use),

E967 (Perpetrator of child and adult abuse) were used in this report (with the exception of figure 23 which includes all codes from E800-E999). If more than one external cause code is listed for a given record, this report used only the first external cause code listed in the diagnostic code fields which met the criteria for this report (9,10). See "Appendix C," ICD-9-CM External Cause of Injury Matrix.

First-listed diagnosis - The diagnosis established after study to be chiefly responsible for the admission of the patient to the hospital is the principal diagnosis. The first-listed diagnosis is the one specified as the principal diagnosis on the face sheet or discharge summary of the medical record. However, if the principal diagnosis is not specified, the first one listed on the face sheet or discharge summary of the medical record is used. The number of first-listed diagnoses is equivalent to the number of discharges.

Geographic region - Hospitals are classified by location in one of the four geographic regions of the United States that correspond to those used by the U.S. Bureau of the Census. The four geographic regions are as follows:

- Northeast - Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania

- Midwest - Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas

- South - Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas

- West - Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, and Hawaii

Hospital - The NHDS includes hospitals with an average length of stay for all inpatients of less than 30 days (short stay) or those whose specialty is general (medical or surgical) or children's general. Federal hospitals, hospital units of institutions, and hospitals with less than six beds staffed for patient use are excluded.

ICD-9-CM addenda affecting injuries - Assignment of new diagnostic and procedure codes, fourth and fifth-digit expansion of codes, as well as code deletions, are contained in addenda developed by the ICD-9-CM Coordination and Maintenance Committee and approved by the Director of NCHS and the Administrator of the Centers for Medicare and Medicaid Services (formerly Health Care Financing Administration).

Since 1986 the ICD-9-CM has been updated annually with the exception of 1999. (No addendum was released in 1999 because of concerns about instituting coding changes before the millennium crossover.) Addenda to the ICD-9-CM become effective on October 1, but the new codes included in NHDS data for October 1 to December 31 of each year are converted back to their previous code assignments so that annual estimates are based on consistent coding.

Table II shows the ICD-9-CM addenda for injuries, the date they were introduced, and the code to which the diagnosis or procedure had been assigned. Specific titles and more detailed information about the coding system can be found in appropriate volumes of the ICD-9-CM (3).

Appendix A: Data Sources, Definitions, and Methods

Table II. Changes in injury ICD-9-CM diagnoses codes from the 1986-2000 addenda

Current code(s) assignment	Effective October 1	Previous code(s) assignment
864.05	1992	864.09
864.15	1992	864.19
909.5	1994	909.9
922.31-922.33	1996	922.3
925.1-925.2	1993	925
959.0 (code title restated)	1997	959.0
959.01	1997	854.00
959.09	1997	959.0
965.61	1998	965.6
965.69	1998	965.6
989.81-989.84	1995	989.8
989.89	1995	989.8
995.50-995.55	1996	995.5
995.59	1996	995.5
995.60-995.69	1993	995.0
995.7	2000	None
995.80	1996	995.81
995.81 (code title restated)	1996	995.81
995.82-995.85	1996	995.81
E854.8	1995	E858.8
E869.4	1994	E869.8
E880.1	1995	E884.9
E884.3-E884.4	1995	E884.2
E884.5-E884.6	1995	E884.9
E885.1-E885.4, E885.9	2000	E885
E906.5	1995	E906.3
E908.0-E908.4	1995	E908
E908.8-E908.9	1995	E908
E909.0-E909.4	1995	E909
E909.8-E909.9	1995	E909
E920.5	1995	E920.4
E922.4	1997	E917.9
E924.2	1995	E924.0
E928.3	2000	E928.8
E955.6	1997	E955.9
E967.2	1996	E967.0
E967.3	1996	None
E967.4-E967.8	1996	E967.1
E968.7	2000	E968.8
E968.5	1995	E968.8
E968.6	1997	E968.8
E985.6	1997	E985.4

An online version of Table II can be found at: www.cdc.gov/nchs/data/icd9/icdcnv05.pdf

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ICD-9-CM External Cause of Injury Matrix - The two-dimensional array of ICD-9-CM external cause of injury codes is grouped by mechanism and intent of injury e.g., fall (mechanism) and unintentional (intent). The categories within the matrix are mutually exclusive. This framework was developed by CDC in collaboration with members of the American Public Health Association's Injury Control and Emergency Health Services Section (ICEHS) (10). The International Collaborative Effort (ICE) on Injury Statistics endorsed the matrix for international comparisons. More information can be found online at http://www.cdc.gov/ncipc/whatsnew/matrix2.htm. See related External cause of injury code and "Appendix C", ICD-9-CM External Cause of Injury Matrix.

Injury discharge - Hospitalizations where the principal diagnosis (first-listed) is an ICD-9-CM diagnosis including 800-909.2, 909.4, 909.9, 910-994.9, 995.5-995.59, 995.80-995.85 (9).

International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) - The United States currently uses ICD-9-CM to code morbidity diagnoses and inpatient procedures. The ICD-9-CM is based on and is compatible with the World Health Organization's International Classification of Diseases, Ninth Revision. ICD-9-CM is divided into 17 chapters and 2 supplemental classifications. The chapters are arranged primarily by body system. In addition, there are chapters for infectious and parasitic diseases; neoplasms; endocrine, metabolic, and nutritional diseases; mental disorders; complications of pregnancy, childbirth and puerperium; certain conditions originating in the perinatal period; congenital anomalies; and symptoms, signs and ill-defined conditions. The two supplemental classifications are for factors influencing health status and contact with health services and classification of external causes of injury and poisoning. More information can be found online at www.cdc.gov/nchs/icd9.htm

International Collaborative Effort on Injury Statistics (ICE on Injury Statistics) - An international activity sponsored by the Centers for Disease Control and Prevention's National Center for Health Statistics. The ICE on Injury Statistics also receives funding from the National Institutes of Health's National Institute of Child Health and Human Development. The purpose of the ICE on Injury Statistics is to improve international comparability and quality of injury data. The ultimate goal is to provide the data needed to better understand the causes of injury and the most effective means of prevention. More information can be found online at www.cdc.gov/nchs/advice.htm.

Appendix A: Data Sources, Definitions, and Methods

Figure 1. Number of diagnoses A and B plotted on a linear scale, 1970-2000

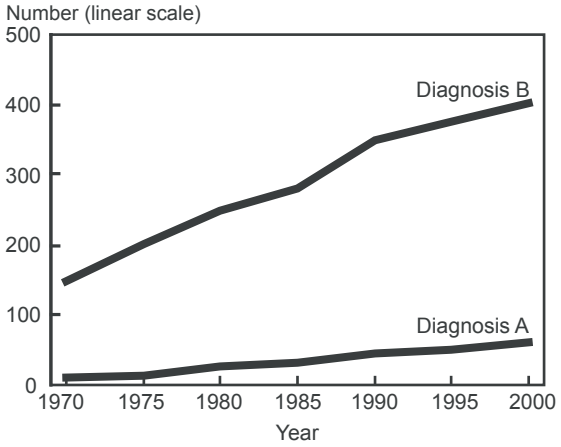
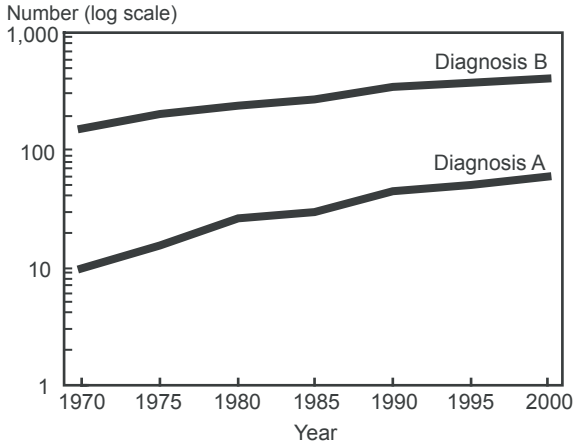


Figure 2. Number of diagnoses A and B plotted on a log scale, 1970-2000



Length of stay - See Average length of stay.

Logarithmic scale - A scale used to emphasize relative changes in numbers. The choice of a linear or logarithmic (log) scale depends on what the analyst/author wants to emphasize about the graph for the audience-the absolute or the relative changes in numbers. The absolute change is the arithmetic difference between two values. The relative change is the percent difference between two values.

The linear scale is the scale most frequently used and recognized, and it emphasizes the absolute changes between data points over time (11). Figure 1 is an example of data plotted on a linear (both x and y axes) scale. The absolute change from 1970 to 2000 for diagnosis A was 50 (from 10 to 60) and for diagnosis B it was 254 (from 150 to 404).

Logarithmic scales, on the other hand, emphasize the relative or percentage change between data points. Figure 2 is a semi-log scale graph (x-axis is linear and y-axis is logarithmic) of the same information as in figure 1. Equal distances on a log scale represent an equal percentage change. This feature makes a log graph particularly useful for showing rates of change in data. Thus, diagnosis A increased 500 percent from 1970 to 2000 while diagnosis B increased 169 percent.

If the important piece of information to be gleaned from these data is the greater percentage change in diagnosis A compared with diagnosis B, then the presentation on the log scale (figure 2) makes that very clear. The linear scale (figure 1) more clearly emphasizes the greater absolute magnitude of diagnosis B compared with A. In addition, trends can be shown on a log scale to enable measures with large differences in magnitude to be shown on the same chart. One potential disadvantage to using the log scale is that the absolute magnitude of changes may appear less dramatic (12).

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To properly interpret data on a log scale, the following points should be kept in mind:

1. A sloping straight line indicates a constant rate (not amount) of increase or decrease in the values.
2. A horizontal line indicates no change.
3. The slope of the line indicates the rate of increase or decrease.
4. Parallel lines, regardless of their magnitude, depict similar rates of change (11).

Because this report is designed to emphasize relative rates of change in injury hospitalizations from 1979 to 2001, we have chosen to present the data using the logarithmic scale. All of the actual data points are given in the detailed data and appendix tables.

Measurement errors - As in any survey, results are subject to nonsampling or measurement errors, which include errors due to hospital nonresponse, missing abstracts, information incompletely or inaccurately recorded on abstract forms, and processing errors. In general, less than one-half of one percent of the discharge records failed to include the age or sex of the patient. If the hospital record did not state the age or sex of the patient, it was imputed by assigning the patient an age or sex consistent with the age or sex of other sampled patients with the same first-listed diagnosis code.

Data on race were missing on average for about 15 percent of all discharges for all years, but this varies by year. The percent of race reporting for injury discharges was similar to the percent of race reporting for noninjury discharges. Except for one year, no attempt was made to impute for these missing values. In 1981 "race not stated" values were imputed for approximately 11 percent of the records so there are no "not stated" cases for that year. Data by race are provided by the hospital and are not based on patient self-report. Details about the underreporting of race in the NHDS can be found online at: www.cdc.gov/nchs/data/ad/ad265.pdf.

For data years before 1996, if dates of admission or discharge were missing or invalid, a length of stay was imputed by assigning the patient a stay characteristic of the stays of other patients of the same age.

A new edit program was developed and implemented for the NHDS beginning in 1996. The updated edit program followed the same general specifications as the previous edit program and was designed to make as few changes as possible in the data. However, there may be some minor anomalies that would be apparent when examining data over time, performing trend analyses, or examining combinations of variables. Particular features of the new edit program that may affect certain variables are:

- An improved imputation procedure for missing age and sex data was developed, which maintains the known distribution of these variables, according to categories of the first-listed diagnosis.
- There is no longer a re-ordering of any procedure codes.
- Principal and additional expected sources of payment are no longer re-ordered, with one exception: "Self-Pay" is listed as the principal source only if there are no other sources, or the only other source is "Not-Stated;" otherwise it must be listed after every other source (except "Not-Stated").
- An arbitrary month of admission is no longer assigned to records received from abstract services that do not provide the exact date of admission and discharge.

Other edit and imputation procedures may have been applied to data received in automated form prior to receipt by NCHS.

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Patient - A patient is a person who is formally admitted to the inpatient service of a hospital for observation, care, diagnosis, or treatment. Persons with multiple discharges during the year may be sampled more than once, thus estimates are for discharges, not individual persons. See related Average length of stay, Days of care, Discharge, Hospital.

Percent change - See Average percent change over time.

Population estimates - Hospital utilization rates are computed using U.S. Census Bureau population estimates as denominators.

Estimates of the civilian resident population as of July 1 of each year from 1979 to 2001 are used to calculate rates in this report. These are available in the multi-year public use data file for 1979 to 2000, and 2001 population estimates are provided in the 2001 public use data file. Population estimates for 1979 were adjusted based on the 1980 census. The estimates for 1980-89 have been adjusted based on the 1990 decennial census. Population estimates for 1990-2000 have been adjusted for underenumeration using the 1990 National Population Adjustment Matrix. Population estimates for 2000 are based on the 1990 census because population estimates from the 2000 census were not available when this report was prepared. Population estimates for 2001 are based on the 2000 census. Due to these updates and adjustments, it should be noted that rates calculated with these estimates may differ slightly from those appearing in published NCHS reports or those calculated from population estimates disseminated with the NHDS single-year file documentation.

Rate - A rate is a measure of an event, disease, or condition in relation to a unit of population for a specified time. For example:

Discharge rate per 10,000 population=(Number of annual discharges / annual population) *10,000

Relative standard error - The relative standard error (RSE) is a measure of an estimate's reliability. The RSE of an estimate is obtained by dividing the standard error of the estimate (SE(r)) by the estimate itself (r). This quantity is expressed as a percent of the estimate and is calculated as follows: RSE = 100 x (SE(r)/r). The RSE is used as a guide to the reliability of the estimate (see Standards of reliability). See related Sampling errors.

Sampling errors - Error introduced by chance because only a sample rather than the entire universe is surveyed.

Before 1988 standard error estimates for NHDS were produced using a computerized routine based on a rigorously unbiased estimator of the variance. To obtain standard errors that would be applicable for a wide variety of statistics and that could be prepared at a moderate cost, numerous variances were calculated and a best-fit formula was derived. This formula, which is based on an empirically determined relationship between the size of an estimate, X, and its relative variance, was used to produce generalized variance curves. These curves provide approximations to the relative standard errors that are applicable to estimates of discharges,

first-or all-listed diagnoses, all-listed procedures, and days of care, either aggregated or disaggregated by selected patient or hospital characteristics. For this report, the standard error estimates for 1979-87 were generated using this method.

Since 1988, estimates of sampling variability have been calculated with SUDAAN software, which computes standard errors by using a first-order Taylor series approximation of the deviation of estimates from their expected values. Bieler and Williams published a description of the software and its approach (13). For this report the standard errors for 1988-2001 were generated using this software. See related Relative standard error.

Standards of reliability - Based on consideration of the complex sample design of the NHDS, the following guidelines are recommended for using NHDS estimates and are used throughout this chartbook:

Estimates with relative standard errors (see Relative standard error definition) of more than 30 percent or that are based on fewer than 30 records are not presented due to low reliability; only an asterisk (*) appears in the tables. Estimates based on 30-59 records are preceded by an asterisk to indicate that they also have low reliability. Only an asterisk is shown in the tables if the estimate is less than 5,000 because these estimates generally have a relative standard error of more than 30 percent or a sample size of less than 30. Estimates of discharges of less than 9,000 are preceded by an asterisk because they are generally based on fewer than 60 records. Days of care estimates derived from the smaller estimates described in this paragraph are also replaced by or preceded by asterisks.

STIPDA or State and Territorial Injury Prevention Directors Association- The national nonprofit organization with membership of public health injury professionals that represents all States and territories. Its mission is to promote, sustain, and enhance the ability of State and territorial public health departments to reduce death and disability associated with injuries. This is accomplished by disseminating information on state-of-the-art injury prevention and control policies and strategies (9). More information about STIPDA can be found online at: www.stipda.org.

Test of trend - See Average percent change over time, test of trend, and test of significance between two statistics.

Appendix A: Data Sources, Definitions, and Methods

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Appendix B: The Barell injury diagnosis matrix; classification by body region and nature of injury (based on five digit ICD-9-CM codes)

Body region				Nature of injury											
				Fracture 800-829	Dislocation 830-839	Sprains & strains 840-848	Internal 850-854,860-869 952, 995.55	Open wound 870-884, 890-894	Amputations 885-887, 895-897	Blood vessels 900-904	Contusuion/ superficial 910-924	Crush 925-929	Burns 940-949	Nerves 950-951 953-957	Unspecified 959
Head and neck	Traumatic brain injury	1	Type 1 TBI	800, 801, 803, 804(.1-.4,.6-.9) 800, 801, 803, 804(.03-.05,.53-.55)			850(.2-.4) 851-854*, 995.55							950.1-.3	
		2	Type 2 TBI	800, 801, 803, 804(.00,.02,.06,.09), 800, 801, 803, 804(.50,.52,.56,.59)			850(.0,.1,.5,.9)								
		3	Type 3 TBI	800, 801, 803, 804(.01,.51)											
	Other head, face and neck	4	Other head					873.0-.1,.8-.9					941.x6	951	959.01*
		5	Face	802	830	848.0-.1		872, 873.2-.7					941.x1,.x3-.x5,.x7	/	
		6	Eye					870-871			918, 921		940, 941.x2	950(.0,.9)	
		7	Neck	807.5-.6		848.2		874				925.2	941.x8	953.0, 954.0	
		8	Head, face and neck unspecified							900	910, 920	925.1	941.x0,.x9, 947.0	957.0	959.09
Spine and back	Spinal cord (SCI)	9	Cervical SCI	806.0-.1			952.0								
		10	Thoracic/dorsal SCI	806.2-.3			952.1								
		11	Lumbar SCI	806.4-.5			952.2								
		12	Sacrum coccyx SCI	806.6-.7			952.3-.4								
		13	Spine + back unspecified SCI	806.8-.9			952.8-.9								
	Vertebral column (VCI)	14	Cervical VCI	805.0-.1	839.0-.1	847.0									
		15	Thoracic/dorsal VCI	805.2-.3	839.21,.31	847.1									
		16	Lumbar VCI	805.4-.5	839.20,.30	847.2									
		17	Sacrum coccyx VCI	805.6-.7	839(.41-.42, .51-.52)	847.3-.4									
		18	Spine + back unspecified VCI	805.8-.9	839(.40,.49,.50,.59)										
Torso	Torso	19	Chest (thorax)	807.0-.4	839.61,.71	848.3-.4	860-862	875, 879.0-.1		901	922(.0,.1,.33)	926.19	942.x1-x2	953.1	
		20	Abdomen				863-866, 868	879.2-.5		902.0-.4	922.2	/	942.x3, 947.3	953.2, 953.5	
		21	Pelvis & urogenital	808	839.69,.79	846, 848.5	867	877-878		902(.5, .81-.82)	922.4	926(.0, .12)	942.x5, 947.4	953.3	
		22	Trunk	809				879.6-.7			911, 922.8-.9	926.8-.9	942.x0, 942.x9	954.1, .8-.9	959.1
		23	Back and buttock			847.9		876			922.31-.32	926.11	942.x4		
Extremities	Upper	24	Shoulder & upper arm	810-812	831	840		880	887.2-.3		912, 923.0	927.0	943.x3-.x6		959.2
		25	Forearm & elbow	813	832	841		881.x0-x1	887.0-.1		923.1	927.1	943.x1-x2		
		26	Wrist, hand & fingers	814-817	833, 834	842		881.x2,882, 883	885-886		914-915, 923.2-.3	927.2-.3	944		959.4-.5
		27	Oher & unspecified	818		/		884	887.4-.7	903	913,923.8,.9	927.8-.9	943.x0,.x9	953.4, 955	959.3
	Lower	28	Hip	820	835	843					924.01	928.01			
		29	Upper leg & thigh	821					897.2-.3		924.00	928.00	945.x6		
		30	Knee	822	836	844.0-.3					924.11	928.11	945.x5		
		31	Lower leg & ankle	823-824	837	845.0			897.0-.1		924.10,.21	928.10,.21	945.x3-.x4		
		32	Foot & toes	825-826	838	845.1		892-893	895-896		917, 924.3,.20	928.3,.20	945.x1-.x2		
		33	Other & unspecified	827		844.8,.9		890-891,894	897.4-.7	904.0-.8	916, 924.4-.5	928.8,.9	945.x0-.x9		959.6-.7
Unclassifiable by site	Other & unspecified	34	Other/multiple	819, 828						902.87,.89			947.1-.2	953.8, 956	
		35	Unspecified site	829	839.8-.9	848.8-.9	869	879(.8-.9)		902.9, 904.9	919, 924.8,.9	929	946, 947.8,.9 948, 949	953.9, 957.1,.8,.9	959.8,.9
	System wide	36	System-wide & late effects	Foreign body (930-939), Early complications of trauma (958), Poisoning (960-979), Toxic Effects (980-989), Other and unspecified effects of external cause (990-994), Child and adult maltreatment (995.50-.54,.59, 995.80-.85), Late effects of injuries, poisonings, toxic effects and other external causes (905-909) excluding 909(.3, .5)											

For purposes of classification, head injuries are labeled as Type 1 TBI if there is recorded evidence of an intracranial injury or a moderate or a prolonged loss of consciousness (LOC), Shaken Infant Syndrome (SIS), or injuries to the optic nerve pathways. Type 2 TBI includes injuries with no recorded evidence of intracranial injury, and LOC of less than one hour, or LOC of unknown duration, or unspecified level of consciousness. Type 3 TBI includes patients with no evidence of intracranial injury and no LOC.

*NOTES: 959.01 (added to ICD-9-CM in 1997) is not intended to be assigned to TBI cases; however, in the USA it has been assigned incorrectly to a substantial proportion of cases previously coded 854.
The Matrix is available on the internet at www.cdc.gov/nchs/about/otheract/ice/barellmatrix.htm. Empty cells = No diagnosis codes.

Appendix C: Recommended framework of E-code groupings for presenting injury morbidity data (August 16, 2004)

Appendix C was corrected July 2005. Codes outlined in yellow box have been shifted down one row from the original print and online versions.

Mechanism/cause	Manner/Intent				
	Unintentional	Self-inflicted	Assault	Undetermined	Other[1]
Cut/pierce	E920.0-.9	E956	E966	E986	E974
Drowning/submersion	E830.0-.9, E832.0-.9, E910.0-.9	E954	E964	E984	
Fall	E880.0-E886.9, E888	E957.0-.9	E968.1	E987.0-.9	
Fire/burn	E890.0-E899, E924.0-.9	E958.1,.2,.7	E961, E968.0,.3, E979.3	E988.1,.2,.7	
Fire/flame	E890.0-E899	E958.1	E968.0, E979.3	E988.1	
Hot object/substance	E924.0-.9	E958.2,.7	E961, E968.3	E988.2,.7	
Firearm	E922.0-.3,.8, .9	E955.0-.4	E965.0-.4, E979.4	E985.0-.4	E970
Machinery	E919 (.0-.9)				
Motor vehicle traffic[2]	E810-E819 (.0-.9)	E958.5	E968.5	E988.5	
Occupant	E810-E819 (.0,.1)				
Motorcyclist	E810-E819 (.2,.3)				
Pedal cyclist	E810-E819 (.6)				
Pedestrian	E810-E819 (.7)				
Unspecified	E810-E819 (.9)				
Pedal cyclist, other	E800-E807 (.3), E820-E825 (.6), E826.1,.9, E827-E829(.1)				
Pedestrian, other	E800-807(.2), E820-E825(.7), E826-E829(.0)				
Transport, other	E800-E807 (.0,.1,.8,.9), E820-E825 (.0-.5,.8,.9), E826.2-.8, E827-E829 (.2-.9), E831.0-.9, E833.0-E845.9	E958.6		E988.6	
Natural/environmental	E900.0-E909, E928.0-.2	E958.3		E988.3	
Bites and stings	E905.0-.6,.9, E906.0-.4,.5,.9				
Overexertion	E927				
Poisoning	E850.0-E869.9	E950.0-E952.9	E962.0-.9	E980.0-E982.9	E972
Struck by, against	E916-E917.9		E960.0; E968.2		E973, E975
Suffocation	E911-E913.9	E953.0-.9	E963	E983.0-.9	
Other specified and classifiable[3]	E846-E848, E914-E915, E918, E921.0-.9, E922.4,.5 E923.0-.9, E925.0-E926.9, E928.3, E929.0-.5	E955.5,.6,.7,.9, E958.0,.4	E960.1, E965.5-.9, E967.0-.9, E968.4,.6, .7, E979.0-.2, E979.5-.9	E985.5,.6,.7, E988.0,.4	E971, E978, E990-E994, E996, E997.0-.2
Other specified, not elsewhere classifiable	E928.8, E929.8	E958.8, E959	E968.8, E969	E988.8, E989	E977, E995, E997.8, E998, E999
Unspecified	E887, E928.9, E929.9	E958.9	E968.9	E988.9	E976, E997.9
All injury	E800-E869, E880-E929	E950-E959	E960-E969, E979	E980-E989	E970-E978, E990-E999
Adverse effects					E870-E879, E930.0-E949.9
Medical care					E870-E879
Drugs					E930.0-E949.9
All external causes					E800-E999

[1]Includes legal intervention (E970-E978) and operations of war (E990-E999).
[2]Three 4th-digit codes (.4 [occupant of streetcar], .5 [rider of animal], .8 [other specified person]) are not presented separately because of small numbers. However, because they are included in the overall motor vehicle traffic category, the sum of these categories can be derived by subtraction.
[3]ICD-9-CM E849 code should never be first-listed E code and should only appear as an additional code to specify the place of occurrence of the injury incident and has been excluded from the matrix.

NOTES: ICD-9-CM codes were updated as of August 2004. The matrix is avilable onthe internet at www.cdc.gov/ncipc/whatsnew/matrix2.htm. Empty cells = No diagnosis codes.