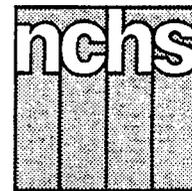


Advance Data



From Vital and Health Statistics of the National Center for Health Statistics

1989 Summary: National Hospital Discharge Survey

by Edmund J. Graves, Division of Health Care Statistics

Introduction

During 1989, an estimated 30.9 million inpatients, excluding newborn infants, were discharged from short-stay non-Federal hospitals in the United States. These patients used 200.8 million days of inpatient hospital care. The discharge rate was 126 discharges per 1,000 civilian population and the average length of stay was 6.5 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 1989, data were abstracted from the medical records of approximately 233,000 patients discharged from 408 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, and estimation process and definitions of

terms used in this report can be found in the section entitled "Technical notes." A description of the development and design of the original NHDS, which was in operation from 1965 to 1987, has been published (1). Differences may exist between data for 1988 and 1989 and earlier years because of the redesign of the survey.

Medical data for hospitalized patients are coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM) (2). Up to seven diagnoses and four procedures are 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) are used in the NHDS, these diagnoses are excluded from this report. The conditions diagnosed and procedures performed are presented here by chapter of ICD-9-CM. Within these chapters, a few diagnoses and procedures or

groups thereof also are shown. These specific categories were selected primarily because of their large estimates or because they are of special interest. More detailed analyses of NHDS data are published in Series 13 of the NCHS *Vital and Health Statistics* reports.

Starting in 1985, some hospitals participating in the NHDS have submitted machine-readable data tapes through commercial abstracting services. In 1989, approximately 27 percent of the hospitals used this method to submit data. Analysis indicates that a greater number of nonsurgical procedures per patient are recorded from these hospitals than from hospitals submitting data in the traditional manual mode (see "Technical notes"). A portion of the increases from 1984 to 1989 in the estimates for miscellaneous diagnostic and therapeutic procedures and, therefore, for total procedures may be due to this change in data collection methods.



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

Centers for Disease Control

National Center for Health Statistics

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Data highlights

Utilization by patient and hospital characteristics

The number, rate, and average length of stay of patients discharged from short-stay non-Federal hospitals

are shown by age, geographic region, and sex in tables 1–3. The 30.9 million patients discharged from short-stay hospitals during 1989 comprised an estimated 12.6 million males and 18.4 million females. The rate per 1,000 population for females

was 145, which was 38 percent higher than the rate of 105 for males. The number and rate of discharges are higher for females than for males because of the large number of women in their childbearing years (15–44 years of age) who are hospitalized for deliveries and pregnancy-related conditions.

Table 1. Number of inpatients discharged from short-stay hospitals, by age, geographic region, and sex: United States, 1989

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

<i>Age and region</i>	<i>Both sexes</i>	<i>Male</i>	<i>Female</i>
Number of patients discharged in thousands			
Total	30,947	12,583	18,364
Age			
Under 15 years	2,597	1,521	1,077
15–44 years	11,848	3,405	8,443
45–64 years	6,271	3,179	3,092
65 years and over	10,230	4,478	5,752
Region			
Northeast	7,044	2,976	4,068
Midwest	7,676	3,182	4,493
South	10,960	4,309	6,650
West	5,268	2,115	3,152

Table 2. Rate of inpatients discharged from short-stay hospitals, by age, geographic region, and sex: United States, 1989

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

<i>Age and region</i>	<i>Both sexes</i>	<i>Male</i>	<i>Female</i>
Rate of patients discharged per 1,000 population			
Total	125.5	105.3	144.5
Age			
Under 15 years	48.2	55.1	40.9
15–44 years	102.8	59.8	144.9
45–64 years	135.0	142.8	127.9
65 years and over	330.2	354.4	313.5
Region			
Northeast	139.1	122.8	154.0
Midwest	127.9	109.1	145.7
South	129.5	105.6	151.7
West	102.8	83.8	121.3

Table 3. Average length of stay for inpatients discharged from short-stay hospitals, by age, geographic region, and sex: United States, 1989

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

<i>Age and region</i>	<i>Both sexes</i>	<i>Male</i>	<i>Female</i>
Average length of stay in days			
Total	6.5	7.0	6.1
Age			
Under 15 years	4.9	4.9	4.9
15–44 years	4.7	6.2	4.1
45–64 years	6.7	6.7	6.6
65 years and over	8.9	8.6	9.1
Region			
Northeast	7.7	8.0	7.4
Midwest	6.4	6.9	6.1
South	6.3	6.9	5.9
West	5.4	6.2	4.9

The average length of stay was 7.0 days for males and 6.1 days for females during 1989. The average length of stay of the 3.9 million women who were hospitalized for deliveries was 2.9 days. The average length of stay was 4.9 days for patients under 15 years of age, 4.7 days for patients 15–44 years of age, 6.7 days for patients 45–64 years of age, and 8.9 days for patients 65 years of age and over.

The number of discharges from short-stay hospitals by geographic region during 1989 ranged from 11.0 million in the South to 5.3 million in the West. Regional differences in the number of discharges are accounted for in part by variations in the population sizes. The rates per 1,000 population ranged from 139 in the Northeast Region to 103 in the West. Average lengths of stay by geographic region were 5.4 days in the West, 6.3 days in the South, 6.4 days in the Midwest, and 7.7 days in the Northeast.

The number of discharges from short-stay hospitals by geographic region during 1989 ranged from 11.0 million in the South to 5.3 million in the West. Regional differences in the number of discharges are accounted for in part by variations in the population sizes. The rates per 1,000 population ranged from 139 in the Northeast Region to 103 in the West. Average lengths of stay by geographic region were 5.4 days in the West, 6.3 days in the South, 6.4 days in the Midwest, and 7.7 days in the Northeast.

Utilization by diagnosis

Diseases of the circulatory system ranked first in 1989 of the ICD–9–CM diagnostic chapters as a principal or first-listed diagnosis for patients discharged from non-Federal short-stay hospitals. These conditions accounted for an estimated 5.2 million discharges. Other leading ICD–9–CM diagnostic chapters were supplementary classifications (including females with deliveries) (4.4 million discharges) and diseases of the digestive system (3.3 million discharges). Approximately 42 percent of the patients discharged from non-Federal short-stay hospitals were included in these three ICD–9–CM diagnostic chapters.

The diagnostic categories presented in this report were selected

either because they appear as principal or first-listed diagnoses with high frequency or because the conditions are of special interest. Many of these categories (such as malignant neoplasms, psychoses, and fractures) are groupings of more detailed diagnoses.

The number and rate of discharges and average length of stay for each ICD-9-CM diagnostic chapter and selected categories are shown by sex and age in tables 4-6. The most common diagnostic categories for all patients were deliveries and heart disease. Other leading diagnostic categories were malignant neoplasms, pneumonia, and fractures. Excluding deliveries, these last four diagnostic categories were the most common first-listed diagnoses for both males and females. Some of the more common diagnoses for patients under 15 years of age were pneumonia, acute respiratory infections, asthma, fractures, and chronic diseases of tonsils and adenoids. For patients 15-44 years of age, frequent diagnoses were deliveries, psychoses, fractures, abortions and ectopic pregnancies, and heart disease. For patients 45-64 years of age and 65 years of age and over, heart disease and malignant neoplasms were major causes of hospitalization. The average length of stay for all patients ranged from 1.2 days for chronic disease of tonsils and adenoids to 14.5 days for psychoses.

Utilization by procedures

One or more surgical or nonsurgical procedures were performed for an estimated 20.1 million of the 30.9 million inpatients discharged from short-stay hospitals during 1989. A total of 40.0 million procedures, or an average of 2.0 per patient who underwent at least one procedure, were recorded in 1989.

Procedures are grouped in the tables of this report by the ICD-9-CM procedure chapters. Selected procedures within these chapters also are presented by specific categories. Some of these

categories (such as extraction of lens and hysterectomy) are presented as single categories even though they are divided into more precise subgroups in ICD-9-CM.

Three-fourths of all the surgical and nonsurgical procedures performed during 1989 are listed in just 5 of the 16 procedure chapters. These were diagnostic and therapeutic procedures (11.5 million), obstetrical procedures (6.4 million), operations on the digestive system (5.4 million), operations on the cardiovascular system (3.7 million), and operations on the musculoskeletal system (3.2 million).

The number and rate of all-listed procedures in 1989 for each ICD-9-CM procedure chapter and selected procedure categories are shown by sex and age in tables 7 and 8. Of the 40.0 million procedures performed during 1989, 16.1 million were for males and 24.0 million were for females. The corresponding rates per 100,000 population were 16,241.1 for both sexes, 13,466.7 for males, and 18,849.2 for females. Frequent procedures for males were arteriography and angiocardiology and computerized axial tomography. Procedures commonly performed on females were episiotomy, cesarean section, diagnostic ultrasound, computerized axial tomography, and repair of current obstetric laceration.

The rate of procedures by age per 100,000 population ranged from 3,987.7 for patients under 15 years of age to 42,677.0 for patients 65 years of age and over. Commonly performed procedures for patients under 15 years of age were spinal tap and tonsillectomy, with or without adenoidectomy; for patients 15-44 years of age, episiotomy and cesarean section; for patients 45-64 years of age, arteriography and angiocardiology, cardiac catheterization, diagnostic ultrasound, and computerized axial tomography; for patients 65 years of age and over, computerized axial tomography, arteriography and angiocardiology, and diagnostic ultrasound.

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. 1980.
3. SMG Marketing Group, Inc. Hospital Market Database. Chicago: Healthcare Information Specialists. 1989.
4. Shah BV. SESUDAAN: Standard Errors Program for Computing of Standardized Rates from Sample Survey Data. Research Triangle Park, North Carolina: Research Triangle Institute. 1981.

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 standards of reliability or precision (see Technical notes)
 - # Figure suppressed to comply with confidentiality requirements
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Table 4. Number of inpatients discharged from short-stay hospitals, by category of first-listed diagnosis, sex, and age: United States, 1989[Discharges from non-Federal hospitals. Excludes newborn infants. Diagnostic groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification (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 patients discharged in thousands							
All conditions	30,947	12,583	18,364	2,597	11,848	6,271	10,230
Infectious and parasitic diseases001-139	726	362	363	200	242	102	182
Neoplasms140-239	2,001	842	1,159	45	370	643	942
Malignant neoplasms140-208,230-234	1,608	770	838	31	187	512	878
Malignant neoplasm of large intestine and rectum153-154,197.5	167	84	83	-	*6	44	117
Malignant neoplasm of trachea, bronchus, and lung162,197.0,197.3	239	147	92	*	11	101	127
Malignant neoplasm of breast174-175,198.81	163	*	162	*	18	67	77
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature210-229,235-239	392	72	320	14	183	131	64
Endocrine, nutritional and metabolic diseases, and immunity disorders240-279	1,097	453	644	93	235	283	486
Diabetes mellitus250	438	197	241	22	107	142	166
Diseases of the blood and blood-forming organs280-289	318	154	164	59	89	49	121
Mental disorders290-319	1,514	778	736	47	937	291	239
Psychoses290-299	773	351	422	12	414	175	173
Alcohol dependence syndrome303	218	165	53	*	149	55	14
Diseases of the nervous system and sense organs .320-389	819	364	455	181	211	166	260
Diseases of the central nervous system .320-336,340-349	341	158	183	60	121	67	93
Cataract366	65	20	44	*	*	*10	53
Diseases of the ear and mastoid process380-389	177	87	90	91	29	25	31
Diseases of the circulatory system390-459	5,197	2,670	2,527	27	406	1,552	3,212
Heart disease391-392,0,393-398,402,404,410-416,420-429	3,534	1,892	1,642	16	225	1,116	2,177
Acute myocardial infarction410	695	421	274	*	42	245	408
Atherosclerotic heart disease414.0	407	282	125	*	22	187	197
Other Ischemic heart disease411-413,414.1-414.9	893	471	422	*	50	339	503
Cardiac dysrhythmias427	487	220	267	*	36	109	338
Congestive heart failure428.0	643	304	339	*	18	116	505
Cerebrovascular disease430-438	795	344	451	*	32	152	607
Diseases of the respiratory system460-519	2,996	1,507	1,489	764	536	505	1,190
Acute respiratory infections, except influenza . . .460-466	475	244	230	214	61	62	138
Chronic disease of tonsils and adenoids474	134	58	76	94	38	*	-
Pneumonia, all forms480-486	1,033	544	489	220	136	145	532
Asthma493	475	204	271	168	127	88	93
Diseases of the digestive system520-579	3,295	1,501	1,794	264	953	858	1,220
Ulcers of the stomach and small intestine531-534	256	134	122	*	44	76	135
Gastritis and duodenitis535	143	58	85	*7	51	36	48
Appendicitis540-543	227	135	92	60	130	26	11
Inguinal hernia550	213	193	20	30	46	56	81
Noninfectious enteritis and colitis555-556,558	351	139	212	88	124	63	76
Cholelithiasis574	482	132	351	*	172	151	157
Diseases of the genitourinary system580-629	2,191	851	1,340	69	915	473	734
Calculus of kidney and ureter592	278	180	98	*	138	94	44
Hyperplasia of prostate600	249	249	...	-	*	55	193
Complications of pregnancy, childbirth, and the puerperium ¹630-676	756	...	756	*	751	*	...
Abortions and ectopic and molar pregnancies . .630-639	229	...	229	*	227	*	...
Diseases of the skin and subcutaneous tissue . . .680-709	480	238	242	39	155	120	165
Diseases of the musculoskeletal system and connective tissue710-739	1,569	745	825	51	586	465	467
Arthropathies and related disorders710-719	431	193	237	18	125	103	184
Intervertebral disc disorders722	396	219	177	*	209	147	40
Congenital anomalies740-759	207	112	95	137	41	18	11
Certain conditions originating in the perinatal period760-779	152	88	63	146	*	*	*5
Symptoms, signs, and ill-defined conditions . . .780-799	381	191	190	56	154	115	56
Injury and poisoning800-999	2,806	1,514	1,292	341	1,188	486	791
Fractures, all sites800-829	1,021	480	541	120	332	157	412
Fracture of neck of femur820	265	61	204	*	*9	25	228
Sprains and strains of back (including neck) . .846-847	79	39	41	*	42	23	12
Intracranial Injuries (excluding those with skull fracture)850-854	186	114	73	51	93	15	27
Lacerations and open wounds870-904	224	171	53	30	152	27	15
Supplementary classificationsV01-V82	4,444	214	4,230	75	4,078	143	147
Females with deliveriesV27	3,937	...	3,937	*9	3,926	*	...

¹First-listed diagnosis for females with deliveries is coded V27, shown under "supplementary classifications."

Table 5. Rate of inpatients discharged from short-stay hospitals, by category of first-listed diagnosis, sex, and age: United States, 1989[Discharges from non-Federal hospitals. Excludes newborn infants. Diagnostic groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification (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
Rate of inpatients discharged per 10,000 population							
All conditions	1,255.2	1,053.3	1,445.0	481.8	1,028.5	1,350.1	3,301.6
Infectious and parasitic diseases001-139	29.4	30.3	28.6	37.0	21.0	22.0	58.7
Neoplasms140-239	81.1	70.5	91.2	8.4	32.1	138.5	303.9
Malignant neoplasms140-208,230-234	65.2	64.5	66.0	5.7	16.2	110.3	283.3
Malignant neoplasm of large intestine and rectum153-154,197.5	6.8	7.0	6.5	-	*0.5	9.4	37.8
Malignant neoplasm of trachea, bronchus, and lung162,197.0,197.3	9.7	12.3	7.3	*	1.0	21.8	40.9
Malignant neoplasm of breast174-175,198.81	6.6	*	12.7	*	1.6	14.5	25.0
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature210-229,235-239	15.9	6.0	25.2	2.6	15.9	28.2	20.6
Endocrine, nutritional and metabolic diseases, and immunity disorders240-279	44.5	37.9	50.7	17.2	20.4	61.0	156.8
Diabetes mellitus250	17.8	16.5	18.9	4.1	9.3	30.6	53.6
Diseases of the blood and blood-forming organs280-289	12.9	12.9	12.9	10.9	7.7	10.5	39.2
Mental disorders290-319	61.4	65.1	57.9	8.7	81.4	62.6	77.2
Psychoses290-299	31.3	29.3	33.2	2.2	35.9	37.6	55.8
Alcohol dependence syndrome303	8.8	13.8	4.2	*	12.9	11.7	4.7
Diseases of the nervous system and sense organs320-389	33.2	30.5	35.8	33.5	18.3	35.7	84.1
Diseases of the central nervous system320-336,340-349	13.8	13.2	14.4	11.1	10.5	14.4	30.1
Cataract366	2.6	1.7	3.5	*	*	*2.1	17.3
Diseases of the ear and mastoid process380-389	7.2	7.3	7.1	16.9	2.5	5.5	10.0
Diseases of the circulatory system390-459	210.8	223.5	198.8	5.0	35.2	334.2	1,036.8
Heart disease391-392,393-398,402,404,410-416,420-429	143.3	158.4	129.2	2.9	19.6	240.2	702.6
Acute myocardial infarction410	28.2	35.2	21.6	*	3.6	52.8	131.6
Atherosclerotic heart disease414.0	16.5	23.6	9.8	*	1.9	40.2	63.5
Other ischemic heart disease411-413,414.1-414.9	36.2	39.4	33.2	*	4.3	73.0	162.4
Cardiac dysrhythmias427	19.7	18.4	21.0	*	3.1	23.4	109.2
Congestive heart failure428.0	26.1	25.4	26.7	*	1.6	25.0	162.9
Cerebrovascular disease430-438	32.3	28.8	35.5	*	2.8	32.8	195.8
Diseases of the respiratory system460-519	121.5	126.2	117.2	141.8	46.6	108.8	384.2
Acute respiratory infections, except influenza460-466	19.3	20.5	18.1	39.8	5.3	13.3	44.5
Chronic disease of tonsils and adenoids474	5.4	4.9	6.0	17.4	3.3	*	-
Pneumonia, all forms480-486	41.9	45.6	38.5	40.9	11.8	31.2	171.8
Asthma493	19.3	17.1	21.3	31.2	11.0	19.0	29.9
Diseases of the digestive system520-579	133.6	125.6	141.1	48.9	82.7	184.7	393.8
Ulcers of the stomach and small intestine531-534	10.4	11.2	9.6	*	3.8	16.3	43.5
Gastritis and duodenitis535	5.8	4.8	6.7	*1.4	4.4	7.7	15.6
Appendicitis540-543	9.2	11.3	7.3	11.2	11.2	5.6	3.6
Inguinal hernia550	8.6	16.1	1.6	5.6	4.0	12.0	26.2
Noninfectious enteritis and colitis555-556,558	14.2	11.6	16.7	16.3	10.7	13.7	24.5
Cholelithiasis574	19.6	11.0	27.6	*	14.9	32.6	50.8
Diseases of the genitourinary system580-629	88.9	71.2	105.4	12.8	79.4	101.8	236.9
Calculus of kidney and ureter592	11.3	15.1	7.7	*	12.0	20.3	14.2
Hyperplasia of prostate600	10.1	20.8	...	-	*	11.7	62.4
Complications of pregnancy, childbirth, and the puerperium ¹630-676	30.7	...	59.5	*	65.2	*	...
Abortions and ectopic and molar pregnancies630-639	9.3	...	18.0	*	19.7	*	...
Diseases of the skin and subcutaneous tissue680-709	19.5	19.9	19.1	7.2	13.5	25.9	53.3
Diseases of the musculoskeletal system and connective tissue710-739	63.6	62.3	64.9	9.5	50.9	100.0	150.8
Arthropathies and related disorders710-719	17.5	16.2	18.7	3.3	10.9	22.3	59.5
Intervertebral disc disorders722	16.1	18.4	13.9	*	18.1	31.7	12.9
Congenital anomalies740-759	8.4	9.4	7.5	25.4	3.6	3.8	3.6
Certain conditions originating in the perinatal period760-779	6.1	7.4	5.0	27.2	*	*	*1.5
Symptoms, signs, and ill-defined conditions780-799	15.4	16.0	15.0	10.4	13.3	24.7	18.1
Injury and poisoning800-999	113.8	126.7	101.7	63.3	103.2	104.6	255.1
Fractures, all sites800-829	41.4	40.2	42.6	22.3	28.8	33.9	133.0
Fracture of neck of femur820	10.8	5.1	16.0	*	*0.8	5.3	73.4
Sprains and strains of back (including neck)846-847	3.2	3.2	3.2	*	3.7	5.0	3.9
Intracranial injuries (excluding those with skull fracture)850-854	7.5	9.5	5.7	9.4	8.1	3.3	8.7
Lacerations and open wounds870-904	9.1	14.3	4.2	5.6	13.2	5.8	4.9
Supplementary classificationsV01-V82	180.2	17.9	332.8	14.0	354.0	30.8	47.6
Females with deliveriesV27	159.7	...	309.8	*1.6	340.8	*	...

¹First-listed diagnosis for females with deliveries is coded V27, shown under "supplementary classifications."

Table 6. Average length of stay for inpatients discharged from short-stay hospitals, by category of first-listed diagnosis, sex, and age: United States, 1989[Discharges from non-Federal hospitals. Excludes newborn infants. Diagnostic groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification (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
Average length of stay in days							
All conditions	6.5	7.0	6.1	4.9	4.7	6.7	8.9
Infectious and parasitic diseases001-139	7.7	8.1	7.3	4.3	7.2	10.6	10.3
Neoplasms140-239	8.3	8.8	8.0	6.5	5.9	7.7	9.8
Malignant neoplasms140-208,230-234	9.2	9.2	9.3	8.3	7.6	8.6	10.0
Malignant neoplasm of large intestine and rectum153-154,197.5	14.0	13.1	14.9	-	*9.1	14.1	14.2
Malignant neoplasm of trachea, bronchus, and lung162,197.0,197.3	8.6	8.5	8.9	*	8.6	8.5	8.8
Malignant neoplasm of breast174-175,198.81	5.4	*	5.4	*	4.2	5.1	5.9
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature210-229,235-239	4.7	4.6	4.7	2.6	4.1	4.6	7.2
Endocrine, nutritional and metabolic diseases, and immunity disorders240-279	6.8	6.9	6.8	4.4	5.1	6.2	8.5
Diabetes mellitus250	7.6	7.7	7.4	4.6	5.8	7.1	9.5
Diseases of the blood and blood-forming organs280-289	6.0	5.9	6.1	3.6	5.7	5.6	7.5
Mental disorders290-319	12.7	12.5	13.0	25.2	12.1	11.8	13.9
Psychoses290-299	14.5	14.0	14.9	26.6	13.9	14.3	15.4
Alcohol dependence syndrome303	10.6	10.5	11.0	*	11.2	8.5	11.9
Diseases of the nervous system and sense organs .320-389	5.5	5.5	5.6	3.9	5.6	5.2	6.8
Diseases of the central nervous system .320-336,340-349	8.6	8.7	8.5	6.6	6.9	8.4	12.3
Cataract366	1.5	1.3	1.5	*	*	*1.1	1.5
Diseases of the ear and mastoid process380-389	2.6	2.3	2.9	2.2	2.8	2.8	3.5
Diseases of the circulatory system390-459	7.6	7.4	7.8	5.8	5.6	6.3	8.4
Heart disease391-392.0,393-398,402,404,410-416,420-429	7.0	6.8	7.2	6.1	5.3	6.0	7.7
Acute myocardial infarction410	8.6	8.1	9.3	*	5.9	7.5	9.5
Atherosclerotic heart disease414.0	6.2	6.0	6.6	*	4.0	5.0	7.5
Other ischemic heart disease411-413,414.1-414.9	5.2	5.2	5.3	*	3.9	4.7	5.7
Cardiac dysrhythmias427	5.8	5.7	5.9	*	3.7	4.4	6.4
Congestive heart failure428.0	8.4	7.9	8.8	*	6.3	7.6	8.7
Cerebrovascular disease430-438	10.2	10.3	10.2	*	10.0	9.2	10.5
Diseases of the respiratory system460-519	6.7	6.6	6.8	3.5	4.8	7.5	9.3
Acute respiratory infections, except influenza460-466	4.9	4.5	5.4	3.5	4.2	5.8	7.1
Chronic disease of tonsils and adenoids474	1.2	1.2	1.2	1.2	1.2	*	-
Pneumonia, all forms480-486	8.1	7.8	8.4	4.3	7.0	9.2	9.6
Asthma493	4.5	3.8	5.0	2.9	4.2	5.2	7.2
Diseases of the digestive system520-579	6.3	6.0	6.6	3.8	4.7	6.1	8.2
Ulcers of the stomach and small intestine531-534	7.3	6.8	8.0	*	4.8	6.7	8.6
Gastritis and duodenitis535	4.6	4.1	4.9	*2.7	3.6	4.6	5.9
Appendicitis540-543	4.9	4.5	5.4	4.9	4.1	5.9	11.4
Inguinal hernia550	2.6	2.6	2.5	1.5	2.0	2.5	3.4
Noninfectious enteritis and colitis555-556,558	5.1	5.8	4.6	3.4	4.0	5.0	9.0
Cholelithiasis574	6.3	7.5	5.9	*	4.8	5.7	8.7
Diseases of the genitourinary system580-629	5.2	5.5	5.1	5.2	3.9	4.6	7.2
Calculus of kidney and ureter592	3.0	2.7	3.7	*	2.6	2.9	4.7
Hyperplasia of prostate600	5.2	5.2	...	-	*	4.3	5.5
Complications of pregnancy, childbirth, and the puerperium ¹630-676	2.8	...	2.8	*	2.8	*	...
Abortions and ectopic and molar pregnancies630-639	2.3	...	2.3	*	2.3	*	...
Diseases of the skin and subcutaneous tissue680-709	8.0	7.8	8.3	4.2	5.8	8.4	10.7
Diseases of the musculoskeletal system and connective tissue710-739	6.5	5.9	7.1	5.9	4.8	6.1	9.2
Arthropathies and related disorders710-719	7.7	6.9	8.4	5.7	3.8	7.6	10.6
Intervertebral disc disorders722	5.4	5.0	6.0	*	5.0	5.4	7.6
Congenital anomalies740-759	5.9	5.2	6.6	5.4	5.1	10.6	7.2
Certain conditions originating in the perinatal period760-779	11.3	10.3	12.8	11.0	*	*	*14.8
Symptoms, signs, and ill-defined conditions780-799	3.3	3.2	3.3	2.7	2.6	3.4	5.5
Injury and poisoning800-999	6.8	6.3	7.4	4.3	5.1	7.1	10.3
Fractures, all sites800-829	8.5	7.5	9.4	5.1	6.0	8.3	11.6
Fracture of neck of femur820	13.2	13.8	13.0	*	*9.0	12.5	13.5
Sprains and strains of back (including neck)846-847	4.5	4.1	4.8	*	4.1	4.7	5.7
Intracranial injuries (excluding those with skull fracture)850-854	7.0	8.2	5.0	3.1	7.8	8.9	10.6
Lacerations and open wounds870-904	3.7	3.7	3.8	4.2	3.6	3.8	4.5
Supplementary classificationsV01-V82	3.2	5.9	3.1	4.8	2.9	4.5	8.9
Females with deliveriesV27	2.9	...	2.9	*3.3	2.9	*	...

¹ First-listed diagnosis for females with deliveries is coded V27, shown under "supplementary classifications."

Table 7. Number of all-listed procedures for inpatients discharged from short-stay hospitals, by procedure category, sex, and age: United States, 1989

[Discharges from non-Federal hospitals. Excludes newborn infants. Procedure groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification (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 of all-listed procedures in thousands							
All procedures	40,043	16,088	23,954	2,150	15,805	8,865	13,223
Operations on the nervous system01-05	909	475	435	226	288	198	198
Spinal tap03.31	377	203	174	172	97	47	61
Operations on the endocrine system06-07	113	31	83	*	42	45	25
Operations on the eye08-16	448	198	250	28	99	100	220
Extraction of lens13.1-13.6	79	25	54	*	*	13	60
Insertion of prosthetic lens (pseudophakos)13.7	72	24	48	-	*	13	56
Operations on the ear18-20	168	93	75	96	39	17	16
Operations on the nose, mouth, and pharynx21-29	734	386	348	181	313	136	104
Rhinoplasty and repair of nose21.8	90	46	44	*5	59	15	*10
Tonsillectomy with or without adenoidectomy28.2-28.3	155	69	86	103	48	*	*
Operations on the respiratory system30-34	1,051	608	442	81	194	307	470
Bronchoscopy33.21-33.23	137	85	52	20	24	37	56
Operations on the cardiovascular system35-39	3,722	2,236	1,486	150	436	1,320	1,815
Removal of coronary artery obstruction36.0	259	177	82	*	19	133	107
Direct heart revascularization36.1	368	271	97	*	12	165	191
Cardiac catheterization37.21-37.23	958	601	357	23	95	425	414
Pacemaker insertion, replacement, removal, repair37.7-37.8	275	142	133	*	*10	43	221
Operations on the hemic and lymphatic system40-41	385	190	195	20	82	105	178
Operations on the digestive system42-54	5,360	2,309	3,051	226	1,546	1,310	2,278
Esophagoscopy and gastroscopy (natural orifice)42.23,44.13	91	43	48	*9	20	18	44
Partial gastrectomy and resection of							
Intestine43.5-43.8,45.6-45.8	294	136	157	*	35	80	176
Colonoscopy and sigmoidoscopy45.23-45.24	409	157	252	*	65	93	247
Appendectomy, excluding incidental47.0	253	141	112	61	149	29	15
Hemorrhoidectomy49.43-49.46	75	45	30	-	28	32	15
Cholecystectomy51.2	504	144	359	*	179	162	160
Repair of inguinal hernia53.0-53.1	243	220	24	33	50	62	98
Division of peritoneal adhesions54.5	329	59	270	*	164	67	95
Operations on the urinary system55-59	1,594	962	633	43	384	386	781
Endoscopes (natural orifice)55.21-55.22,56.31,57.32,58.22	530	380	150	*8	93	135	294
Operations on the male genital organs60-64	648	648	...	49	48	129	421
Prostatectomy60.2-60.6	376	376	*	71	304
Operations on the female genital organs65-71	2,385	...	2,385	*8	1,683	470	225
Oophorectomy and salpingo-oophorectomy65.3-65.6	421	...	421	*	228	144	48
Bilateral destruction or occlusion of fallopian tubes66.2-66.3	389	...	389	-	386	*	...
Hysterectomy68.3-68.7	541	...	541	*	317	165	58
Dilation and curettage of uterus69.0	265	...	265	*	209	42	13
Repair of cystocele and rectocele70.5	135	...	135	-	38	52	46
Obstetrical procedures72-75	6,383	...	6,383	12	6,368	*	...
Episiotomy with or without forceps or vacuum extraction72.1,72.21,72.31,72.71,73.6	1,704	...	1,704	*5	1,698	*	...
Cesarean section74.0-74.2,74.4,74.99	938	...	938	*	936	*	...
Repair of current obstetric laceration75.5-75.6	762	...	762	*	760	*	...
Operations on the musculoskeletal system76-84	3,171	1,676	1,495	215	1,320	755	881
Open reduction of fracture except jaw76.79,79.2-79.3,79.5-79.6	479	236	243	34	175	92	178
Other reduction of fracture except jaw76.70,76.78,79.0-79.1,79.4	192	107	85	49	61	32	50
Excision or destruction of intervertebral disc and spinal fusion80.5,81.0	355	204	151	*5	186	128	36
Arthroplasty and replacement of knee ¹81.41-81.47,81.54-81.55	228	123	106	*	91	41	93
Operations on muscles, tendons, fascia, and bursa82-83.1,83.3-83.9	312	191	120	39	131	90	52
Operations on the integumentary system85-86	1,428	633	795	94	526	380	427
Mastectomy85.4	120	*	118	*	14	48	58
Excision or destruction of lesion or tissue of skin or subcutaneous tissue86.2-86.4	542	303	239	34	197	131	180
Skin graft (except lip or mouth)86.6-86.7	124	75	49	12	45	28	39
Miscellaneous diagnostic and therapeutic procedures87-99	11,544	5,644	5,900	719	2,436	3,204	5,186
Computerized axial tomography87.03,87.41,87.71,88.01,88.38	1,519	721	798	83	354	355	727
Pyelogram87.73-87.75	288	161	127	*9	110	75	93
Arteriography and angiocardiology using contrast material88.4-88.5	1,620	1,000	620	30	184	685	721
Diagnostic ultrasound88.7	1,558	628	930	82	465	379	633
Circulatory monitoring89.6	777	388	390	32	128	188	429
Radioisotope scan92.0-92.1	635	287	347	20	119	187	310

¹Includes addenda to the ICD-9-CM effective October 1, 1989.

Table 8. Rate of all-listed procedures for inpatients discharged from short-stay hospitals, by procedure category, sex, and age: United States, 1989[Discharges from non-Federal hospitals. Excludes newborn infants. Procedure groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification (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
Rate of all-listed procedures per 100,000 population							
All procedures	16,241.1	13,466.7	18,849.2	3,987.7	13,719.3	19,083.7	42,677.0
Operations on the nervous system01-05	368.8	397.3	342.0	419.8	249.7	425.5	638.1
Spinal tap03.31	153.1	170.2	136.9	319.5	84.5	101.4	196.1
Operations on the endocrine system06-07	46.0	25.6	65.1	*	36.7	96.5	79.1
Operations on the eye08-16	181.6	165.6	196.7	52.0	86.4	216.2	709.7
Extraction of lens13.1-13.6	32.1	21.0	42.6	*	*	29.0	194.6
Insertion of prosthetic lens (pseudophakos)13.7	29.1	19.7	38.0	-	*	27.0	181.9
Operations on the ear18-20	68.2	78.0	58.9	177.9	34.2	36.5	51.0
Operations on the nose, mouth, and pharynx21-29	297.8	323.4	273.7	335.9	271.7	292.3	336.5
Rhinoplasty and repair of nose21.8	36.4	38.1	34.8	*8.7	51.6	32.9	*33.5
Tonsillectomy with or without adenoidectomy28.2-28.3	62.9	57.5	67.9	190.5	41.2	*	*
Operations on the respiratory system30-34	426.2	509.3	348.1	149.7	168.0	660.8	1,515.7
Bronchoscopy33.21-33.23	55.6	70.9	41.2	37.2	20.5	79.8	181.9
Operations on the cardiovascular system35-39	1,509.4	1,871.6	1,168.9	278.8	378.9	2,840.7	5,858.6
Removal of coronary artery obstruction36.0	105.0	148.2	64.3	*	16.4	285.9	345.5
Direct heart revascularization36.1	149.3	226.8	76.6	*	10.4	355.5	615.2
Cardiac catheterization37.21-37.23	388.4	503.1	280.7	41.8	82.9	915.6	1,337.4
Pacemaker insertion, replacement, removal, repair37.7-37.8	111.5	118.9	104.5	*	*8.9	93.2	712.3
Operations on the hemic and lymphatic system40-41	156.1	159.3	153.1	37.0	71.4	225.9	573.7
Operations on the digestive system42-54	2,174.0	1,932.5	2,400.9	419.2	1,341.8	2,820.2	7,352.7
Esophagoscopy and gastroscopy (natural orifice)42.23,44.13	37.0	35.9	38.1	*16.8	17.4	38.9	142.7
Partial gastrectomy and resection of intestine43.5-43.8,45.6-45.8	119.2	114.2	123.9	*	30.1	171.5	568.7
Colonoscopy and sigmoidoscopy45.23-45.24	165.7	131.3	198.0	*	56.2	200.7	798.2
Appendectomy, excluding incidental47.0	102.5	117.8	88.1	112.7	129.1	61.6	47.4
Hemorrhoidectomy49.43-49.46	30.6	37.8	23.8	-	24.1	69.5	49.6
Cholecystectomy51.2	204.2	120.8	282.7	*	155.6	349.7	516.4
Repair of inguinal hernia53.0-53.1	98.6	183.8	18.5	61.6	43.1	133.9	316.8
Division of peritoneal adhesions54.5	133.4	49.6	212.1	*	142.0	143.7	306.5
Operations on the urinary system55-59	646.7	804.8	498.0	79.9	333.7	831.2	2,520.0
Endoscopies (natural orifice)55.21-55.22,56.31,57.32,58.22	214.8	318.0	117.8	*14.2	81.0	290.6	947.8
Operations on the male genital organs60-64	262.8	542.4	...	91.5	41.9	278.6	1,358.5
Prostatectomy60.2-60.6	152.6	315.0	*	152.7	982.7
Operations on the female genital organs65-71	967.5	...	1,877.0	*14.5	1,460.6	1,012.3	725.3
Oophorectomy and salpingo-oophorectomy65.3-65.6	170.6	...	331.0	*	197.8	309.1	156.1
Bilateral destruction or occlusion of fallopian tubes66.2-66.3	157.6	...	305.8	-	335.3	*	...
Hysterectomy68.3-68.7	219.3	...	425.4	*	275.2	355.2	188.3
Dilation and curettage of uterus69.0	107.3	...	208.2	*	181.7	89.7	42.3
Repair of cystocele and rectocele70.5	54.8	...	106.3	-	32.6	111.1	148.3
Obstetrical procedures72-75	2,588.8	...	5,022.5	22.9	5,527.6	*	...
Episiotomy with or without forceps or vacuum extraction72.1,72.21,72.31,72.71,73.6	691.0	...	1,340.5	*9.3	1,474.0	*	...
Cesarean section74.0-74.2,74.4,74.99	380.4	...	738.0	*	812.3	*	...
Repair of current obstetric laceration75.5-75.6	309.1	-	599.7	*	659.7	*	...
Operations on the musculoskeletal system76-84	1,286.1	1,403.0	1,176.1	398.1	1,146.1	1,625.9	2,841.8
Open reduction of fracture except jaw76.79, 79.2-79.3,79.5-79.6	194.2	197.3	191.3	62.7	151.7	199.0	573.8
Other reduction of fracture except jaw76.70, 76.78,79.0-79.1,79.4	77.9	89.4	67.2	91.4	53.2	68.2	161.2
Excision or destruction of intervertebral disc and spinal fusion80.5,81.0	144.1	170.9	118.9	*9.7	161.6	275.2	116.1
Arthroplasty and replacement of knee ¹81.41-81.47, 81.54-81.55	92.7	102.6	83.3	*	78.8	89.3	299.9
Operations on muscles, tendons, fascia, and bursa82-83.1, 83.3-83.9	126.3	159.9	94.8	72.2	113.8	193.2	167.0
Operations on the integumentary system85-86	579.1	530.0	625.2	174.8	456.5	818.7	1,379.2
Mastectomy85.4	48.9	*	92.7	*	12.1	103.5	188.3
Excision or destruction of lesion or tissue of skin or subcutaneous tissue86.2-86.4	219.7	253.3	188.1	62.2	171.3	281.9	580.3
Skin graft (except lip or mouth)86.6-86.7	50.4	62.7	38.9	22.5	39.2	59.9	126.8
Miscellaneous diagnostic and therapeutic procedures87-99	4,682.1	4,723.9	4,642.9	1,332.7	2,114.2	6,897.3	16,737.2
Computerized axial tomography87.03,87.41,87.71,88.01,88.38	616.0	603.6	627.6	153.1	307.0	765.0	2,346.6
Pyelogram87.73-87.75	116.6	134.4	100.0	*17.4	95.6	160.6	301.6
Arteriography and angiocardiography using contrast material88.4-88.5	657.2	836.9	488.2	56.1	159.8	1,474.7	2,326.7
Diagnostic ultrasound88.7	632.0	525.7	732.0	151.5	403.3	815.1	2,044.4
Circulatory monitoring89.6	315.3	324.5	306.7	58.9	111.4	405.5	1,384.5
Radioisotope scan92.0-92.1	257.5	240.6	273.4	37.0	102.9	402.1	999.1

¹Includes addenda to the ICD-9-CM effective October 1, 1989.

Technical notes

Survey methodology

Source of data

The National Hospital Discharge Survey covers discharges from noninstitutional hospitals, exclusive of Federal, military, and Veterans Administration 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 less 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.

Beginning with 1988, the NHDS sampling frame consists of hospitals that were listed in the April 1987 SMG Hospital Market Tape (3), met the above criteria, and began accepting patients by August 1987. For 1989, the sample consisted of 542 hospitals. Of the 542 hospitals, 16 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 526 in-scope (eligible) hospitals, 408 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 hospitals that opened later. 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 was 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 27 percent of the respondent hospitals in 1989, that involved the purchase of data tapes from abstracting service organizations.

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. A few of these hospitals submitted their data via computer printout or tape. Of the hospitals using the manual system in 1989, about two-thirds 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 from abstracting service organizations. Records were systematically sampled by NCHS.

The medical abstract form and the abstract service 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. Based on consideration of the complex sample design of the NHDS, the following guidelines are used for presenting the NHDS estimates:

- If the relative standard error of an estimate is larger than 30 percent, the estimate is not shown. Only an asterisk (*) appears in the tables.
- If the sample size is less than 60, the value of the estimate should not be assumed to be reliable. The estimate is preceded by an asterisk (*) in the tables.

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 (4).

Table I. Approximate relative standard errors of estimated numbers of discharges and diagnoses: United States, 1989

Size of estimate	All ages
5,000	31.4
10,000	22.5
50,000	11.2
100,000	8.8
500,000	6.7
1,000,000	5.8
3,000,000	5.5
5,000,000	5.5
10,000,000	5.4
20,000,000	5.4
30,000,000	5.4
40,000,000	5.4

Table I provides the estimate of sampling variability for discharges and first-listed diagnoses. Table II provides the estimates of sampling variability by all-listed procedures for patients under 15 years of age and all other variables.

Estimates have been rounded to the nearest thousand. 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-sided 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 less 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 less 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 at time of discharge by a patient. 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. The following ICD-9-CM procedure codes are not used in the the NHDS:

08.19, 16.21, 18.01, 18.11, 18.19, 21.21, 21.29, 22.19, 24.19, 25.09, 25.91, 26.19, 27.29, 27.91, 29.19, 31.48-31.49, 37.29, 41.38-41.39, 42.29, 44.19, 45.19, 45.28-45.29, 48.23, 48.29, 49.21, 49.29, 49.41, 58.29, 61.19, 64.19, 64.91, 64.94, 69.92, 70.21, 73.91-73.92, 75.35, 85.19, 86.19, 86.92, 87.09-87.12, 87.16-87.17, 87.22-87.29, 87.36-87.37, 87.39,

Table II. Approximate relative standard errors of estimated numbers of all-listed procedures: United States, 1989

Size of estimate	Under 15 years of age	All other ages
5,000	32.1	30.8
10,000	25.0	22.3
50,000	16.2	11.6
100,000	14.7	9.4
500,000	13.4	7.3
1,000,000	13.3	7.0
3,000,000	13.1	6.7
5,000,000	...	6.7
10,000,000	...	6.7
20,000,000	...	6.6
30,000,000	...	6.6
40,000,000	...	6.6

87.43–87.49, 87.69, 87.79, 87.85–87.89, 87.92, 87.95–87.99, 88.09, 88.16–88.31, 88.33, 88.35, 88.37, 88.39, 89.01–89.13, 89.15–89.16, 89.26–89.31, 89.33–89.39, 89.45–89.53, 89.55–89.59, 89.66, 89.7, 90.01–91.99, 93.01–93.25, 93.27–93.28, 93.31–93.39, 93.42–93.44, 93.61–93.91, 93.94, 93.96, 93.99–94.23, 94.25, 94.29–95.03, 95.05–95.11, 95.14–95.15, 95.31–95.49, 96.09–96.19, 96.26–96.28, 96.34–97.04, 97.14–97.69, 97.72–97.89, 99.02–99.24, 99.26–99.59, 99.71–99.79, 99.82–99.99.

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,

<i>Region</i>	<i>States included—Con.</i>
	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

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