

Advance Data



From Vital and Health Statistics of the CENTERS FOR DISEASE CONTROL AND PREVENTION/National Center for Health Statistics

1993 Summary: National Hospital Discharge Survey

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Introduction

During 1993, there were an estimated 30.8 million discharges of inpatients, excluding newborn infants, from short-stay non-Federal hospitals in the United States. These discharges accounted for 184.6 million days of inpatient hospital care. The discharge rate was 120.2 per 1,000 population and the average length of stay was 6.0 days.

These and other statistics presented in this report are based on data collected by means of the National Hospital Discharge Survey (NHDS), a continuous survey that has been conducted by the National Center for Health Statistics (NCHS) since 1965. In 1993, data were abstracted from the medical records of approximately 235,000 discharges from 466 short-stay non-Federal hospitals. Beginning in 1988, a new three-stage stratified sample design was put in operation. A brief description of the new design, data collection procedures, estimation process, and definitions of terms used in this report are in the

section entitled "Technical notes." A description of the development and design of the original NHDS, which was in operation from 1965–1987, has been published (1). Differences may exist between data for 1988–93 and earlier years because of the redesign of the survey.

Medical data were coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (2). Up to seven diagnoses and four procedures were coded for each discharge. Although diagnoses included in the ICD–9–CM section entitled "Supplementary classification of external causes of injury and poisoning" (codes E800–E999) were used in the NHDS, these diagnoses are excluded from this report.

Beginning in 1991, all ICD–9–CM procedure codes were used in the NHDS. In previous years, selected codes were excluded. These were primarily codes for certain miscellaneous diagnostic and therapeutic procedures.

Starting in 1985, some hospitals participating in the NHDS have been

submitting machine-readable data tapes. In 1993, approximately 32 percent of the hospitals used this method to submit data. More detailed analyses of NHDS data are published in Series 13 of the NCHS *Vital and Health Statistics* reports.

Data highlights

Utilization by patient and hospital characteristics

The number, rate, and average length of stay of discharges from short-stay non-Federal hospitals are shown by age, geographic region, and sex in tables 1–3. Of the 30.8 million discharges from short-stay hospitals during 1993, an estimated 12.3 million were for males and 18.6 million were for females. The discharge rate per 1,000 population for females was 141, which was 44 percent higher than the rate of 98 for males. The number and rate of discharges were higher for females than for males largely because women 15–44 years of age were

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
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Table 1. Number of discharges from short-stay hospitals by selected characteristics: United States, 1993

[Discharges of inpatients from non-Federal hospitals. Excludes newborn infants]

<i>Selected characteristic</i>	<i>Both sexes</i>	<i>Male</i>	<i>Female</i>
Number in thousands			
Total	30,825	12,262	18,563
Age			
Under 15 years	2,141	1,193	948
15–44 years	11,200	3,179	8,021
45–64 years	6,283	3,143	3,141
65 years and over	11,201	4,748	6,453
Region			
Northeast	6,965	2,931	4,033
Midwest	7,097	2,900	4,197
South	11,580	4,448	7,132
West	5,183	1,983	3,200

Table 2. Rate of discharges from short-stay hospitals by selected characteristics: United States, 1993

[Discharges of inpatients from non-Federal hospitals. Excludes newborn infants]

<i>Selected characteristic</i>	<i>Both sexes</i>	<i>Male</i>	<i>Female</i>
Number per 1,000 population			
Total	120.2	98.4	140.8
Age			
Under 15 years	37.7	41.1	34.2
15–44 years	95.4	54.5	136.0
45–64 years	126.8	131.5	122.5
65 years and over	341.6	357.2	330.9
Region			
Northeast	135.8	118.8	151.6
Midwest	116.4	97.9	133.9
South	130.6	104.0	155.5
West	93.3	72.0	114.2

Table 3. Average length of stay for discharges from short-stay hospitals by selected characteristics: United States, 1993

[Discharges of inpatients from non-Federal hospitals. Excludes newborn infants]

<i>Selected characteristic</i>	<i>Both sexes</i>	<i>Male</i>	<i>Female</i>
Number of days			
Total	6.0	6.5	5.6
Age			
Under 15 years	5.2	5.0	5.4
15–44 years	4.2	5.8	3.5
45–64 years	6.2	6.3	6.1
65 years and over	7.8	7.5	8.1
Region			
Northeast	7.0	7.4	6.7
Midwest	6.1	6.5	5.8
South	5.7	6.3	5.4
West	5.1	5.8	4.6

frequently hospitalized for deliveries and pregnancy-related conditions.

The average length of stay was 6.5 days for males and 5.6 days for females during 1993. The average length of stay of the 4.0 million women who were hospitalized for deliveries was 2.4 days. The average length of stay was 5.2 days for children under 15 years of age, 4.2 days for the 15–44 years age group, 6.2 days for those 45–64 years of age, and 7.8 days for the group 65 years of age and over.

The number of discharges from short-stay hospitals by geographic region during 1993 ranged from 11.6 million in the South to 5.2 million in the West. Regional differences in the number of discharges were accounted for in part by variations in the population sizes. The discharge rates per 1,000 population ranged from 136 in the Northeast region to 93 in the West. Average lengths of stay by geographic region were 5.1 days in the West, 5.7 days in the South, 6.1 days in the Midwest, and 7.0 days in the Northeast.

Utilization by diagnosis

The number and rates of discharges and average length of stay for each ICD–9–CM diagnostic chapter and selected categories within chapters are shown by sex and age in tables 4–6. In 1993, 5.6 million discharges had a principal or first-listed diagnosis in the ICD–9–CM diagnostic chapter of diseases of the circulatory system. Other leading ICD–9–CM diagnostic chapters were supplementary classifications (including females with deliveries) (4.4 million discharges), diseases of the respiratory system (3.1 million discharges), and diseases of the digestive system (3.1 million discharges). Approximately 53 percent of the discharges from non-Federal short-stay hospitals were included in these four ICD–9–CM diagnostic chapters.

Within the chapters, the common diagnostic categories were deliveries, heart disease, malignant neoplasms, pneumonia, psychoses, and fractures. Excluding deliveries, these last five diagnostic categories were leading

first-listed diagnoses for both males and females.

Common diagnoses for children under 15 years of age were acute respiratory infections, pneumonia, and asthma. For the age group 15–44 years of age, frequent diagnoses were deliveries, psychoses, and fractures. For those 45–64 years of age and 65 years of age and over, heart disease and malignant neoplasms were major causes of hospitalization. Average lengths of stay ranged from 1.3 days for chronic disease of tonsils and adenoids to 12.0 for psychosis.

Utilization by procedure

One or more surgical or nonsurgical procedures were performed during an estimated 20.0 million of the 30.8 million hospitalizations in 1993. A total of 41.6 million procedures, or an average of 2.1 per discharge where at least one procedure was performed, were recorded in 1993.

The number and rate of all-listed procedures in 1993 for each ICD–9–CM procedure chapter and selected categories are shown by sex and age in tables 7 and 8. More than three-fourths of all the surgical and nonsurgical procedures performed during 1993 were in 5 of the 16 ICD–9–CM procedure chapters. These chapters were miscellaneous diagnostic and therapeutic procedures (13.6 million), obstetrical procedures (6.8 million), operations on the digestive system (5.1 million), operations on the cardiovascular system (4.4 million), and operations on the musculoskeletal system (3.2 million).

Within the chapters, frequent procedures for males were arteriography and angiocardiology, cardiac catheterization, diagnostic ultrasound, and computerized axial tomography. Procedures commonly performed on females were episiotomy, fetal EKG and fetal monitoring, cesarean section, and repair of obstetric laceration.

Commonly performed procedures for children under 15 years of age were respiratory therapy and spinal tap; for the age group 15–44 years, episiotomy, fetal EKG and fetal monitoring, and cesarean section; for those 45–64 years of age, arteriography and angiocardiology, cardiac

catheterization, and diagnostic ultrasound; and for the group 65 years of age and over, arteriography and angiocardiology, diagnostic ultrasound, and computerized axial tomography.

References

1. Simmons WR. Development of the design of the NCHS Hospital Discharge Survey. National Center for Health Statistics. *Vital Health Stat* 2(39). 1970.
2. Public Health Service and Health Care Financing Administration. *International Classification of Diseases, 9th Revision, Clinical Modification*. Washington: Public Health Service. 3rd ed. 1980.
3. SMG Marketing Group, Inc. *Hospital Market Database*. Chicago: Healthcare Information Specialists. 1987.
4. SMG Marketing Group, Inc. *Hospital Market Database*. Chicago: Healthcare Information Specialists. April 1991.
5. Shah BV. SESUDAAN: Standard errors program for computing of standardized rates from sample survey data. Research Triangle Park, North Carolina: Research Triangle Institute. 1981.

Table 4. Number of discharges from short-stay hospitals, by first-listed diagnosis, sex, and age: United States, 1993[Discharges of inpatients from non-Federal hospitals. Excludes newborn infants. Diagnostic groupings and code numbers are based on the *International Classification of Diseases, 9th Revision, Clinical Modifications (ICD-9-CM)*]

Category of first-listed diagnosis and ICD-9-CM code	Total	Sex		Age			
		Male	Female	Under 15 years	15-44 years	45-64 years	65 years and over
Number in thousands							
All conditions	30,825	12,262	18,563	2,141	11,200	6,283	11,201
Infectious and parasitic diseases.001-139	797	390	407	168	231	120	278
Septicemia038	270	118	152	18	28	44	180
Neoplasms140-239	1,855	759	1,096	39	346	584	885
Malignant neoplasms140-208,230-234	1,482	690	792	31	180	459	811
Malignant neoplasm of large intestine and rectum153-154,197.5	157	73	84	*	*7	46	103
Malignant neoplasm of trachea, bronchus, and lung162,197.0,197.3	194	114	80	*	*7	75	111
Malignant neoplasm of breast174-175,198.81	168	*	167	*	36	62	71
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature210-229,235-239	373	69	304	*8	166	125	74
Endocrine, nutritional and metabolic diseases, and immunity disorders.240-279	1,210	480	730	90	256	300	564
Diabetes mellitus250	464	212	252	15	120	147	182
Volume depletion276.5	347	129	218	57	50	50	189
Diseases of the blood and blood-forming organs280-289	327	149	178	50	100	63	113
Mental disorders.290-319	1,827	959	868	75	1,089	375	288
Psychoses290-299	1,054	500	554	30	564	237	222
Alcohol dependence syndrome303	252	193	59	*	175	62	13
Diseases of the nervous system and sense organs320-389	681	312	369	95	179	154	252
Diseases of the central nervous system320-336,340-349	278	119	159	29	98	61	90
Diseases of the ear and mastoid process380-389	118	59	59	52	17	20	29
Diseases of the circulatory system.390-459	5,633	2,885	2,747	25	421	1,599	3,587
Heart disease391-392.0,393-398,402,404,410-416,420-429	3,951	2,078	1,873	13	242	1,167	2,529
Acute myocardial infarction410	745	435	310	*	47	250	446
Coronary atherosclerosis.414.0	492	322	170	*	25	208	258
Other ischemic heart disease411-413,414.1-414.9	842	447	395	*	45	299	499
Cardiac dysrhythmias427	549	267	282	*	42	123	380
Congestive heart failure428.0	875	394	481	*	21	169	681
Cerebrovascular disease430-438	841	385	456	*	38	172	629
Diseases of the respiratory system460-519	3,142	1,528	1,614	667	468	576	1,430
Acute respiratory infections.460-466	400	204	196	222	62	41	75
Chronic disease of tonsils and adenoids.474	37	17	20	26	9	*	-
Pneumonia.480-486	1,184	598	586	209	142	191	642
Asthma493	468	191	278	159	128	94	87
Diseases of the digestive system520-579	3,079	1,358	1,721	206	878	810	1,185
Ulcers of the stomach and small intestine.531-534	216	114	102	*	34	61	120
Appendicitis540-543	223	131	92	47	131	29	16
Inguinal hernia.550	83	76	*8	*8	17	19	40
Noninfectious enteritis and colitis555-558	350	139	211	87	107	61	95
Cholelithiasis.574	476	134	342	*	168	146	161
Diseases of the genitourinary system580-629	1,915	663	1,252	62	746	446	662
Calculus of kidney and ureter592	225	143	82	*	104	84	36
Hyperplasia of prostate600	185	185	...	*	*	44	140
Complications of pregnancy, childbirth, and the puerperium ¹630-676	594	...	594	*	592	*	...
Abortions and ectopic and molar pregnancies630-639	133	...	133	*	132	*	...
Diseases of the skin and subcutaneous tissue680-709	451	214	237	37	129	105	180
Mellulitis and abscess681-682	304	148	155	23	94	76	111
Diseases of the musculoskeletal system and connective tissue710-739	1,561	687	874	37	481	433	611
Arthropathies and related disorders.710-719	541	215	325	11	111	114	305
Intervertebral disc disorders722	391	219	172	*	206	131	55
Congenital anomalies.740-759	150	82	69	105	28	10	*8
Certain conditions originating in the perinatal period.760-779	139	81	58	134	*	*	*
Symptoms, signs, and ill-defined conditions780-799	327	153	174	53	134	87	53
Injury and poisoning800-999	2,718	1,395	1,323	238	1,007	515	959
Fractures, all sites800-829	1,017	440	577	77	303	144	494
Fracture of neck of femur820	307	72	235	*	*8	20	276
Intracranial injuries (excluding those with skull fracture)850-854	160	102	58	30	72	23	35
Lacerations and open wounds.870-904	171	129	42	20	107	25	20
Supplementary classifications.V01-V82	4,419	168	4,251	57	4,110	105	147
Females with deliveriesV27	4,015	...	4,015	11	4,001	*	...

¹The first-listed diagnoses for females with deliveries is coded V27, shown under "Supplementary classifications."

Table 5. Rate of discharges from short-stay hospitals, by first-listed diagnosis, sex, and age: United States, 1993[Discharges of inpatients from non-Federal hospitals. Excludes newborn infants. Diagnostic groupings and code numbers are based on the *International Classification of Diseases, 9th Revision, Clinical Modifications (ICD-9-CM)*]

Category of first-listed diagnosis and ICD-9-CM code	Total	Sex		Age			
		Male	Female	Under 15 years	15-44 years	45-64 years	65 years and over
		Number per 10,000 population					
All conditions	1,202.1	984.2	1,407.9	377.3	945.5	1,268.1	3,415.7
Infectious and parasitic diseases.001-139	31.1	31.3	30.9	29.6	19.7	24.3	84.7
Septicemia038	10.5	9.5	11.5	3.2	2.4	8.9	54.9
Neoplasms140-239	72.3	60.9	83.2	7.0	29.5	117.8	270.0
Malignant neoplasms140-208,230-234	57.8	55.3	60.1	5.5	15.4	92.6	247.4
Malignant neoplasm of large intestine and rectum153-154,197.5	6.1	5.9	6.4	*	*0.6	9.3	31.5
Malignant neoplasm of trachea, bronchus, and lung162,197.0,197.3	7.6	9.2	6.1	*	*0.6	15.1	33.9
Malignant neoplasm of breast174-175,198.81	6.6	*	12.7	*	3.0	12.4	21.5
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature210-229,235-239	14.5	5.5	23.1	*1.4	14.2	25.2	22.7
Endocrine, nutritional and metabolic diseases, and immunity disorders.240-279	47.2	38.5	55.4	15.9	21.8	60.6	171.9
Diabetes mellitus250	18.1	17.0	19.1	2.6	10.2	29.8	55.4
Volume depletion276.5	13.5	10.4	16.5	10.0	4.3	10.1	57.7
Diseases of the blood and blood-forming organs280-289	12.7	11.9	13.5	8.9	8.5	12.8	34.4
Mental disorders.290-319	71.3	77.0	65.9	13.2	92.8	75.8	87.7
Psychoses290-299	41.1	40.1	42.0	5.3	48.1	47.9	67.8
Alcohol dependence syndrome303	9.8	15.5	4.5	*	14.9	12.5	4.1
Diseases of the nervous system and sense organs320-389	26.5	25.0	28.0	16.8	15.3	31.1	76.9
Diseases of the central nervous system320-336,340-349	10.8	9.6	12.1	5.2	8.3	12.3	27.6
Diseases of the ear and mastoid process380-389	4.6	4.7	4.5	9.1	1.5	4.0	9.0
Diseases of the circulatory system.390-459	219.6	231.6	208.4	4.4	35.9	322.7	1,093.9
Heart disease391-392.0,393-398,402,404,410-416,420-429	154.1	166.8	142.1	2.4	20.6	235.4	771.3
Acute myocardial infarction410	29.0	34.9	23.5	*	4.0	50.5	136.0
Coronary atherosclerosis.414.0	19.2	25.9	12.9	*	2.2	42.1	78.7
Other ischemic heart disease411-413,414.1-414.9	32.8	35.9	29.9	*	3.8	60.3	152.0
Cardiac dysrhythmias427	21.4	21.5	21.4	*	3.5	24.9	115.8
Congestive heart failure428.0	34.1	31.6	36.5	*	1.8	34.1	207.6
Cerebrovascular disease430-438	32.8	30.9	34.6	*	3.2	34.7	192.0
Diseases of the respiratory system460-519	122.5	122.6	122.4	117.6	39.9	116.3	436.2
Acute respiratory infections.460-466	15.6	16.4	14.9	39.2	5.3	8.2	22.7
Chronic disease of tonsils and adenoids.474	1.4	1.3	1.5	4.5	0.8	*	-
Pneumonia.480-486	46.2	48.0	44.5	36.9	12.1	38.5	195.9
Asthma493	18.3	15.3	21.1	28.0	10.9	19.0	26.6
Diseases of the digestive system520-579	120.1	109.0	130.5	36.3	74.9	163.6	361.2
Ulcers of the stomach and small intestine.531-534	8.4	9.1	7.7	*	2.9	12.4	36.6
Appendicitis540-543	8.7	10.5	7.0	8.3	11.2	5.8	4.8
Inguinal hernia.550	3.3	6.1	*0.6	*1.4	1.4	3.8	12.2
Noninfectious enteritis and colitis555-558	13.7	11.1	16.0	15.3	9.1	12.3	29.0
Cholelithiasis.574	18.6	10.8	25.9	*	14.3	29.5	49.0
Diseases of the genitourinary system580-629	74.7	53.2	95.0	10.9	63.6	89.9	201.8
Calculus of kidney and ureter592	8.8	11.5	6.2	*	8.8	16.9	11.1
Hyperplasia of prostate600	7.2	14.8	...	*	*	8.9	42.7
Complications of pregnancy, childbirth, and the puerperium ¹630-676	23.2	...	45.1	*	50.4	*	...
Abortions and ectopic and molar pregnancies630-639	5.2	...	10.1	*	11.3	*	...
Diseases of the skin and subcutaneous tissue680-709	17.6	17.2	18.0	6.5	11.0	21.3	54.8
Cellulitis and abscess681-682	11.8	11.9	11.8	4.1	8.0	15.3	33.7
Diseases of the musculoskeletal system and connective tissue710-739	60.9	55.1	66.3	6.5	41.0	87.4	186.3
Arthropathies and related disorders.710-719	21.1	17.3	24.7	1.9	9.5	22.9	93.0
Intervertebral disc disorders722	15.3	17.6	13.0	*	17.5	26.3	16.7
Congenital anomalies.740-759	5.9	6.5	5.2	18.5	2.3	2.0	*2.4
Certain conditions originating in the perinatal period.760-779	5.4	6.5	4.4	23.6	*	*	*
Symptoms, signs, and ill-defined conditions780-799	12.7	12.3	13.2	9.3	11.4	17.5	16.3
Injury and poisoning800-999	106.0	112.0	100.4	41.9	85.8	103.9	292.3
Fractures, all sites800-829	39.7	35.3	43.8	13.5	25.8	29.1	150.7
Fracture of neck of femur820	12.0	5.8	17.8	*	*0.7	4.1	84.1
Intracranial injuries (excluding those with skull fracture)850-854	6.2	8.2	4.4	5.3	6.1	4.6	10.7
Lacerations and open wounds.870-904	6.7	10.4	3.2	3.5	9.1	5.1	5.9
Supplementary classifications.V01-V82	172.3	13.5	322.4	10.1	350.3	21.1	44.8
Females with deliveriesV27	156.6	...	304.5	2.0	341.0	*	...

¹The first-listed diagnoses for females with deliveries is coded V27, shown under "Supplementary classifications."

Table 6. Average length of stay for discharges from short-stay hospitals, by first-listed diagnosis, sex, and age: United States, 1993[Discharges of inpatients from non-Federal hospitals. Excludes newborn infants. Diagnostic groupings and code numbers are based on the *International Classification of Diseases, 9th Revision, Clinical Modifications (ICD-9-CM)*]

Category of first-listed diagnosis and ICD-9-CM code	Total	Sex		Age			
		Male	Female	Under 15 years	15-44 years	45-64 years	65 years and over
				Number of days			
All conditions	6.0	6.5	5.6	5.2	4.2	6.2	7.8
Infectious and parasitic diseases001-139	7.9	8.4	7.5	4.4	7.7	9.5	9.6
Septicemia038	10.6	10.9	10.3	7.7	11.7	12.1	10.3
Neoplasms140-239	7.4	8.3	6.7	7.2	4.8	7.3	8.4
Malignant neoplasms140-208,230-234	8.1	8.5	7.7	7.0	6.1	8.0	8.6
Malignant neoplasm of large intestine and rectum153-154,197.5	11.0	10.5	11.4	*	*9.3	9.8	11.7
Malignant neoplasm of trachea, bronchus, and lung162,197.0,197.3	8.7	8.4	9.0	*	*6.5	8.6	8.9
Malignant neoplasm of breast174-175,198.81	3.7	*	3.7	*	3.2	3.9	3.8
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature210-229,235-239	4.5	5.9	4.1	*8.0	3.5	4.5	6.1
Endocrine, nutritional and metabolic diseases, and immunity disorders240-279	6.6	6.4	6.7	4.1	5.2	6.1	7.8
Diabetes mellitus250	7.5	7.2	7.7	4.5	5.0	7.3	9.6
Volume depletion276.5	5.9	5.5	6.2	2.7	6.2	5.2	7.0
Diseases of the blood and blood-forming organs280-289	5.8	5.7	5.9	4.5	5.3	5.8	6.8
Mental disorders290-319	10.3	9.8	10.8	14.5	9.3	10.5	12.5
Psychoses290-299	12.0	11.6	12.3	16.1	10.9	12.4	13.7
Alcohol dependence syndrome303	8.5	8.2	9.3	*	8.4	8.5	9.2
Diseases of the nervous system and sense organs320-389	5.4	5.7	5.3	4.2	5.1	5.2	6.3
Diseases of the central nervous system320-336,340-349	8.5	9.1	8.1	6.2	6.7	8.1	11.5
Diseases of the ear and mastoid process380-389	3.1	2.5	3.7	3.4	2.0	2.9	3.5
Diseases of the circulatory system390-459	6.7	6.3	7.0	5.2	5.3	5.9	7.2
Heart disease391-392.0,393-398,402,404,410-416,420-429	6.3	6.0	6.6	5.6	4.7	5.5	6.8
Acute myocardial infarction410	7.4	7.0	7.8	*	5.5	6.6	8.0
Coronary atherosclerosis414.0	6.0	5.6	6.7	*	4.1	5.2	6.9
Other ischemic heart disease411-413,414.1-414.9	4.5	4.5	4.6	*	3.2	4.1	4.9
Cardiac dysrhythmias427	4.8	5.0	4.7	*	2.7	4.4	5.2
Congestive heart failure428.0	7.5	7.0	7.9	*	6.2	6.5	7.8
Cerebrovascular disease430-438	8.4	8.1	8.7	*	9.0	8.3	8.4
Diseases of the respiratory system460-519	6.7	6.5	7.0	3.8	4.9	6.9	8.6
Acute respiratory infections460-466	4.0	3.6	4.4	3.2	3.6	4.4	6.4
Chronic disease of tonsils and adenoids474	1.3	1.2	1.3	1.3	1.2	*	-
neumonia480-486	7.8	7.6	8.0	4.8	6.6	7.4	9.2
Asthma493	4.4	3.8	4.9	3.4	3.5	5.4	6.7
Diseases of the digestive system520-579	5.7	5.6	5.7	4.0	4.4	5.4	7.1
Ulcers of the stomach and small intestine531-534	6.7	6.5	6.8	*	4.9	6.1	7.5
Appendicitis540-543	4.5	4.6	4.3	5.0	3.6	5.1	8.7
Anguinal hernia550	2.7	2.6	*4.6	*2.5	1.6	1.9	3.7
Noninfectious enteritis and colitis555-558	4.8	4.6	5.0	2.5	4.0	5.5	7.6
Cholelithiasis574	4.2	4.6	4.1	*	3.3	3.2	6.1
Diseases of the genitourinary system580-629	4.5	4.7	4.4	4.1	3.4	4.0	6.1
Calculus of kidney and ureter592	2.9	2.8	3.2	*	2.8	2.6	4.0
Hyperplasia of prostate600	3.8	3.8	...	*	*	3.3	3.9
Complications of pregnancy, childbirth, and the puerperium ¹630-676	2.6	...	2.6	*	2.6	*	...
Abortions and ectopic and molar pregnancies630-639	2.0	...	2.0	*	2.0	*	...
Diseases of the skin and subcutaneous tissue680-709	7.6	7.9	7.3	3.9	6.5	7.5	9.2
Cellulitis and abscess681-682	6.6	6.7	6.4	3.8	5.8	6.8	7.7
Diseases of the musculoskeletal system and connective tissue710-739	5.8	5.1	6.4	4.7	3.7	4.8	8.2
Arthropathies and related disorders710-719	6.8	6.0	7.4	4.2	3.3	6.1	8.5
Intervertebral disc disorders722	4.0	3.6	4.5	*	3.5	3.9	5.9
Congenital anomalies740-759	6.7	6.1	7.3	7.2	4.8	4.8	*8.0
Certain conditions originating in the perinatal period760-779	11.3	11.3	11.3	11.5	*	*	*
Symptoms, signs, and ill-defined conditions780-799	2.8	2.7	2.8	3.1	2.4	2.3	4.1
Injury and poisoning800-999	6.4	5.8	6.9	4.6	4.8	6.3	8.5
Fractures, all sites800-829	7.5	6.7	8.0	4.3	5.6	6.4	9.4
Fracture of neck of femur820	10.3	10.5	10.2	*	*10.1	10.4	10.3
Intracranial injuries (excluding those with skull fracture)850-854	7.3	7.1	7.5	2.9	7.5	7.5	10.5
Lacerations and open wounds870-904	3.7	3.5	4.2	3.3	3.0	4.5	6.3
Supplementary classificationsV01-V82	2.9	8.3	2.7	6.1	2.5	6.0	11.9
Females with deliveriesV27	2.4	...	2.4	2.6	2.4	*	...

¹The first-listed diagnoses for females with deliveries is coded V27, shown under "Supplementary classifications."

Table 7. Number of all-listed procedures for discharges from short-stay hospitals, by procedure category, sex, and age: United States, 1993[Discharges of inpatients from non-Federal hospitals. Excludes newborn infants. Procedure groupings and code numbers are based on the *International Classification of Diseases, 9th Revision, Clinical Modifications (ICD-9-CM)*]

Procedure category and ICD-9-CM code	Total	Sex		Age				
		Male	Female	Under 15 years	15-44 years	45-64 years	65 years and over	
		Number in thousands						
All procedures	41,608	16,142	25,466	1,863	16,021	9,178	14,546	
Operations on the nervous system01-05	909	449	460	188	327	183	211	
Spinal tap03.31	334	168	166	140	88	47	58	
Operations on the endocrine system06-07	90	25	64	*	30	35	22	
Operations on the eye08-16	391	188	203	19	83	81	208	
Operations on the ear18-20	83	48	35	40	22	13	*8	
Operations on the nose, mouth, and pharynx21-29	390	213	177	77	163	84	66	
Tonsillectomy with or without adenoidectomy28.2-28.3	50	24	26	31	16	*	*	
Operations on the respiratory system30-34	986	554	432	46	187	277	475	
Bronchoscopy with or without biopsy33.21-33.24,33.27	301	173	128	13	58	88	142	
Operations on the cardiovascular system35-39	4,410	2,619	1,791	131	486	1,560	2,234	
Removal of coronary artery obstructon36.0	398	268	130	*	30	185	183	
Coronary artery bypass graft 1/.36.1	485	353	133	-	21	205	260	
Cardiac catheterization37.21-37.23	1,010	613	397	14	90	420	485	
Insertion, replacement, removal, and revision of pacemaker leads or device37.7-37.8	281	141	141	*	*	42	232	
Shunt or vascular bypass39.0-39.2	173	99	74	*	19	58	94	
Hemodialysis39.95	328	168	161	*	73	117	137	
Operations on the hemic and lymphatic system40-41	377	197	181	22	63	117	176	
Operations on the digestive system42-54	5,096	2,106	2,990	169	1,376	1,342	2,210	
Endoscopy of small intestine with or without biopsy45.11-45.14,45.16	832	367	465	11	143	207	471	
Endoscopy of large intestine with or without biopsy45.21-45.25	517	211	306	*	74	133	307	
Partial excision of large intestine45.7	207	93	113	*	24	60	120	
Appendectomy, excluding incidental47.0	250	135	115	49	148	35	17	
Cholecystectomy51.2	502	148	354	*	182	150	168	
Repair of inguinal hernia53.0-53.1	109	96	13	10	19	27	54	
Lysis of peritoneal adhesions54.5	347	58	289	*	171	84	90	
Operations on the urinary system55-59	1,263	653	610	35	317	341	570	
Cystoscopy with or without biopsy57.31-57.33	329	211	118	*	60	83	181	
Operations on the male genital organs60-64	468	468	...	30	30	96	312	
Prostatectomy60.2-60.6	317	317	*	66	250	
Operations on the female genital organs65-71	2,197	...	2,197	*6	1,454	492	245	
Oophorectomy and salpingo-oophorectomy65.3-65.6	443	...	443	*	225	164	52	
Bilateral destruction or occlusion of fallopian tubes66.2-66.3	384	...	384	*	383	*	...	
Hysterectomy68.3-68.7,68.9	562	...	562	*	326	172	63	
Dilation and curettage of uterus69.0	127	...	127	*	99	19	*9	
Repair of cystocele and rectocele70.5	159	...	159	-	41	60	58	
Obstetrical procedures72-75	6,763	...	6,763	19	6,740	*	...	
Episiotomy with or without forceps or vacuum extraction72.1,72.21,72.31,72.71,73.6	1,562	...	1,562	*	1,555	*	...	
Artificial rupture of membranes73.0	744	...	744	*	742	*	...	
Cesarean section74.0-74.2,74.4,74.99	917	...	917	*	915	*	...	
Fetal EKG (scalp) and fetal monitoring, not otherwise specified75.32,75.34	1,142	...	1,142	*	1,139	*	...	
Repair of current obstetric laceration75.5-75.6	860	...	860	*	857	*	...	
Operations on the musculoskeletal system76-84	3,223	1,600	1,623	151	1,231	798	1,043	
Partial excision of bone76.2-76.3,77.6-77.8	227	123	104	*	96	76	50	
Open reduction of fracture with internal fixation79.3	423	175	247	13	142	79	189	
Excision or destruction of intervertebral disc80.5	333	183	150	*	175	115	44	
Total hip replacement81.51	125	51	74	*	9	31	83	
Total knee replacement81.54	179	62	117	*	*	42	131	
Operations on the integumentary system85-86	1,364	565	799	74	475	364	450	
Mastectomy85.4	124	*	123	*	24	43	57	
Debridement of wound, infection, or burn86.22,86.28	334	184	150	20	108	88	118	
Skin graft86.6-86.7	120	69	51	11	46	28	34	
Miscellaneous diagnostic and therapeutic procedures87-99	13,599	6,455	7,143	854	3,038	3,391	6,315	
Computerized axial tomography87.03,87.41,87.71,88.01,88.38	1,158	565	594	59	272	251	576	
Pyelogram87.73-87.75	197	108	89	*	73	59	61	
Arteriography and angiocardiology using contrast material88.4-88.5	1,731	1,024	706	19	183	699	830	
Diagnostic ultrasound88.7	1,420	572	848	60	354	318	688	
Circulatory monitoring89.6	505	239	266	23	89	122	271	
Radioisotope scan92.0-92.1	412	173	239	12	69	109	222	
Respiratory therapy93.9	876	427	449	185	117	165	409	

¹The number of discharges with a coronary artery bypass graft was 309,000.

Table 8. Rate of all-listed procedures for discharges from short-stay hospitals, by procedure category, sex, and age: United States, 1993[Discharges of inpatients from non-Federal hospitals. Excludes newborn infants. Procedure groupings and code numbers are based on the *International Classification of Diseases, 9th Revision, Clinical Modifications (ICD-9-CM)*]

Procedure category and ICD-9-CM code	Total	Sex		Age				
		Male	Female	Under 15 years	15-44 years	45-64 years	65 years and over	
		Number per 100,000 population						
All procedures	16,225.6	12,955.9	19,315.6	3,283.4	13,653.6	18,521.8	44,360.0	
Operations on the nervous system	354.5	360.7	348.6	330.9	278.5	369.4	644.6	
Spinal tap	130.1	134.6	125.8	247.0	75.3	93.8	178.4	
Operations on the endocrine system	35.0	20.2	48.9	*	25.2	70.9	65.8	
Operations on the eye	152.4	151.1	153.7	34.1	70.4	163.2	634.5	
Operations on the ear	32.5	38.4	26.8	69.9	19.1	25.9	*25.8	
Operations on the nose, mouth, and pharynx	152.2	171.3	134.1	135.7	138.7	170.3	201.6	
Tonsillectomy with or without adenoidectomy	19.6	19.1	20.0	54.3	13.6	*	*	
Operations on the respiratory system	384.4	444.7	327.4	80.7	159.7	559.3	1,449.9	
Bronchoscopy with or without biopsy	117.3	138.6	97.2	23.7	49.5	176.8	432.2	
Operations on the cardiovascular system	1,719.8	2,102.0	1,358.7	230.0	414.2	3,148.5	6,811.7	
Removal of coronary artery obstruction	155.3	215.2	98.7	*	25.6	372.9	558.4	
Coronary artery bypass graft 1/	189.3	283.2	100.5	—	17.9	413.2	791.8	
Cardiac catheterization	393.8	491.6	301.3	24.9	76.7	848.2	1,479.8	
Insertion, replacement, removal, and revision of pacemaker leads or device	109.6	112.8	106.6	*	*	85.0	708.2	
Shunt or vascular bypass	67.5	79.4	56.2	*	16.4	118.0	285.5	
Hemodialysis	128.1	134.5	122.1	*	62.3	235.9	419.1	
Operations on the hemic and lymphatic system	147.1	157.7	137.0	38.4	53.5	235.6	536.2	
Operations on the digestive system	1,987.4	1,690.7	2,267.7	298.6	1,172.3	2,707.5	6,738.7	
Endoscopy of small intestine with or without biopsy	324.5	294.3	353.0	18.9	121.8	418.1	1,437.1	
Endoscopy of large intestine with or without biopsy	201.7	169.6	232.0	*	62.7	268.0	936.0	
Partial excision of large intestine	80.6	74.8	86.0	*	20.8	120.6	367.3	
Appendectomy, excluding incidental	97.5	108.5	87.1	87.2	126.4	71.2	52.0	
Cholecystectomy	195.6	118.6	268.4	*	155.4	302.2	512.8	
Repair of inguinal hernia	42.6	77.3	9.9	18.0	16.0	53.7	163.7	
Lysis of peritoneal adhesions	135.5	46.7	219.3	*	145.3	169.7	273.6	
Operations on the urinary system	492.4	524.0	462.5	61.1	270.4	688.1	1,737.3	
Cystoscopy with or without biopsy	128.2	169.2	89.4	*	51.3	166.8	552.8	
Operations on the male genital organs	182.6	375.8	...	53.3	25.4	193.4	952.2	
Prostatectomy	123.7	254.6	*	133.5	761.3	
Operations on the female genital organs	856.6	...	1,666.0	*10.0	1,238.9	993.0	747.6	
Oophorectomy and salpingo-oophorectomy	172.6	...	335.6	*	191.7	331.3	159.7	
Bilateral destruction or occlusion of fallopian tubes	149.6	...	291.0	*	326.4	*	...	
Hysterectomy	219.0	...	426.0	*	278.2	347.1	191.5	
Dilation and curettage of uterus	49.6	...	96.4	*	84.6	38.7	*26.1	
Repair of cystocele and rectocele	62.1	...	120.8	—	35.1	121.5	176.5	
Obstetrical procedures	2,637.3	...	5,129.6	33.9	5,743.7	*	...	
Episiotomy with or without forceps or vacuum extraction	608.9	...	1,184.4	*	1,325.6	*	...	
Artificial rupture of membranes	290.3	...	564.6	*	631.9	*	...	
Cesarean section	357.7	...	695.8	*	780.0	*	...	
Fetal EKG (scalp) and fetal monitoring, not otherwise specified	445.5	...	866.4	*	970.4	*	...	
Repair of current obstetric laceration	335.3	...	652.2	*	730.0	*	...	
Operations on the musculoskeletal system	1,256.9	1,284.5	1,230.9	265.6	1,049.2	1,610.2	3,182.2	
Partial excision of bone	88.6	98.8	78.9	*	82.1	152.8	153.1	
Open reduction of fracture with internal fixation	164.8	140.8	187.4	23.0	120.8	159.7	575.0	
Excision or destruction of intervertebral disc	130.0	147.2	113.7	*	148.8	231.5	133.7	
Total hip replacement	48.8	41.1	56.1	*	7.8	63.4	252.5	
Total knee replacement	69.7	49.8	88.5	*	*	85.5	400.0	
Operations on the integumentary system	531.7	453.5	605.7	129.8	405.2	735.2	1,372.7	
Mastectomy	48.3	*	93.1	*	20.2	86.8	173.1	
Debridement of wound, infection, or burn	130.2	147.9	113.5	35.1	91.9	176.8	361.3	
Skin graft	46.7	55.4	38.4	18.9	39.6	57.2	104.0	
Miscellaneous diagnostic and therapeutic procedures	5,302.9	5,181.3	5,417.9	1,505.4	2,589.2	6,843.1	19,259.2	
Computerized axial tomography	451.8	453.3	450.3	104.4	231.9	505.9	1,757.9	
Pyelogram	76.8	86.4	67.8	*	62.1	118.4	187.2	
Arteriography and angiocardiology using contrast material	674.9	822.2	535.7	33.2	156.0	1,410.4	2,531.1	
Diagnostic ultrasound	553.9	459.3	643.2	105.9	302.0	641.7	2,097.6	
Circulatory monitoring	196.9	192.0	201.5	40.3	75.6	246.7	826.7	
Radioisotope scan	160.6	139.1	181.0	21.3	59.0	219.8	676.1	
Respiratory therapy	341.7	342.6	340.8	326.2	99.4	333.1	1,248.2	

¹The rate per 100,000 population of discharges with a coronary artery bypass graft was 120.6.

Technical notes

Survey methodology

Source of data

The National Hospital Discharge Survey covers discharges from noninstitutional hospitals, exclusive of Federal, military, and Department of Veterans Affairs hospitals, located in the 50 States and the District of Columbia. Only short-stay hospitals (hospitals with an average length of stay for all patients of fewer than 30 days) or those whose specialty is general (medical or surgical) or children's general are included in the survey. These hospitals must also have six beds or more staffed for patient use.

From 1988 through 1990, the NHDS sampling frame consisted of hospitals that were listed in the April 1987 SMG Hospital Market Database (3), met the above criteria, and began accepting patients by August 1987. In 1991 the sampling frame was updated to include hospitals from the 1991 SMG Hospital Database (4). For 1993, the sample consisted of 528 hospitals. Of the 528 hospitals, 15 were found to be out of scope (ineligible) because they went out of business or otherwise failed to meet the criteria for the NHDS universe. Of the 513 in-scope (eligible) hospitals, 466 responded to the survey.

Sample design and data collection

The NCHS has conducted the NHDS continuously since 1965. The original sample was selected in 1964 from a frame of short-stay hospitals listed in the National Master Facility Inventory. That sample was updated periodically with samples of newly opened hospitals. Sample hospitals were selected with probabilities ranging from certainty for the largest hospitals to 1 in 40 for the smallest hospitals. Within each sample hospital, a systematic random sample of discharges was selected. A report on the design and development of the original NHDS has been published (1).

Beginning in 1988, the NHDS sample includes with certainty all hospitals with 1,000 beds or more or 40,000 discharges or more annually. The remaining sample of hospitals is based

on a stratified three-stage design. The first stage consists of a selection of 112 primary sampling units (PSU's) that comprise a probability subsample of PSU's to be used in the 1985-94 National Health Interview Survey. The second stage consists of a selection of noncertainty hospitals from the sample PSU's. At the third stage, a sample of discharges was selected by a systematic random sampling technique.

Two data collection procedures were used for the survey. The first was a manual system of sample selection and data abstraction. The second was an automated method, used for approximately 32 percent of the respondent hospitals in 1993, that involved the purchase of data tapes from abstracting service organizations, State data systems, or hospitals.

In the manual system, the sample selection and the transcription of information from the hospital records to abstract forms were performed at the hospitals. The completed forms, along with sample selection control sheets, were forwarded to NCHS for coding, editing, and weighting. Of the hospitals using the manual system in 1993, about 55 percent had the work performed by their own medical records staff. In the remaining hospitals using the manual system, personnel of the U.S. Bureau of the Census did the work on behalf of NCHS.

For the automated system, NCHS purchased tapes containing machine-readable medical record data that were systematically sampled by NCHS.

The medical abstract form and the automated data tapes contain items relating to the personal characteristics of the patient, including birth date, sex, race, and marital status, but not name and address; administrative information, including admission and discharge dates, discharge status, and medical record number; and medical information, including diagnoses and surgical and nonsurgical operations or procedures. Since 1977, patient ZIP Code, expected source of payment, and dates of surgery have also been collected. (The medical record number and patient ZIP Code are

confidential information and are not available to the public.)

Presentation of estimates

The relative standard error of the estimate and the number of sample records on which the estimate is based (referred to as the sample size) are used to identify estimates with relatively low reliability.

Because of the complex sample design of the NHDS, estimates of less than 5,000 are not presented; only an asterisk (*) appears in the tables. These estimates generally have a relative standard error of more than 30 percent or are based on a sample of fewer than 30 cases. Estimates of 5,000 to 9,000 are preceded by an asterisk (*) to indicate that they should not be assumed to be reliable. These estimates are generally based on fewer than 60 cases.

Sampling errors and rounding of numbers

The standard error is primarily a measure of sampling variability that occurs by chance because only a sample rather than the entire universe is surveyed. The relative standard error of the estimate is obtained by dividing the standard error by the estimate itself and is expressed as a percent of the estimate. The resulting value is multiplied by 100, so the relative standard error is expressed as a percent of the estimate.

Estimates of sampling variability were calculated with SESUDAAN software, which computes standard errors by using a first-order Taylor approximation of the deviation of estimates from their expected values. A description of the software and the approach it uses has been published (5).

The constants for relative standard error curves for the 1993 National Hospital Discharge Survey are presented in table I. The relative standard error $RSE(X)$ of an estimate X may be estimated from the formula:

$$RSE(X) = 100 \sqrt{a + b/X}$$

where X , a , and b are as defined in table I.

Table I. Estimated parameters for relative standard error equations for National Hospital Discharge Survey statistics by selected characteristics: United States, 1993

Characteristic	Number of discharges or first-listed diagnoses		Number of procedures	
	a	b	a	b
Total	0.00129	1,082.615	0.00178	463.926
Sex				
Male	0.00425	332.843	0.00681	273.720
Female	0.00304	417.946	0.00386	636.779
Age				
Under 15 years	0.06552	110.056	0.03770	110.109
15–44 years	0.00618	245.201	0.00863	304.399
45–64 years	0.00826	182.876	0.00509	127.555
65 years and over	0.00410	314.867	0.00176	551.656
Region				
Northeast	0.00282	307.085	0.00561	321.543
Midwest	0.00686	660.696	0.00848	212.188
South	0.00289	543.012	0.00373	418.823
West	-0.00193	1,689.447	0.00858	1,057.077

Estimates have been rounded to the nearest thousandth. For this reason, figures within tables do not always add to the totals. Rates and average lengths of stay were calculated from original, unrounded figures and will not necessarily agree precisely with rates or average lengths of stay calculated from rounded data.

Tests of significance

In this report, statistical inference is based on the two-tailed t-test with a critical value of 1.96 (0.05 level of significance). Terms such as “higher” and “less” indicate that differences are statistically significant. Terms such as “similar” or “no difference” mean that no statistically significant difference exists between the estimates being compared. A lack of comment on the difference between any two estimates does not mean that the difference was tested and found not to be significant.

Terms relating to hospitalization

Hospitals—All hospitals with an average length of stay for all patients of fewer than 30 days or hospitals whose specialty is general (medical or surgical) or children’s general are eligible for inclusion in the National Hospital Discharge Survey, except Federal

hospitals, hospital units of institutions, and hospitals with fewer than six beds staffed for patients’ use.

Patient—A person who is formally admitted to the inpatient service of a short-stay hospital for observation, care, diagnosis, or treatment. The terms “patient” and “inpatient” are used synonymously.

Newborn infant—A patient admitted by birth to a hospital.

Discharge—The formal release of a patient by a hospital; that is, the termination of a period of hospitalization by death or by disposition to place of residence, nursing home, or another hospital. The terms “discharges” and “patients discharged” are used synonymously.

Discharge rate—The ratio of the number of hospital discharges during a year to the number of persons in the civilian population on July 1 of that year.

Days of care—The number of patient days accumulated by a patient at time of discharge. A stay of less than 1 day (patient admission and discharge on the same day) is counted as 1 day in the summation of total days of care. For patients admitted and discharged on different days, the number of days of care is computed by counting all days from (and including) the date of

admission to (but not including) the date of discharge.

Average length of stay—The number of days of care accumulated by patients discharged during the year divided by the number of these patients.

Terms relating to diagnoses

Diagnosis—A disease or injury (or factor that influences health status and contact with health services that is not itself a current illness or injury) on the medical record of a patient.

Principal diagnosis—The condition established after study to be chiefly responsible for occasioning the admission of the patient to the hospital for care.

First-listed diagnosis—The coded diagnosis identified as the principal diagnosis or listed first on the face sheet or discharge summary of the medical record if the principal diagnosis cannot be identified. The number of first-listed diagnoses is equivalent to the number of discharges.

Terms relating to procedures

Procedure—A surgical or nonsurgical operation, diagnostic procedure, or special treatment reported on the medical record of a patient. Beginning with the 1991 data, all ICD–9–CM procedure codes are used in the NHDS. Previously selected codes, primarily codes for miscellaneous diagnostic and therapeutic procedures, were not used.

All-listed procedures—The number of procedures on the face sheet of the medical record. In the NHDS a maximum of four procedures are coded.

Rate of procedures—The ratio of the number of procedures during a year to the number of persons in the civilian population on July 1 of that year determines the rate of procedures.

Demographic terms

Population—The U.S. resident population excluding members of the Armed Forces.

Age—Patient’s age at birthday prior to admission to the hospital.

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.

<i>Region</i>	<i>States included</i>
Northeast	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania
Midwest	Michigan, Ohio, Illinois, Indiana, 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, Hawaii, and Alaska

Symbols

- - -	Data not available
. . .	Category not applicable
—	Quantity zero
0.0	Quantity more than zero but less than 0.05
Z	Quantity more than zero but less than 500 where numbers are rounded to thousands
*	Figure does not meet standard of reliability or precision (more than 30-percent relative standard error in numerator of percent or rate)
#	Figure suppressed to comply with confidentiality requirements

Suggested citation

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