

Advance Data



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1994 Summary: National Hospital Discharge Survey

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Abstract

Objectives—This report presents national estimates of the use of non-Federal short-stay hospitals in the United States during 1994. Numbers and rates of discharges, diagnoses, and procedures are shown by age and sex. Discharges are also shown by geographic region of hospital. Average lengths of stay are presented for discharges and selected diagnostic categories.

Methods—The estimates are based on medical abstract data collected through the National Hospital Discharge Survey for 1994. The survey has been conducted annually by the National Center for Health Statistics since 1965. Diagnoses and procedures presented are coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification*, or ICD-9-CM.

Keywords: Inpatients • Diagnoses • Procedures • ICD-9-CM

Highlights

Patient and hospital characteristics

- In 1994, there were an estimated 30.8 million discharges of inpatients, excluding newborn infants, from short-stay non-Federal hospitals in the United States (table 1).
- The discharge rate was 119 per 1,000 population and the average length of stay was 5.7 days in 1994 (table 1).

- The discharge rate per 1,000 population was 98 for males and 139 for females. Males had an average length of stay of 6.2 days compared with 5.4 days for females.
- Persons 65 years of age and over accounted for 37 percent of all discharges.
- The discharge rate per 1,000 population ranged from 139 in the Northeast region to 93 in the West. The average length of stay ranged from 6.7 days in the Northeast region to 4.8 days in the West.

Diagnoses

- Approximately half of all first-listed diagnoses were in four ICD-9-CM chapters: diseases of the circulatory system, supplementary classifications (including females with deliveries), diseases of the respiratory system, and diseases of the digestive system (table 2).
- Five diagnostic categories accounted for more than a million discharges. These were heart disease (4.1 million), delivery (3.9 million), malignant neoplasms (1.4 million), psychoses (1.2 million), and pneumonia (1.2 million).
- For persons 65 years of age and over, there were 786 discharges per 10,000 population with a first-listed diagnosis of heart disease (table 3).
- The average length of stay was 6.0 days for heart disease, 2.4 days for delivery, 7.9 days for malignant neoplasms, 11.4 days for psychoses, and 7.1 days for pneumonia (table 4).

Acknowledgments

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Procedures

- During 1994, 40.7 million procedures were performed on hospital inpatients (table 5).
- Almost three-fourths of all procedures were in four ICD-9-CM chapters: miscellaneous diagnostic and therapeutic procedures, obstetrical procedures, operations on the digestive system, and operations on the cardiovascular system.
- Three procedure categories had rates of at least 500 per 100,000 population. These were arteriography and angiocardiology (697 per 100,000), episiotomy (584 per 100,000), and diagnostic ultrasound (506 per 100,000) (table 6).
- Frequent procedures for males were arteriography and angiocardiology, cardiac catheterization, respiratory therapy, diagnostic ultrasound, and computerized axial tomography.
- Frequent procedures for females were episiotomy, fetal EKG and fetal monitoring, repair of current obstetric laceration, and cesarean section.

Introduction

This report presents data from the 1994 National Hospital Discharge Survey (NHDS). The survey has been conducted continuously by the National Center for Health Statistics (NCHS) since 1965. National estimates of hospital use derived from the NHDS are published for each calendar year by NCHS. This report provides an overview of the 1994 data, including the number and rate of discharges and average lengths of stay by the age and sex of patients and by geographic region of hospital. Average lengths of stay are also presented for selected diagnostic categories. Estimates for the number and rate of selected procedures performed on hospital inpatients are shown by age and sex. More detailed data from the NHDS are published in Series 13 of *Vital and Health Statistics*, which includes two reports on trends in hospital use (1-2).

The NHDS is the principal source for national data on the characteristics of patients discharged from non-Federal short-stay hospitals. Data from the NHDS are used to examine important topics of interest in

Table 1. Number, rate and average length of stay for discharges from short-stay hospitals by age, region and sex: United States, 1994

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

Selected characteristic	Both sexes	Male	Female
Number in thousands			
Total	30,843	12,293	18,550
Age			
Under 15 years	2,249	1,272	978
15-44 years	10,956	3,146	7,810
45-64 years	6,311	3,120	3,191
65 years and over	11,327	4,756	6,571
Region			
Northeast	7,128	3,015	4,114
Midwest	7,133	2,894	4,240
South	11,310	4,375	6,935
West	5,271	2,010	3,261
Rate per 1,000 population			
Total	119.1	97.7	139.4
Age			
Under 15 years	39.2	43.3	34.9
15-44 years	93.2	53.8	132.1
45-64 years	124.1	127.1	121.3
65 years and over	341.6	353.0	333.8
Region			
Northeast	138.9	122.1	154.5
Midwest	116.4	97.2	134.5
South	125.8	100.8	149.1
West	93.4	71.9	114.7
Average length of stay in days			
Total	5.7	6.2	5.4
Age			
Under 15 years	4.8	4.9	4.7
15-44 years	4.2	5.8	3.5
45-64 years	5.9	5.8	5.9
65 years and over	7.4	7.2	7.5
Region			
Northeast	6.7	7.0	6.5
Midwest	5.6	6.0	5.2
South	5.7	6.2	5.4
West	4.8	5.6	4.3

public health (3-7) and for a variety of activities by governmental, scientific, academic, and commercial institutions.

Estimates of the number of procedures shown in this report are for inpatients only. Data on ambulatory surgery are being collected by another survey, the National Survey of Ambulatory Surgery (NSAS), also conducted by NCHS. The NSAS was implemented in 1994 and covers hospital-based and free-standing ambulatory surgery centers. Data from this survey were not available at the

time this report was prepared and are not included in the tables.

Methods

Data source

The National Hospital Discharge Survey (NHDS) collects data from a sample of inpatient records acquired from a national sample of hospitals. Only hospitals with an average length of stay of fewer than 30 days for all patients, general hospitals, or children's

general hospitals are included in the survey. Federal, military, and Department of Veterans Affairs hospitals, as well as hospital units of institutions (such as prison hospitals), and hospitals with fewer than six beds staffed for patient use, are excluded. Beginning in 1988, the sampling frame for hospitals has been the SMG Hospital Market Database (8–10).

Prior to 1988, the NHDS had a two-stage design, but in 1988 the survey was redesigned (11). Beginning in 1988, all hospitals with 1,000 beds or more or 40,000 discharges or more annually were included in the sample with certainty, while the remaining sample of hospitals was 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 sample of PSU's used in the 1985–94 National Health Interview Survey (12). The second stage consists of a selection of noncertainty hospitals from the sample PSU's. At the third stage, a sample of discharges within hospitals was selected by a systematic random sampling technique.

For 1994, the sample consisted of 525 hospitals, 13 of which were found to be out of scope (ineligible) because they had gone out of business or otherwise failed to meet the criteria for the NHDS universe. Of the 512 in-scope (eligible) hospitals, 478 (93.4 percent) responded to the survey. Data were collected for approximately 277,000 discharges from the 478 responding hospitals.

Two data collection procedures were used for the survey. One was a manual system by which sample selection and medical transcription from the hospital records to abstract forms were performed by the hospital's staff or by staff of the U.S. Bureau of the Census on behalf of NCHS. Completed forms are sent to NCHS for coding, editing, and post-survey weighting adjustments.

The other data collection procedure was an automated system by which NCHS purchased tapes containing machine-readable medical record data from commercial organizations, State data systems, hospitals, or hospital associations. Records from these tapes

were systematically sampled by NCHS. In 1994, approximately 38 percent of respondent hospitals provided data through the automated system.

The medical abstract form and the automated data tapes contain items relating to the personal characteristics of the patient. These items include birth date (or age), sex, race, ethnicity, marital status, ZIP Code, and expected sources of payment. Administrative items, such as admission and discharge dates, discharge status, and medical record number, were also included. The medical information about patients includes diagnoses, surgical and nonsurgical operations and procedures, and dates of surgery. (The medical record number, date of birth, and ZIP Code are confidential information not available to the public). Medical data are coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification (ICD–9–CM)* (13).

For the manual data collection, an ongoing quality control program was undertaken on the coding and entering of data from abstracts to machine-readable form. Approximately 5 percent of the abstracts are independently recoded by an NHDS coder, with discrepancies resolved by the chief coder. The overall error rate for records manually coded by NCHS for the 1994 data year was 4.0 percent for medical (ICD–9–CM) coding and entering and 0.7 percent for demographic coding and entering.

Estimation

Because of the stratified multistage design of the NHDS, survey data must be inflated or weighted to produce national estimates. The estimation procedure produces essentially unbiased national estimates and has three basic components: (a) inflation by reciprocals of the probabilities of sample selection, (b) adjustment for nonresponse, and (c) population weighting ratio adjustments. These three components of the final weight are described in more detail in earlier reports (1–2). Information about the standard errors of statistics for the 1994 NHDS is in the Technical notes of this report.

Use of tables

Discharges are shown in this report by first-listed diagnosis. This is the principal diagnosis if it is specified on the medical record. If the principal diagnosis is not specified, the diagnosis listed first on the face sheet or discharge summary of the medical record is used. Estimates of procedures, including surgical or nonsurgical operations, diagnostic procedures, and special treatments reported on the medical record, are also published. Up to four procedures were coded for each discharge. All-listed procedures include all occurrences of the procedure coded regardless of their order on the medical record.

The diagnoses and procedures appear in separate tables of this report, presented by chapter of ICD–9–CM. Within these chapters, subcategories of diagnoses or procedures are shown. These specific categories were selected primarily because of their large estimates or because they are of special interest. Although diagnoses assigned ICD–9–CM codes E800–E999 (Supplementary classification of external causes of injury and poisoning) were included in the NHDS, these diagnoses were excluded from this report. Data for newborn infants, defined as patients admitted to a hospital by birth, were also excluded from this report.

Because of low reliability, estimates of less than 5,000 are not presented. For these estimates, 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 are generally based on fewer than 60 cases and also have low reliability.

Estimates have been rounded to the nearest thousand. Therefore, figures within tables do not always add to the totals. Rates and average lengths of stay were calculated from unrounded figures and may not agree with rates or average lengths of stay calculated from rounded data.

The population estimates used in computing rates are for the U.S. civilian population, including institutionalized

persons, as of July 1, 1994. These estimates were provided by the U.S. Bureau of the Census and are consistent with the population estimates published in *Current Population Reports*, Series P-25.

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Table 2. Number of discharges from short-stay hospitals by first-listed diagnosis, sex, and age: United States, 1994

[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 Modification (ICD-9-CM)*]

Category of first-listed diagnosis and ICD-9-CM code	Sex			Age			
	Total	Male	Female	Under 15 years	15-44 years	45-64 years	65 years and over
	Number in thousands						
All conditions	30,843	12,293	18,550	2,249	10,956	6,311	11,327
Infectious and parasitic diseases 001-139	809	381	428	171	217	135	287
Septicemia 038	302	125	177	27	36	51	189
Neoplasms 140-239	1,836	733	1,103	47	332	588	868
Malignant neoplasms 140-208,230-234	1,443	667	776	39	161	453	790
Malignant neoplasm of large intestine and rectum 153-154,197.5	146	69	77	*	*5	33	107
Malignant neoplasm of trachea, bronchus, and lung 162,176.4,197.0,197.3	208	113	95	*	*9	73	126
Malignant neoplasm of breast 174-175,198.81	139	*	138	*	20	58	62
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature 210-229,235-239	393	65	327	*9	171	135	78
Endocrine, nutritional and metabolic diseases, and immunity disorders 240-279	1,253	512	740	121	276	292	564
Diabetes mellitus 250	502	223	279	22	139	153	188
Volume depletion 276.5	376	159	217	75	55	45	200
Diseases of the blood and blood-forming organs 280-289	341	147	194	49	112	63	117
Mental disorders 290-319	2,112	1,123	989	96	1,310	410	296
Psychoses 290-299	1,243	597	646	40	706	265	233
Alcohol-dependence syndrome 303	243	182	61	*	164	65	12
Diseases of the nervous system and sense organs 320-389	577	255	322	105	149	121	202
Diseases of the central nervous system 320-349	287	121	166	45	100	59	83
Diseases of the ear and mastoid process 380-389	99	46	53	42	13	16	27
Diseases of the circulatory system 390-459	5,779	2,906	2,873	32	390	1,615	3,742
Heart disease 391-392.0,393-398,402,404,410-416,420-429	4,057	2,100	1,958	19	253	1,179	2,606
Acute myocardial infarction 410	759	446	313	*	46	259	453
Coronary atherosclerosis 414.0	683	435	248	*	36	281	365
Other ischemic heart disease 411-413,414.1-414.9	674	333	341	*	45	236	392
Cardiac dysrhythmias 427	614	292	322	*5	50	134	425
Congestive heart failure 428.0	874	390	484	*	22	151	696
Cerebrovascular disease 430-438	885	407	478	*	25	179	678
Diseases of the respiratory system 460-519	3,124	1,531	1,593	647	460	580	1,437
Acute respiratory infections 460-466	349	185	164	196	50	37	67
Chronic disease of tonsils and adenoids 474	40	18	22	27	11	*	*
Pneumonia 480-486	1,190	600	590	203	157	197	632
Asthma 493	451	189	262	169	125	80	76
Diseases of the digestive system 520-579	3,077	1,376	1,701	229	840	812	1,196
Ulcers of the stomach and small intestine 531-534	217	117	100	*	39	62	115
Appendicitis 540-543	249	151	98	59	145	33	13
Inguinal hernia 550	74	65	*8	*9	17	17	31
Noninfectious enteritis and colitis 555-558	333	138	195	84	92	64	94
Cholelithiasis 574	435	138	298	*	147	131	156
Diseases of the genitourinary system 580-629	1,816	607	1,209	63	640	434	678
Calculus of kidney and ureter 592	209	135	74	*	98	73	37
Hyperplasia of prostate 600	150	150	...	...	*	30	119
Complications of pregnancy, childbirth, and the puerperium ¹ 630-676	574	...	574	*	569	*	...
Abortions and ectopic and molar pregnancies 630-639	124	...	124	*	123	*	...
Diseases of the skin and subcutaneous tissue 680-709	460	239	221	38	129	113	180
Cellulitis and abscess 681-682	318	172	146	26	89	84	118
Diseases of the musculoskeletal system and connective tissue 710-739	1,515	672	843	39	440	436	600
Arthropathies and related disorders 710-719	546	219	327	14	104	130	298
Intervertebral disc disorders 722	370	195	175	*	182	127	61
Congenital anomalies 740-759	151	84	66	107	27	12	*
Certain conditions originating in the perinatal period 760-779	132	79	54	131	*	*	-
Symptoms, signs, and ill-defined conditions 780-799	328	156	173	47	133	83	66
Injury and poisoning 800-999	2,605	1,309	1,296	246	940	505	915
Fractures, all sites 800-829	987	425	562	84	274	150	480
Fracture of neck of femur 820	301	79	222	*	*7	21	270
Intracranial injuries (excluding those with skull fracture) 850-854	144	90	54	24	65	20	36
Open wounds 870-897	143	104	39	20	86	19	17
Supplementary classifications V01-V82	4,353	183	4,169	75	3,993	111	174
Females with deliveries V27	3,901	...	3,901	15	3,885	*	...

* Figure does not meet standard of reliability or precision. Category not applicable. - Quantity zero.
¹ First-listed diagnosis for females with deliveries is coded V27, shown under "Supplementary classifications."

Table 3. Rate of discharges from short-stay hospitals by first-listed diagnosis, sex, and age: United States, 1994[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 Modification (ICD-9-CM)*]

Category of first-listed diagnosis and ICD-9-CM code	Sex			Age			
	Total	Male	Female	Under 15 years	15-44 years	45-64 years	65 years and over
	Rate per 10,000 population						
All conditions	1,191.2	976.9	1,393.7	392.3	931.8	1,241.1	3,415.9
Infectious and parasitic diseases 001-139	31.3	30.3	32.2	29.8	18.4	26.6	86.5
Septicemia 038	11.7	9.9	13.3	4.7	3.0	9.9	56.9
Neoplasms 140-239	70.9	58.2	82.9	8.2	28.2	115.7	261.8
Malignant neoplasms 140-208,230-234	55.7	53.0	58.3	6.7	13.7	89.2	238.2
Malignant neoplasm of large intestine and rectum 153-154,197.5	5.6	5.5	5.8	*	*0.5	6.6	32.4
Malignant neoplasm of trachea, bronchus, and lung 162,176.4,197.0,197.3	8.0	8.9	7.1	*	*0.7	14.3	37.9
Malignant neoplasm of breast 174-175,198.81	5.4	*	10.4	*	1.7	11.4	18.6
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature 210-229,235-239	15.2	5.2	24.6	*1.5	14.5	26.5	23.6
Endocrine, nutritional and metabolic diseases, and immunity disorders 240-279	48.4	40.7	55.6	21.2	23.5	57.4	170.0
Diabetes mellitus 250	19.4	17.7	21.0	3.9	11.9	30.0	56.7
Volume depletion 276.5	14.5	12.6	16.3	13.1	4.7	8.9	60.2
Diseases of the blood and blood-forming organs 280-289	13.2	11.7	14.6	8.5	9.5	12.3	35.4
Mental disorders 290-319	81.6	89.2	74.3	16.7	111.4	80.7	89.4
Psychoses 290-299	48.0	47.4	48.5	6.9	60.0	52.1	70.3
Alcohol-dependence syndrome 303	9.4	14.5	4.6	*	13.9	12.9	3.8
Diseases of the nervous system and sense organs 320-389	22.3	20.3	24.2	18.4	12.7	23.8	60.8
Diseases of the central nervous system 320-349	11.1	9.7	12.4	7.8	8.5	11.6	24.9
Diseases of the ear and mastoid process 380-389	3.8	3.6	4.0	7.3	1.1	3.2	8.2
Diseases of the circulatory system 390-459	223.2	230.9	215.9	5.6	33.2	317.6	1,128.7
Heart disease 391-392.0,393-398,402,404,410-416,420-429	156.7	166.9	147.1	3.3	21.5	231.9	785.9
Acute myocardial infarction 410	29.3	35.5	23.5	*	3.9	51.0	136.7
Coronary atherosclerosis 414.0	26.4	34.6	18.6	*	3.1	55.3	110.1
Other ischemic heart disease 411-413,414.1-414.9	26.0	26.5	25.6	*	3.9	46.3	118.4
Cardiac dysrhythmias 427	23.7	23.2	24.2	*0.9	4.2	26.4	128.1
Congestive heart failure 428.0	33.8	31.0	36.4	*	1.9	29.8	210.0
Cerebrovascular disease 430-438	34.2	32.4	35.9	*	2.1	35.1	204.4
Diseases of the respiratory system 460-519	120.7	121.7	119.7	112.9	39.1	114.1	433.4
Acute respiratory infections 460-466	13.5	14.7	12.3	34.1	4.2	7.3	20.2
Chronic disease of tonsils and adenoids 474	1.5	1.4	1.6	4.8	0.9	*	*
Pneumonia 480-486	46.0	47.7	44.4	35.4	13.4	38.8	190.7
Asthma 493	17.4	15.0	19.7	29.5	10.7	15.8	23.0
Diseases of the digestive system 520-579	118.8	109.3	127.8	39.9	71.5	159.7	360.7
Ulcers of the stomach and small intestine 531-534	8.4	9.3	7.5	*	3.3	12.2	34.7
Appendicitis 540-543	9.6	12.0	7.4	10.3	12.3	6.5	3.8
Inguinal hernia 550	2.8	5.2	*0.6	*1.5	1.5	3.3	9.3
Noninfectious enteritis and colitis 555-558	12.9	10.9	14.7	14.6	7.8	12.6	28.2
Cholelithiasis 574	16.8	10.9	22.4	*	12.5	25.8	47.1
Diseases of the genitourinary system 580-629	70.1	48.2	90.9	11.0	54.4	85.4	204.6
Calculus of kidney and ureter 592	8.1	10.8	5.5	*	8.3	14.4	11.2
Hyperplasia of prostate 600	5.8	11.9	...	...	*	5.9	36.0
Complications of pregnancy, childbirth, and the puerperium ¹ 630-676	22.2	...	43.1	*	48.3	*	...
Abortions and ectopic and molar pregnancies 630-639	4.8	...	9.3	*	10.4	*	...
Diseases of the skin and subcutaneous tissue 680-709	17.8	19.0	16.6	6.7	11.0	22.3	54.1
Cellulitis and abscess 681-682	12.3	13.7	10.9	4.5	7.6	16.6	35.6
Diseases of the musculoskeletal system and connective tissue 710-739	58.5	53.4	63.4	6.9	37.4	85.7	180.9
Arthropathies and related disorders 710-719	21.1	17.4	24.5	2.4	8.9	25.6	89.8
Intervertebral disc disorders 722	14.3	15.5	13.1	*	15.5	24.9	18.4
Congenital anomalies 740-759	5.8	6.7	5.0	18.7	2.3	2.4	*
Certain conditions originating in the perinatal period 760-779	5.1	6.3	4.0	22.9	*	*	-
Symptoms, signs, and ill-defined conditions 780-799	12.7	12.4	13.0	8.2	11.3	16.2	19.8
Injury and poisoning 800-999	100.6	104.0	97.4	42.8	79.9	99.2	276.0
Fractures, all sites 800-829	38.1	33.8	42.2	14.6	23.3	29.4	144.8
Fracture of neck of femur 820	11.6	6.3	16.7	*	*0.6	4.1	81.5
Intracranial injuries (excluding those with skull fracture) 850-854	5.6	7.2	4.1	4.1	5.5	3.9	10.9
Open wounds 870-897	5.5	8.3	2.9	3.5	7.3	3.8	5.2
Supplementary classifications V01-V82	168.1	14.6	313.3	13.1	339.6	21.8	52.4
Females with deliveries V27	150.7	...	293.1	2.6	330.4	*	...

* Figure does not meet standard of reliability or precision. Category not applicable. - Quantity zero.

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

Table 4. Average length of stay for discharges from short-stay hospitals by first-listed diagnosis, sex, and age: United States, 1994[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 Modification (ICD-9-CM)*]

Category of first-listed diagnosis and ICD-9-CM code	Sex			Age			
	Total	Male	Female	Under 15 years	15-44 years	45-64 years	65 years and over
	Average length of stay in days						
All conditions	5.7	6.2	5.4	4.8	4.2	5.9	7.4
Infectious and parasitic diseases 001-139	7.5	7.7	7.2	4.1	7.3	7.7	9.4
Septicemia 038	9.5	9.8	9.3	7.1	8.7	9.1	10.1
Neoplasms 140-239	7.2	8.1	6.6	9.5	5.0	6.5	8.4
Malignant neoplasms 140-208,230-234	7.9	8.3	7.6	10.1	6.6	7.3	8.5
Malignant neoplasm of large intestine and rectum 153-154,197.5	11.2	10.6	11.7	*	*8.5	10.6	11.5
Malignant neoplasm of trachea, bronchus, and lung 162,176.4,197.0,197.3	8.2	8.3	8.1	*	*5.7	7.1	9.0
Malignant neoplasm of breast 174-175,198.81	3.9	*	3.9	*	3.3	4.6	3.5
Benign neoplasms and neoplasms of uncertain behavior and unspecified nature 210-229,235-239	4.6	6.1	4.3	*6.9	3.6	4.0	7.5
Endocrine, nutritional and metabolic diseases, and immunity disorders 240-279	5.9	5.7	6.0	3.5	4.3	5.5	7.5
Diabetes mellitus 250	6.3	6.0	6.6	3.9	4.2	6.3	8.2
Volume depletion 276.5	5.8	5.5	6.0	2.5	4.7	4.9	7.5
Diseases of the blood and blood-forming organs 280-289	5.3	4.8	5.6	3.9	5.1	5.1	6.1
Mental disorders 290-319	9.9	9.5	10.3	14.9	9.0	9.8	12.3
Psychoses 290-299	11.4	11.0	11.8	15.7	10.5	11.4	13.2
Alcohol-dependence syndrome 303	8.1	7.7	9.3	*	8.3	7.4	8.5
Diseases of the nervous system and sense organs 320-389	5.5	5.8	5.2	4.1	5.4	6.5	5.6
Diseases of the central nervous system 320-349	8.0	8.9	7.4	5.5	6.2	10.2	9.9
Diseases of the ear and mastoid process 380-389	2.9	2.6	3.0	2.6	3.1	2.8	3.2
Diseases of the circulatory system 390-459	6.2	5.9	6.6	6.4	4.7	5.5	6.7
Heart disease 391-392.0,393-398,402,404,410-416,420-429	6.0	5.7	6.3	6.8	4.3	5.2	6.5
Acute myocardial infarction 410	7.1	6.7	7.8	*	5.2	6.0	8.0
Coronary atherosclerosis 414.0	5.4	5.3	5.4	*	3.7	4.9	5.9
Other ischemic heart disease 411-413,414.1-414.9	4.1	3.9	4.3	*	2.7	3.6	4.5
Cardiac dysrhythmias 427	4.9	4.8	5.0	*9.4	3.1	4.0	5.3
Congestive heart failure 428.0	7.1	6.5	7.7	*	5.4	7.0	7.2
Cerebrovascular disease 430-438	7.3	6.8	7.7	*	8.7	6.9	7.3
Diseases of the respiratory system 460-519	6.3	6.1	6.4	3.4	5.1	6.5	7.8
Acute respiratory infections 460-466	4.0	3.9	4.2	3.2	4.2	3.8	6.2
Chronic disease of tonsils and adenoids 474	1.6	1.8	1.4	1.5	1.7	*	*
Pneumonia 480-486	7.1	6.9	7.4	4.1	6.6	7.3	8.2
Asthma 493	4.0	3.4	4.5	2.5	3.7	5.1	6.7
Diseases of the digestive system 520-579	5.5	5.3	5.6	3.6	4.2	5.2	6.9
Ulcers of the stomach and small intestine 531-534	6.8	6.8	6.8	*	4.1	5.9	8.3
Appendicitis 540-543	4.0	4.2	3.8	3.6	3.5	5.1	9.1
Inguinal hernia 550	2.7	2.3	*6.3	*1.6	1.8	1.8	4.1
Noninfectious enteritis and colitis 555-558	4.8	4.6	5.0	2.8	4.0	6.1	6.6
Cholelithiasis 574	4.3	4.6	4.1	*	3.1	3.2	6.3
Diseases of the genitourinary system 580-629	4.4	4.6	4.2	3.9	3.3	3.9	5.7
Calculus of kidney and ureter 592	2.6	2.4	3.0	*	2.1	2.8	3.5
Hyperplasia of prostate 600	3.8	3.8	...	...	*	3.0	4.0
Complications of pregnancy, childbirth, and the puerperium ¹ 630-676	2.7	...	2.7	*	2.7	*	...
Abortions and ectopic and molar pregnancies 630-639	2.2	...	2.2	*	2.2	*	...
Diseases of the skin and subcutaneous tissue 680-709	7.1	6.9	7.3	3.7	5.1	6.8	9.4
Cellulitis and abscess 681-682	6.2	5.8	6.7	3.5	4.8	6.5	7.8
Diseases of the musculoskeletal system and connective tissue 710-739	5.4	5.0	5.8	4.6	3.9	4.7	7.1
Arthropathies and related disorders 710-719	5.8	5.3	6.2	4.6	3.8	5.6	6.7
Intervertebral disc disorders 722	4.1	3.9	4.3	*	3.9	3.4	6.1
Congenital anomalies 740-759	6.1	5.2	7.4	6.3	4.5	8.5	*
Certain conditions originating in the perinatal period 760-779	10.4	10.8	9.9	10.5	*	*	-
Symptoms, signs, and ill-defined conditions 780-799	3.0	2.8	3.1	2.3	2.5	2.5	4.9
Injury and poisoning 800-999	5.8	5.5	6.2	3.8	4.6	5.9	7.6
Fractures, all sites 800-829	7.0	6.4	7.5	3.8	5.7	6.3	8.5
Fracture of neck of femur 820	9.4	9.7	9.3	*	*8.1	7.7	9.6
Intracranial injuries (excluding those with skull fracture) 850-854	5.6	6.5	4.2	4.1	4.9	8.5	6.2
Open wounds 870-897	3.3	3.2	3.5	2.5	3.2	3.5	4.3
Supplementary classifications V01-V82	2.9	7.6	2.7	4.4	2.4	6.1	10.8
Females with deliveries V27	2.4	...	2.4	2.6	2.4	*	...

* Figure does not meet standard of reliability or precision.

... Category not applicable.

- Quantity zero.

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

Table 5. Number of all-listed procedures for discharges from short-stay hospitals by procedure category, sex, and age: United States, 1994[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 Modification (ICD-9-CM)*]

Procedure category and ICD-9-CM code	Sex			Age			
	Total	Male	Female	Under 15 years	15-44 years	45-64 years	65 years and over
	Number in thousands						
All procedures	40,710	15,870	24,840	1,884	15,375	9,174	14,277
Operations on the nervous system 01-05	933	446	488	195	323	196	219
Spinal tap 03.31	328	166	162	136	84	51	56
Operations on the endocrine system 06-07	103	27	76	*	38	37	25
Operations on the eye 08-16	283	127	156	20	43	67	154
Operations on the ear 18-20	80	44	37	44	15	10	11
Operations on the nose, mouth, and pharynx 21-29	394	212	182	81	160	84	69
Tonsillectomy with or without adenoidectomy 28.2-28.3	51	25	26	29	17	*	*
Operations on the respiratory system 30-34	981	567	414	42	181	281	477
Bronchoscopy with or without biopsy 33.21-33.24,33.27	289	169	121	14	49	87	140
Operations on the cardiovascular system 35-39	4,653	2,724	1,928	138	495	1,619	2,401
Removal of coronary artery obstruction 36.0	428	280	148	*	32	193	203
Coronary artery bypass graft ¹ 36.1	501	363	139	*	18	217	265
Cardiac catheterization 37.21-37.23	1,048	633	415	12	89	445	502
Insertion, replacement, removal, and revision of pacemaker leads or device 37.7-37.8	328	154	175	*	*7	43	275
Shunt or vascular bypass 39.0-39.2	175	100	75	*	13	61	98
Hemodialysis 39.95	348	173	175	*	74	116	157
Operations on the hemic and lymphatic system 40-41	370	187	183	17	70	118	165
Operations on the digestive system 42-54	5,123	2,176	2,946	194	1,323	1,310	2,296
Endoscopy of small intestine with or without biopsy 45.11-45.14,45.16	878	409	470	15	154	219	491
Endoscopy of large intestine with or without biopsy 45.21-45.25	548	225	323	*5	72	129	341
Partial excision of large intestine 45.7	198	89	110	*	19	53	123
Appendectomy, excluding incidental 47.0	280	157	122	62	164	39	15
Cholecystectomy 51.2	463	148	315	*	152	147	161
Repair of inguinal hernia 53.0-53.1	98	82	15	10	21	22	45
Lysis of peritoneal adhesions 54.5	328	63	265	*	153	84	87
Operations on the urinary system 55-59	1,186	610	575	32	261	317	575
Cystoscopy with or without biopsy 57.31-57.33	276	170	106	*	42	70	160
Operations on the male genital organs 60-64	400	400	...	35	20	95	250
Prostatectomy 60.2-60.6	263	263	...	...	*	61	200
Operations on the female genital organs 65-71	2,106	...	2,106	*7	1,309	516	275
Oophorectomy and salpingo-oophorectomy 65.3-65.6	445	...	445	*	205	176	62
Bilateral destruction or occlusion of fallopian tubes 66.2-66.3	362	...	362	*	360	*	...
Hysterectomy 68.3,68.7-68.9	556	...	556	-	298	188	70
Dilation and curettage of uterus 69.0	114	...	114	*	89	17	*8
Repair of cystocele and rectocele 70.5	157	...	157	-	30	60	67
Obstetrical procedures 72-75	6,772	...	6,772	28	6,741	*	...
Episiotomy with or without forceps or vacuum extraction 72.1,72.21,72.31,72.71,73.6	1,512	...	1,512	*6	1,506	*	...
Artificial rupture of membranes 73.0	766	...	766	*	763	*	...
Cesarean section 74.0-74.2,74.4,74.99	858	...	858	*	856	*	...
Fetal EKG (scalp) and fetal monitoring, not otherwise specified ² 75.32,75.34	1,099	...	1,099	*6	1,092	*	...
Repair of current obstetric laceration 75.5-75.6	910	...	910	*	907	*	...
Operations on the musculoskeletal system 76-84	3,167	1,601	1,566	171	1,118	824	1,054
Partial excision of bone 76.2-76.3,77.6-77.8	238	122	116	10	99	78	50
Open reduction of fracture with internal fixation 79.3	399	174	225	14	132	82	171
Excision or destruction of intervertebral disc 80.5	317	172	145	*	157	118	41
Total hip replacement 81.51	124	49	75	*	13	29	82
Total knee replacement 81.54	209	78	130	*	*6	51	151
Operations on the integumentary system 85-86	1,313	574	739	79	440	360	434
Mastectomy 85.4	108	*	107	*	14	43	51
Debridement of wound, infection, or burn 86.22,86.28	327	189	138	22	100	73	133
Skin graft 86.6-86.7	109	67	42	14	40	27	28
Miscellaneous diagnostic and therapeutic procedures 87-99	12,845	6,174	6,671	798	2,838	3,339	5,871
Computerized axial tomography 87.03,87.41,87.71,88.01,88.38	1,028	500	528	52	232	247	498
Pyelogram 87.73-87.75	184	98	86	*	71	51	60
Arteriography and angiocardiology using contrast material 88.4-88.5	1,804	1,058	746	15	174	712	902
Diagnostic ultrasound 88.7	1,310	538	771	50	323	307	630
Circulatory monitoring 89.6	427	208	219	18	74	106	229
Radioisotope scan 92.0-92.1	355	155	200	*8	57	106	183
Respiratory therapy 93.9,96.7	1,174	577	597	201	162	254	556

* Figure does not meet standard of reliability or precision. Category not applicable. - Quantity zero.

¹The number of discharges with a coronary artery bypass graft was 318,000.²EKG is electrocardiogram.

Table 6. Rate of all-listed procedures for discharges from short-stay hospitals by procedure category, sex, and age: United States, 1994[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 Modification (ICD-9-CM)*]

Procedure category and ICD-9-CM code	Sex			Age			
	Total	Male	Female	Under 15 years	15-44 years	45-64 years	65 years and over
	Rate per 100,000 population						
All procedures	15,722.3	12,611.5	18,663.5	3,286.3	13,075.8	18,041.2	43,056.7
Operations on the nervous system 01-05	360.5	354.2	366.5	340.7	274.9	384.6	661.5
Spinal tap 03.31	126.5	131.9	121.5	238.0	71.8	100.5	167.6
Operations on the endocrine system 06-07	39.8	21.7	56.9	*	31.9	71.9	76.2
Operations on the eye 08-16	109.4	101.2	117.2	34.5	36.3	132.3	463.4
Operations on the ear 18-20	31.0	34.7	27.5	76.6	12.9	19.4	33.8
Operations on the nose, mouth, and pharynx 21-29	152.2	168.6	136.8	141.6	136.1	164.5	209.0
Tonsillectomy with or without adenoidectomy 28.2-28.3	19.5	19.9	19.2	50.3	14.6	*	*
Operations on the respiratory system 30-34	378.9	450.7	311.0	72.5	154.1	553.2	1,438.6
Bronchoscopy with or without biopsy 33.21-33.24,33.27	111.8	134.1	90.8	23.9	41.9	170.4	421.9
Operations on the cardiovascular system 35-39	1,796.9	2,165.0	1,448.8	240.8	421.1	3,182.9	7,240.9
Removal of coronary artery obstruction 36.0	165.2	222.3	111.3	*	26.8	380.3	611.4
Coronary artery bypass graft ¹ 36.1	193.6	288.2	104.1	*	15.5	426.6	800.2
Cardiac catheterization 37.21-37.23	404.6	502.9	311.6	21.3	75.3	874.1	1,514.9
Insertion, replacement, removal, and revision of pacemaker leads or device 37.7-37.8	126.8	122.2	131.1	*	*6.3	84.5	828.6
Shunt or vascular bypass 39.0-39.2	67.6	79.7	56.2	*	10.8	120.7	294.2
Hemodialysis 39.95	134.3	137.3	131.5	*	62.9	227.7	473.5
Operations on the hemic and lymphatic system 40-41	143.0	148.7	137.6	29.3	59.9	231.7	498.3
Operations on the digestive system 42-54	1,978.4	1,729.6	2,213.5	338.2	1,124.8	2,575.9	6,925.2
Endoscopy of small intestine with or without biopsy 45.11-45.14,45.16	339.2	324.9	352.8	25.7	130.8	430.5	1,480.5
Endoscopy of large intestine with or without biopsy 45.21-45.25	211.6	178.9	242.4	*8.9	61.6	253.8	1,028.9
Partial excision of large intestine 45.7	76.6	70.5	82.4	*	16.3	104.1	371.7
Appendectomy, excluding incidental 47.0	108.0	125.0	92.0	108.5	139.2	76.4	45.4
Cholecystectomy 51.2	178.8	117.8	236.4	*	129.1	289.6	485.1
Repair of inguinal hernia 53.0-53.1	37.7	65.4	11.6	17.4	18.0	42.9	134.9
Lysis of peritoneal adhesions 54.5	126.8	50.4	199.0	*	130.2	165.3	261.1
Operations on the urinary system 55-59	457.9	485.1	432.3	56.6	221.9	623.6	1,734.7
Cystoscopy with or without biopsy 57.31-57.33	106.5	134.8	79.7	*	36.1	136.9	481.4
Operations on the male genital organs 60-64	154.6	318.0	...	60.9	17.1	187.6	753.1
Prostatectomy 60.2-60.6	101.4	208.6	...	...	*	120.2	603.1
Operations on the female genital organs 65-71	813.4	...	1,582.4	*11.4	1,113.2	1,014.2	829.3
Oophorectomy and salpingo-oophorectomy 65.3-65.6	171.9	...	334.4	*	174.5	346.2	188.4
Bilateral destruction or occlusion of fallopian tubes 66.2-66.3	139.6	...	271.6	*	306.1	*	...
Hysterectomy 68.3,68.7-68.9	214.7	...	417.7	-	253.5	369.1	211.6
Dilation and curettage of uterus 69.0	43.9	...	85.4	*	75.5	33.0	*23.5
Repair of cystocele and rectocele 70.5	60.8	...	118.2	-	25.8	117.8	202.5
Obstetrical procedures 72-75	2,615.5	...	5,088.3	49.3	5,732.9	*	...
Episiotomy with or without forceps or vacuum extraction 72.1,72.21,72.31,72.71,73.6	584.0	...	1,136.1	*9.8	1,281.0	*	...
Artificial rupture of membranes 73.0	295.9	...	575.6	*	648.9	*	...
Cesarean section 74.0-74.2,74.4,74.99	331.5	...	645.0	*	727.7	*	...
Fetal EKG (scalp) and fetal monitoring, not otherwise specified ² 75.32,75.34	424.3	...	825.4	*10.8	928.6	*	...
Repair of current obstetric laceration 75.5-75.6	351.6	...	684.0	*	771.5	*	...
Operations on the musculoskeletal system 76-84	1,222.9	1,272.0	1,176.6	297.6	950.9	1,619.9	3,179.2
Partial excision of bone 76.2-76.3,77.6-77.8	91.8	97.1	86.8	18.1	84.3	153.2	151.6
Open reduction of fracture with internal fixation 79.3	154.0	138.4	168.7	24.0	112.3	161.4	515.3
Excision or destruction of intervertebral disc 80.5	122.5	136.5	109.3	*	133.3	232.2	124.8
Total hip replacement 81.51	47.8	38.8	56.3	*	11.0	57.6	246.1
Total knee replacement 81.54	80.6	62.2	97.9	*	*5.0	101.0	454.9
Operations on the integumentary system 85-86	507.1	455.8	555.6	138.0	374.2	708.1	1,308.5
Mastectomy 85.4	41.8	*	80.6	*	12.0	83.6	154.5
Debridement of wound, infection, or burn 86.22,86.28	126.3	150.3	103.6	38.2	84.9	143.3	399.6
Skin graft 86.6-86.7	42.2	53.4	31.7	25.0	33.9	53.0	85.0
Miscellaneous diagnostic and therapeutic procedures 87-99	4,960.9	4,906.2	5,012.5	1,392.0	2,413.5	6,565.4	17,705.2
Computerized axial tomography 87.03,87.41,87.71,88.01,88.38	397.1	397.4	396.9	89.9	197.1	485.4	1,502.6
Pyelogram 87.73-87.75	71.1	77.9	64.7	*	60.3	99.8	179.8
Arteriography and angiocardiology using contrast material 88.4-88.5	696.5	840.6	560.3	26.7	148.0	1,400.3	2,720.6
Diagnostic ultrasound 88.7	505.8	427.9	579.3	86.4	274.9	603.3	1,900.2
Circulatory monitoring 89.6	164.8	165.3	164.4	31.7	63.0	207.7	690.3
Radioisotope scan 92.0-92.1	137.0	123.0	150.1	*14.7	48.7	208.8	551.2
Respiratory therapy 93.9,96.7	453.2	458.4	448.3	351.3	137.9	500.5	1,675.4

* Figure does not meet standard of reliability or precision. Category not applicable. - Quantity zero.

¹The rate per 100,000 population of discharges with a coronary artery bypass graft was 122.7.²EKG is electrocardiogram.

Technical notes

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. Estimates of sampling variability were calculated with SUDAAN software, which takes into account the complex sample design. A description of the software and the approach it uses has been published (14). The constants for relative standard error curves for the 1994 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:

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

where 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, 1994

Characteristic	Number of discharges or first-listed diagnoses		Number of procedures	
	<i>a</i>	<i>b</i>	<i>a</i>	<i>b</i>
Total	0.00164	807.099	0.00175	435.521
Sex				
Male	0.00420	232.683	0.00595	215.062
Female	0.00120	407.831	0.00240	453.275
Age				
Under 15 years	0.03390	88.459	0.02385	195.642
15–44 years	0.00136	325.536	0.00472	392.802
45–64 years	0.00344	144.077	0.02115	78.880
65 years and over	0.00366	213.177	0.00630	252.090
Region				
Northeast	0.00370	231.538	0.00908	170.128
Midwest	0.01114	199.629	0.01466	447.980
South	0.00598	851.312	0.01235	775.159
West	0.00411	444.032	0.01250	508.682

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