

VITAL & HEALTH STATISTICS

Surgical and Nonsurgical Procedures in Short-Stay Hospitals: United States, 1979

Statistics are presented on the number and rate of procedures performed for inpatients in non-Federal short-stay hospitals by age and sex. These estimates are based on data abstracted from a national sample of hospital records of discharged patients. This report also presents estimates of average length of stay for single-listed procedures, data on preoperative and postoperative days of care, day of the week of procedures, and discharge status of patients.

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National Center for Health Statistics

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Under the legislation establishing the National Health Survey, the Public Health Service is authorized to use, insofar as possible, the services or facilities of other Federal, State, or private agencies.

In accordance with specifications established by the National Center for Health Statistics, the Bureau of the Census, under a contractual arrangement, participated in planning the survey and collecting the data.

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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 (more than 30-percent relative standard error)
 - # Figure suppressed to comply with confidentiality requirements
-

Surgical and Nonsurgical Procedures in Short-Stay Hospitals

by Robert Pokras, Division of Health Care Statistics

Introduction

This report presents national estimates on procedures performed for inpatients in non-Federal short-stay hospitals during 1979. Detailed data are provided by sex and age of patients for number and rate of procedures performed. Estimates of average lengths of stay are presented for selected single-listed procedures. Data also are presented on preoperative and postoperative lengths of stay, hospital admission and surgery by day of the week, and discharge status. Data on newborn infants are excluded from this report.

The statistics in this report are based on data collected by means of the National Hospital Discharge Survey, a continuous survey conducted by the National Center for Health Statistics since 1965. Data for this survey are obtained from the face sheets of a sample of the medical records of inpatients discharged from a national sample of short-stay non-Federal general and specialty hospitals in the United States. The sample for 1979 consisted of approximately 215,000 medical records from 431 hospitals. The survey design, data collection procedures, and the estimation process are described in appendix I. A detailed report on the design of the National Hospital Discharge Survey has been published.¹

Familiarity with the terms used in this report is important for interpreting the data and for making comparisons with data available from other sources on short-stay hospital use. Definitions of terms are presented in appendix II. Of note in this regard is that the unit of enumeration for the National Hospital Discharge Survey is an inpatient—someone formally admitted to a short-stay hospital. Patients for whom procedures are performed on an outpatient basis, in a surgical center, in a physician's office, or in a hospital emergency room without the patient being admitted to the hospital are not in the scope of this survey. Nonetheless, the terms

“patient” and “inpatient” are used synonymously in this report.

Procedures for inpatients listed on the face sheet of the medical record are coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification, Volume 3 (ICD-9-CM)*.² The ICD-9-CM contains thousands of codes (ranging from 01.01 to 99.99), each corresponding to a specific procedure or type of procedure. To retain specificity of surgical type but reduce the enormous detail contained in ICD-9-CM, a grouping scheme was developed by National Hospital Discharge Survey for reporting that condenses ICD-9-CM into 140 groups of procedures. The groups were developed to maximize specificity of surgical type, clarity of characterization, and frequency of occurrence. The groups and the ICD-9-CM codes contained within each group are listed in table 1.

Data on procedures in short-stay hospitals for 1979 also are available in two other publications of the National Center for Health Statistics. In the 1979 National Hospital Discharge Survey annual summary report,³ data are presented by the 16 major ICD-9-CM procedure categories for race of patient, region of the country, and hospital bed size. In the 1979 National Hospital Discharge Survey detailed diagnostic and surgery report,⁴ data are presented for the most detailed ICD-9-CM procedure codes (4-digit codes) by sex, age, and race of patient and by region of the country.

Information on short-stay hospital use also is collected by another program of the National Center for Health Statistics, the National Health Interview Survey. Estimates from this survey generally are different from National Hospital Discharge Survey estimates because of differences in data collection procedures, population sampled, and definitions. Data from the National Health Interview Survey are published by the National Center for Health Statistics in Series 10 of the *Vital and Health Statistics* reports.

Change in coding system

Surgical data collected during 1970–78 by means of the National Hospital Discharge Survey were coded according to the *Eighth Revision International Classification of Diseases, Adapted for Use in the United States (ICDA)*.⁵ Conversion to ICD–9–CM began on January 1, 1979. Because of differences between these classification systems and differences in how they have been used, any examination of changing patterns in surgery using estimates from 1978 and earlier and estimates for 1979 requires careful consideration.

The ICDA and ICD–9–CM are organized in fundamentally different ways. The ICDA was organized in major surgical categories by surgical specialty; however, ICD–9–CM was organized in categories by surgical site. An example of a specific consequence of this change is shown in the coding of biopsies and certain other diagnostic procedures. Before 1979, these procedures were coded separately from the main categories of surgical specialties, but ICD–9–CM places them within the surgical category corresponding to the site on which they are performed.

These classifications also differ in level of detail: ICDA used three-digit codes while ICD–9–CM expanded to four-digit codes to allow more detail. A detailed comparison of these systems has been compiled.⁶

Changes in data collection and reporting practices instituted in 1979 preclude comparing certain statistics presented in this report with statistics from earlier years of the NHDS. The most profound change was the collection and reporting of all but class 4 procedures. (See appendix I.) This was done in compliance with a recommendation of the National Committee on Vital and Health Statistics.⁷ Before 1979, the results of the NHDS showed only estimates of surgical procedures; starting in 1979, all surgical and diagnostic procedures listed on the face sheet of the medical record were coded and used in estimating the total number of procedures performed. Because of this difference, the estimated total of 20.7 million surgical procedures performed in 1978 and the estimated total of 29.6 million surgical and diagnostic

procedures performed in 1979 (table A) are not comparable statistics.

Much of the data in this report are presented by groups of ICD–9–CM codes developed by and used in the NHDS for reporting purposes. A grouping scheme also was used in previous years and, in many cases, similar or identical names are found in both schemes. However, a one-to-one correspondence is not intended between groups with similar names, and direct comparison is tenuous.

In addition, the reader attempting to compare 1979 data with data from previous years should be aware that minor differences in coding instructions between ICDA and ICD–9–CM may produce subtle, but in some instances dramatic, differences in estimates of the frequency of specific procedures. Two examples are discussed below.

The first example concerns the coding of laparotomies. Before 1979, a laparotomy was coded regardless of whether it was listed in conjunction with other intra-abdominal surgery. This practice changed in 1979 because ICD–9–CM instructs the coder not to code a laparotomy if it is incidental to other intraabdominal surgery. As a result, the estimated frequency of laparotomies increased from 281,000 in 1975⁸ to 327,000 in 1978⁹ but decreased dramatically in 1979 to 111,000.⁴ The different instructions in ICDA and ICD–9–CM appear to be the most reasonable explanation for this decrease.

The second example involves a modification made by the NHDS for ICDA but abandoned with the conversion to ICD–9–CM. Before 1979, a patient with reduction of fracture of hip and arthroplasty of hip was ascribed only the ICDA code for hip reduction because the arthroplasty was considered part of the reduction. This approach resulted in an estimated 60,000 hip arthroplasties in 1975,⁸ increasing to 67,000 in 1978.⁹ However, the philosophy of ICD–9–CM is to code everything that appears on the source document unless there are instructions to the contrary. This resulted in an

Table A. Number of patients discharged from short-stay hospitals in 1970, 1978, and 1979 and average length of stay in 1979, by patient status: United States

[Discharges from non-Federal hospitals, excluding newborn infants]

Patient status	1970 ¹	1978 ¹	1979 ²	Average length of stay, 1979
All patients	29,127	35,616	36,747	7.2
Patients without surgery	17,573	20,932	17,851	7.2
Patients with surgery	11,533	14,683	18,896	7.2
Total procedures	15,613	20,754	29,603	N/A
Patients with a single procedure	8,352	9,929	11,564	5.9
Patients with multiple procedures	3,201	4,755	7,332	9.2
Patients with 2 procedures	2,282	3,439	4,841	7.6
Patients with 3 or more procedures	899	1,315	1,608	10.1
Patients with 4 or more procedures	(³)	(³)	3883	16.1

¹National Center for Health Statistics: *Eighth Revision International Classification of Diseases, Adapted for Use in the United States*, Vols. 1 and 2. PHS Pub. No. 1693. Public Health Service, Washington, U.S. Government Printing Office, 1967 and 1968.

²National Center for Health Statistics, B. J. Haupt: Detailed diagnosis and procedures for patients discharged from short-stay hospitals: United States, 1979. *Vital and Health Statistics*. DHHS Pub. No. (PHS) 81-1274. Public Health Service, Washington, U.S. Government Printing Office, 1981.

³A maximum of 3 procedures were coded before 1979. A maximum of 4 procedures were coded in 1979.

estimated 130,000 hip arthroplasties in 1979 because arthroplasties of hip associated with hip reductions are included in the estimate of all hip arthroplasties.

Table A provides estimates of patients with and without procedures for 1970, 1978, and 1979. This is presented to illustrate the effect of the change to ICD-9-CM on National Hospital Discharge Survey-derived estimates of selected statistics. One or more procedures were performed for an estimated 18.9 million patients discharged from non-Federal short-stay hospitals during 1979. This appears to be a considerable increase over 1978, in which 14.7 million patients had surgery. However, much of this increase may be attributed to the inclusion of diagnostic and nonsurgical procedures.

The percent of patients with surgery in 1970 and 1978 was quite stable—40 percent of all patients had surgery in 1970, and 41 percent had surgery in 1978. Similarly, patients with surgery had an average of 1.35 operations in 1970 and 1.41 operations in 1978, an increase of only 4.4 percent over 9 years. However, in

1979, 51 percent of all patients had a procedure, and the number of procedures per patient with procedures increased 10.8 percent over 1978 to 1.57 procedures per patient.

These increases should not be interpreted as an indication of changing practices among surgeons or medical care in the United States but rather should be considered a result of the coding and reporting changes instituted in gathering data for the National Hospital Discharge Survey.

The cumulative effect of the differences in classification systems is unknown. Careful examination of the coding system may provide reasonable evidence that estimates for specific procedures are comparable. In these instances, comparisons over time may be warranted. However, in many instances it will take several years of estimates using ICD-9-CM to chart patterns of change to distinguish real change from those changes induced by a difference in coding systems.

Highlights

An estimated 29.6 million surgical, diagnostic, and therapeutic procedures were performed for inpatients in short-stay hospitals during 1979. These procedures were performed for 18.9 million of the 36.7 million discharges, or 51.4 percent of all discharges. Patients with procedures had an average of 1.6 procedures.

The most common procedures were episiotomy, diagnostic dilation and curettage of uterus, endoscopy of the urinary system, procedures to assist delivery, hysterectomy, bilateral destruction or occlusion of fallopian tubes, cesarean section, tonsillectomy with or without adenoidectomy, and repair of inguinal hernia. Each of these was performed at least 500,000 times in 1979.

The average length of stay for patients with procedures and patients without procedures was the same: 7.2 days. However, length of stay increased directly with the number of procedures performed: 5.9 days for one procedure; 7.6 days for two procedures; 10.1 days

for three procedures; and 16.1 days for four or more procedures.

Of all patients with procedures, fewer were admitted to hospitals on Friday or Saturday than on Sunday through Thursday, and only a small proportion of all procedures were performed on weekends compared to weekdays. Patients admitted on Friday or Saturday who had a procedure stayed in the hospital an average of 1.2 and 2.3 days longer respectively than patients with a procedure admitted on Sunday through Thursday.

There was a disproportionate effect on length of stay for patients who had a procedure and were discharged dead. While patients with and without procedures discharged alive had similar lengths of stay, 7.0 days, and patients without a procedure discharged dead stayed 10.7 days, patients with a procedure who were discharged dead averaged 20.0 days of hospital care. This effect was evident in all age groups.

Procedures

The estimates of procedures presented in this report are grouped in the detailed tables by the 16 categories of the ICD-9-CM, Volume 3, Procedures.² Each category represents an anatomical site or organ system except for "Miscellaneous diagnostic and therapeutic procedures." Data are not coded for class 4 procedures (see appendix I) except for circumcision (ICD-9-CM code 64.0), episiotomy (code 73.6), and removal of intrauterine device (code 97.71), which have been coded because of the large frequency of public inquiries concerning these procedures. Estimates of procedures within the ICD-9-CM classes are grouped into 140 categories for presentation in the detailed tables. These categories are single procedures that occurred in large frequencies or groups of associated procedures. The titles and order of the categories in the detailed tables follow ICD-9-CM as closely as possible.

Rates for operations in table 2 were computed using the civilian noninstitutionalized population. The reader can compute rates for operations in other tables of this report using appropriate age or sex subpopulations shown in appendix I, table III.

Table B compares males, females, and females excluding obstetrical procedures. Tables 1 and 2 present frequencies and rates of procedures by age and age within sex. Tables 3 through 13 present frequency estimates for the most common procedures for all ages and both sexes, each sex for all ages, and for each age group by sex. Tables 3 through 13 also include estimates of patients with single-listed procedures and present an average length of stay for these patients. Tables C and D are given as examples of estimates of number of procedures for the most detailed ICD-9-CM codes. Extraction of lens, cardiac bypass, and obstetrical procedures to assist delivery were selected for these examples.

As mentioned in the introduction, only data for patients admitted to and discharged from a hospital are sampled to produce National Hospital Discharge Survey (NHDS) estimates. Therefore, the reader should realize that NHDS estimates of procedures that are

also performed in other settings are underestimates of all such procedures for the civilian population of the United States.

Bruns¹⁰ estimates that 86,000 procedures were performed in 1979 in the 69 member centers of the Association of Freestanding Surgical Centers (members

Table B. Number, percent distribution, and rate of all-listed procedures for patients discharged from short-stay hospitals, by sex and age: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants]

<i>Sex and age</i>	<i>Number of all-listed procedures in thousands</i>	<i>Percent distribution</i>	<i>Rate of all-listed procedures per 10,000 population</i>
Both sexes			
All ages	29,603	100.0	1,371.3
Under 15 years	2,233	7.5	445.8
15-44 years	14,233	48.1	1,438.5
45-64 years	7,099	24.0	1,632.7
65 years or over	6,037	20.4	2,583.3
Male			
All ages	11,007	100.0	1,056.5
Under 15 years	1,285	11.7	502.7
15-44 years	3,647	33.1	756.7
45-64 years	3,137	28.5	1,509.2
65 years or over	2,938	26.7	3,049.6
Females including obstetrical procedures			
All ages	18,596	100.0	1,664.8
Under 15 years	948	5.1	386.5
15-44 years	10,586	56.9	2,086.2
45-64 years	3,962	21.3	1,745.8
65 years or over	3,099	16.7	2,256.3
Females excluding obstetrical procedures			
All ages	15,125	100.0	1,354.0
Under 15 years	932	6.2	379.9
15-44 years	7,153	47.3	1,409.6
45-64 years	3,940	26.0	1,736.1
65 years or over	3,099	20.5	2,256.3

represent about 75 percent of surgical centers in the country). He reports that the most common procedures in this setting were dilation and curettage of uterus (14,274), myringotomy (13,803), and tubal ligation (8,252). He also reports that almost 3,000 tonsillectomies and/or adenoidectomies were performed in these surgical centers. According to estimates of the American Hospital Association,¹¹ there were about 81 million emergency room visits and 262 million outpatient visits to hospitals in 1979. However, estimates are not available on how many of these patients required a procedure. Because procedures performed in surgical centers, on an outpatient basis, or in the emergency room are not in surveys conducted by the National Center for Health Statistics, estimates of totals for procedures that can be performed for patients other than hospital inpatients are not available.

By sex

An estimated 29.6 million procedures were performed during 1979 (table 1). This corresponds to 137.1 procedures per 1,000 persons in the civilian noninstitutionalized population (table 2; rates in this table are shown per 100,000 population to accommodate small

estimates). About 11.0 million procedures were for males and 18.6 million were for females. Procedure rates per 1,000 population were 105.7 for males and 166.5 for females. Exclusive of operations on the male genital organs, the female genital organs, and obstetrical procedures, these rates were 98.4 for males and 97.4 for females, or about the same. This is the result of the larger number of sex-specific procedures performed for females (7.7 million) than for males (757,000).

Procedures for males were clustered in the digestive system, the musculoskeletal system, miscellaneous diagnostic and therapeutic procedures, and the urinary system. Procedures on these sites accounted for about 58 percent of all procedures on males. Procedures on the female genital organs and obstetrical procedures accounted for about 41 percent of all procedures for females while procedures on the digestive system, musculoskeletal system, and integumentary system along with miscellaneous diagnostic and therapeutic procedures accounted for an additional 38 percent of all procedures for females.

Procedures with the largest frequencies in 1979 are shown in table 3 for both sexes and in tables 4 and 9 for each sex separately. For all patients the number of procedures was highest for the categories episiotomy, diag-

Table C. Number of extraction of lens and cardiac bypass procedures performed in short-stay hospitals by sex: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants]

<i>Surgical procedure and ICD-9-CM code</i>	<i>Total</i>	<i>Male</i>	<i>Female</i>
	Number estimated in thousands		
Total extraction of lens..... 13.1-13.6			
Intracapsular extraction of lens..... 13.1	351	138	214
Intracapsular extraction of lens by temporal inferior route..... 13.11	-	-	-
Other intracapsular extraction of lens..... 13.19	351	138	214
Extracapsular extraction of lens by linear extraction technique..... 13.2	*1	*2	*2
Extracapsular extraction of lens by simple aspiration (and irrigation) technique..... 13.3	2	*2	*2
Extracapsular extraction of lens by fragmentation and aspiration technique..... 13.4	32	15	17
Phacoemulsification and aspiration of cataract..... 13.41	30	14	16
Mechanical phacofragmentation and aspiration of cataract by posterior route..... 13.42	*1	*2	*1
Mechanical phacofragmentation and other aspiration of cataract..... 13.43	*1	*2	*2
Other extracapsular extraction of lens..... 13.5	25	11	14
Extracapsular extraction of lens by temporal inferior route..... 13.51	*2	-	*2
Other extracapsular extraction of lens..... 13.59	24	11	14
Other cataract extraction..... 13.6	7	4	3
Discission of primary membranous cataract..... 13.61	3	*2	*1
Excision of primary membranous cataract..... 13.62	-	-	-
Mechanical fragmentation of primary membranous cataract..... 13.63	-	-	-
Discission of secondary membrane (after cataract)..... 13.64	*2	*1	*1
Excision of secondary membrane (after cataract)..... 13.65	*1	*2	*2
Mechanical fragmentation of secondary membrane (after cataract)..... 13.66	-	-	-
Other cataract extraction..... 13.69	*1	*2	*1
Total bypass anastomosis for heart revascularization..... 36.1	114	93	21
Aortocoronary bypass for heart revascularization, not otherwise specified..... 36.10	49	40	9
Aortocoronary bypass of 1 coronary artery..... 36.11	3	*2	*1
Aortocoronary bypass of 2 coronary arteries..... 36.12	21	16	5
Aortocoronary bypass of 3 coronary arteries..... 36.13	25	20	4
Aortocoronary bypass of 4 or more coronary arteries..... 36.14	15	13	*2
Single internal mammary-coronary artery bypass..... 36.15	*2	*2	-
Double internal mammary-coronary artery bypass..... 36.16	-	-	-
Other bypass anastomosis for heart revascularization..... 36.19	-	-	-

nostic dilation and curettage of uterus, endoscopy of the urinary system through natural orifice, procedures to assist delivery, hysterectomy, bilateral destruction or occlusion of fallopian tubes, tonsillectomy with or without adenoidectomy, and repair of inguinal hernia. Each of these procedures was performed at least 500,000 times. Together they accounted for almost one of every four procedures (23.7 percent) performed in hospitals. Among males the leading procedures were endoscopy of the urinary system through natural orifice; repair of inguinal hernia, prostatectomy; operations on the muscles, tendons, fascia, and bursa; and tonsillectomy with or without adenoidectomy (table 4). Among females the leading procedures were episiotomy, diagnostic dilation and curettage of uterus, procedures to assist delivery, hysterectomy, bilateral destruction and occlusion of fallopian tubes, and cesarean section (table 9).

Many of the non-sex-specific procedures are performed at a greater rate for one sex than for the other (table 2). For example, the rates were about 9 times larger for males than for females having repair of inguinal hernia, almost 5 times greater for cardiac revascularization, over 3 times greater for urethral meatotomy, and over 2 times greater for excision of semilunar cartilage of knee. In contrast, for females the rates for partial

or complete mastectomy were about 16 times greater than for males, about 8 times greater for biopsy on the integumentary system, about 6 times greater for bunionectomy, 5 times greater for division of peritoneal adhesions, and about twice as large for cholecystectomy and for arthroplasty of hip.

Tables C and D are presented to illustrate the most detailed level of data available using ICD-9-CM. Data on extraction of lens, cardiac bypass surgery, and procedures to assist delivery are used. Estimates for this level of detail are produced by the NHDS for all procedure codes of ICD-9-CM, but because data for the NHDS are collected mainly from the face sheet of the medical record, information at this level is not always obtained. For example, 49,000 of the 114,000 cardiac bypass procedures (43 percent) were not coded according to type.

For lens extraction procedures it is evident that the intracapsular extraction technique was the most common in 1979, accounting for 84 percent of all extraction procedures. Also, with the exception of episiotomy and cesarian section, which are identified in table 1, the low forceps procedure was the most common procedure to assist delivery.

Episiotomy in tables of this report other than table

Table D. Number of obstetrical procedures to assist delivery in short-stay hospitals by type of procedure: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants]

<i>Obstetrical procedure and ICD-9-CM code</i>	<i>Number estimated in thousands</i>	<i>Obstetrical procedure and ICD-9-CM code</i>	<i>Number estimated in thousands</i>
Total deliveries..... V27	3,646	Other procedures inducing or assisting delivery—Con.	
Total procedures to assist delivery..... 72-74	2,931	Artificial rupture of membranes—Con.	
Forceps, vacuum, and breech delivery..... 72	622	Other artificial rupture of membranes..... 73.09	107
Low forceps operation..... 72.0	60	Other surgical induction of labor..... 73.1	*1
Low forceps operation with episiotomy..... 72.1	453	Internal and combined version and extraction..... 73.2	*2
Mid forceps operation..... 72.2	32	Internal and combined version without extraction..... 73.21	*-
Mid forceps operation with episiotomy..... 72.21	27	Internal and combined version with extraction... 73.22	*2
Other mid forceps operation..... 72.29	5	Failed forceps..... 73.3	*1
High forceps operation..... 72.3	*2	Medical induction of labor..... 73.4	36
High forceps operation with episiotomy..... 72.31	*-	Manually assisted delivery..... 73.5	46
Other high forceps operation..... 72.39	*2	Manual rotation of fetal head..... 73.51	9
Forceps rotation of fetal hand..... 72.4	36	Other manually assisted delivery..... 73.59	37
Breech extraction..... 72.5	17	Episiotomy..... 73.6	1,498
Partial breech extraction with forceps to aftercoming head..... 72.51	2	Operations on fetus to facilitate delivery..... 73.8	-
Other partial breech extraction..... 72.52	14	Other operations assisting delivery..... 73.9	*1
Total breech extraction with forceps to aftercoming head..... 72.53	*2	External version..... 73.91	-
Other total breech extraction..... 72.54	*1	Replacement of prolapsed umbilical cord.... 73.92	-
Forceps application to aftercoming head..... 72.6	*1	Incision of cervix to assist delivery..... 73.93	-
Vacuum extraction..... 72.7	12	Pubiotomy to assist delivery..... 73.94	-
Vacuum extraction with episiotomy..... 72.71	6	Other..... 73.99	*1
Other vacuum extraction..... 72.79	6	Cesarean section and removal of fetus..... 74	601
Other specified instrumental delivery..... 72.8	*2	Classical cesarean section..... 74.0	9
Unspecified instrumental delivery..... 72.9	12	Low cervical cesarean section..... 74.1	375
Other procedures inducing or assisting delivery..... 73	1,708	Extraperitoneal cesarean section..... 74.2	*2
Artificial rupture of membranes..... 73.0	125	Removal of intraperitoneal embryo..... 74.3	*1
Induction of labor by artificial rupture of membranes..... 73.01	18	Cesarean section of other specified type..... 74.4	4
		Cesarean section of unspecified type..... 74.9	210
		Hysterotomy to terminate pregnancy..... 74.91	*2
		Other cesarean section of unspecified type... 74.99	210

D is defined as episiotomy only (ICD-9-CM code 73.6). Table D shows episiotomies are also performed in conjunction with Low forceps operation (code 72.1), Mid forceps operation (code 72.21), High forceps operation (code 72.31), and Vacuum extraction (code 72.71). Counting all of these combinations, the total for this procedure in 1979 was 1,984,000.

By age

Surgical rates increased for each older age group from 44.6 procedures per 1,000 people under 15 years of age to 258.3 per 1,000 people aged 65 years and over, or almost 6 times higher (table 2). Rates of procedures were higher for older than for younger age groups in 11 of the 16 major anatomical sites including miscellaneous diagnostic and therapeutic procedures. Of the five remaining categories, operations on the nose, mouth, and pharynx was the only site for which the rate was lower for each older age group. Operations on the ear were most common for patients aged under 15 years while female-specific surgery (operations on the female genital organs and obstetrical procedures) was most common for women aged 15-44 years. Males under 15 years of age were more likely than males aged 15-44 years to have an operation on the genital organs, but for male patients over 14 years of age the rate of these operations increased with age.

For the detailed procedures there was a general tendency for the rate of surgery to increase with age, but variations do occur. For example, tonsils are removed without an accompanying adenoidectomy most frequently for patients 15-44 years of age. On the other hand, the rate of direct heart revascularization (cardiac bypass surgery) was greatest for patients between 45 and 64 years of age, and, as expected, almost all female-specific procedures were performed for women between the ages of 15-64 years.

By age within sex

Overall, females had procedures at a higher rate than males, but there were differences within age groups between the sexes. Males under 15 years of age had a greater rate of surgery than their female counterparts: 50.3 per thousand versus 38.6 per thousand. This difference was relatively small compared to the higher rate of procedures for females aged 15-44, 208.6 per thousand, compared to males of this age, 75.7 per thousand, because of the large number of sex-specific procedures performed for women aged 15-44 years. This difference diminished as the rate of procedures increased to 150.9 per thousand for men aged 45-64 but decreased to 174.6 per thousand for women aged 45-64. The rate of procedures was again greater for men than for women 65 years and older—305.0 and 225.6 procedures per thousand population respectively—even though there

were 3.1 million procedures for women and 2.9 million procedures for men in this age group.

While men had a higher rate of operations on the respiratory system than women, this difference was greatest for the 65 and older age group, in which the rate for men was 17.1 per thousand population and for women was 8.6 per thousand. There was also a higher rate of operations on the cardiovascular system for older men than for older women. The rate for this type of surgery was 16.8 and 23.6 per thousand population for men aged 45-64 and 65 years and over, respectively, while the rates were 7.8 and 13.5 per thousand for women in these age groups. Operations on the urinary system show a similar pattern with men in the oldest age group having 50.1 such procedures per 1,000 population and women having 16.4 per thousand population. Generally, men had a higher rate of operations on the musculo-skeletal system than women did. However, in the 65 and over age group women had a higher rate of these procedures than men did. Specifically, elderly women had a greater need for partial excision of bone, reduction of fracture, reduction of dislocation of joint, repair or plastic operations on bone, and arthroplasty of knee, hip, or other joints. The higher rate for these procedures reflects the fact that elderly women suffer from osteoporosis at a greater rate than elderly men.¹²

Although sex-specific procedures are not comparable in themselves, there are differences by age in the likelihood of males and females having an operation on the genital organs. Males under 15 had a higher rate of procedures on the genital organs than males aged 15-44, 4.5 per thousand versus 3.0 per thousand. But the rate increases to 8.2 per thousand for men aged 45-64 years and again to 34.1 per thousand for men aged 65 and over. On the other hand, women under 15 years had the lowest rate of operations on the genital organs (1.0 per thousand), and the highest rate was for women age 15-44 years (62.6 per thousand). The rate then decreases to 36.5 per thousand for women aged 45-64 years and again to 15.3 per thousand for women aged 65 and over.

For men the predominant sex-specific surgery was prostatectomy, with 293,000 performed in 1979, which accounted for 39 percent of all male-specific surgery. For men 65 or over, prostatectomies accounted for two of every three operations on the male genital organs. For women, diagnostic dilation and curettage of the uterus, hysterectomy, bilateral destruction or occlusion of fallopian tubes, dilation and curettage after delivery or abortion, and bilateral oophorectomy or salpingo-oophorectomy were each performed over 250,000 times in 1979. These operations accounted for almost two of every three (65 percent) operations on the female genital organs. In all, women were about 5 times as likely as men to undergo an operation on the genital organs.

Obstetrical procedures, like operations on the female genital organs, were most common between the ages of 15-44, but for obstetrical procedures the concentration

was more pronounced: 99 percent of all obstetrical procedures versus 75 percent of all operations on the female genital organs were for women in this age group.

Additional detail is provided in table D on obstetrical procedures to assist delivery. Episiotomy was the most common procedure to assist delivery, followed by cesarean section and low forceps procedures. The rate of cesarian sections per 100 deliveries has been increasing steadily since 1970,¹³ and 1979 showed another increase to 16.4 per 100 deliveries, up from 15.2 per hundred in 1978.

Diagnostic procedures

As mentioned in the section entitled "Introduction," data on many diagnostic procedures not coded or reported before 1979 were collected during 1979. Estimates presented on diagnostic procedures in table 1 are probably underestimates of the total number of such procedures because outpatients are not included in the NHDS, but the amount of underestimation is now known.

Biopsies and endoscopies are coded and reported according to body site rather than in the category Mis-

cellaneous diagnostic and therapeutic procedures. There were approximately 2.4 million biopsies and endoscopies performed for inpatients in 1979. In addition, there were almost 3 million other diagnostic and therapeutic procedures performed. The most common of these procedures was radioisotope scan (531,000) followed by arteriography using contrast material (300,000), contrast myelogram (290,000), and intravenous pyelogram (267,000). There were also an estimated 194,000 computerized axial tomography (CAT) scans performed for inpatients.

The rate of procedures in the category "Miscellaneous diagnostic and therapeutic procedures" increases for each older age group from a low of 3.5 per thousand population for patients under 15 years of age to 37.2 per thousand for patients 65 years and older. Two diagnostic procedures, contrast myelogram and angiocardiology using contrast material, show a decline in rate after age 65. Males and females under 65 demonstrated similar rates of use for diagnostic and therapeutic procedures, but males 65 and over obtain these procedures at a slightly greater rate (44.2 per 1,000) than females aged 65 and over (32.2 per 1,000).

Length of stay

By age and number of procedures

The average length of stay (ALOS) of all patients in 1979 was 7.2 days. The ALOS of patients with one or more procedures was 7.2 days and the ALOS of patients without a procedure was also 7.2 days (table A). However, for patients with procedures the ALOS increased directly with the number of procedures performed and with patient age (figure 1).

Patients with a single-listed procedure stayed in the

hospital an average of 5.9 days (figure 1) while patients with more than one procedure averaged 9.2 days (table A) of hospital care. This could be because patients with multiple procedures represent more complex cases; require additional recovery time; or, in cases in which the results of a diagnostic procedure indicated the need for surgery, the time between the test and the resultant surgery added to the length of stay.

The effect of multiple procedures on ALOS is interesting because of its consistency with age. The effect of age and number of procedures on ALOS is additive, whereas an interactive effect might be anticipated. The curves in figure 1 representing patients of different age groups show similar increases in ALOS as the number of procedures increases. The nearly parallel form of these curves reflects the additive effect of these variables on ALOS.

The ALOS values for all patients with one, two, and three procedures were 5.9, 7.6, and 10.1 days, respectively. Thus ALOS was 1.7 days longer for patients with two procedures than patients with one procedure, and 2.5 days longer for patients with three procedures than patients with two procedures. However, patients with four or more procedures stay, on the average, 6.0 days longer than patients with three procedures. This effect is represented in figure 1 by the increased slope of the line between patients with three procedures and four or more procedures compared with the slope between points that represent patients with one and two procedures, and two and three procedures. A maximum of four procedures is collected by means of the National Hospital Discharge Survey (NHDS); therefore, it is not possible to examine this relationship beyond four procedures or to determine how much of the increase for patients with four or more procedures was due to patients with more than four procedures.

By sex and age

Tables 3 through 13 provide data on the most frequently performed procedures, the number of patients

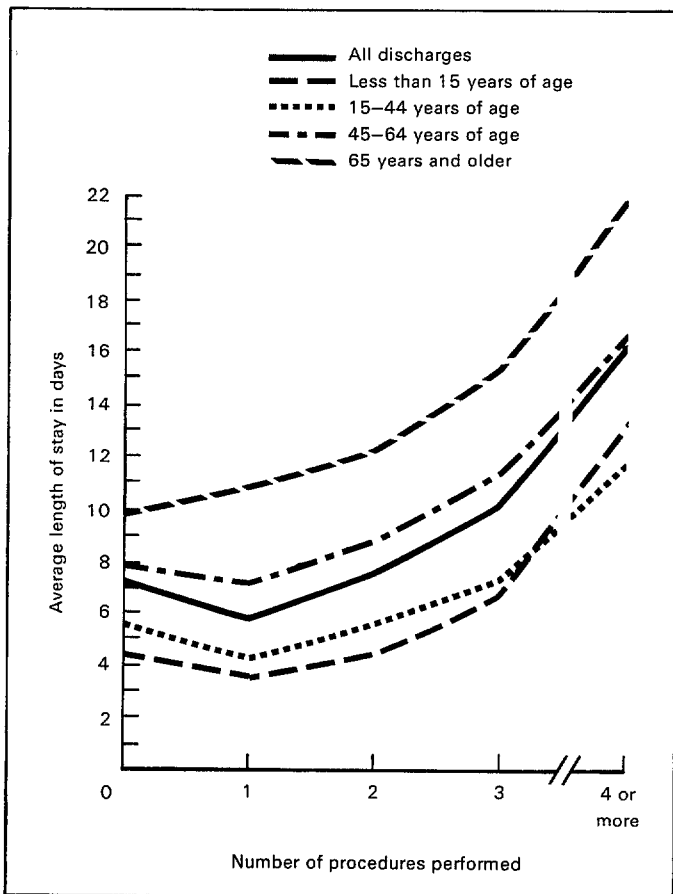


Figure 1. Average length of stay of patients discharged from short-stay hospitals by age and number of procedures performed: United States, 1979

with these procedures as single-listed procedures, and the ALOS for these patients. There were 11.6 million patients with a single procedure, which is 61 percent of all patients with procedures during 1979. Average length of stay is estimated for patients with single-listed procedures to better associate this statistic with a particular procedure.

Among the 15 most common procedures for all patients, open reduction of fracture and cholecystectomy had the longest ALOS values, 11.9 and 10.1 days, respectively (table 3). Relatively short stays were observed for bilateral destruction or occlusion of fallopian tubes (2.6 days), diagnostic dilation and curettage of uterus (2.2 days), and tonsillectomy (2.0 days). Of the most common procedures performed on males (table 4), above average stays were associated with cholecystectomy (10.8 days), bronchoscopy (10.3 days), and debridement of wound, infection, or burn (10.3 days); while females (table 9) had relatively long stays for division of peritoneal adhesions (12.2 days) and cholecystectomy (9.8 days).

The most common procedures on younger patients tended to be associated with relatively short lengths of stay. Tonsillectomy with or without adenoidectomy was the most common procedure performed for male and female patients under 15 years of age, with a total of 313,000 in 1979 (tables 5 and 10). Myringotomy was next for both sexes with 202,000. These procedures totaled 515,000, accounted for 23 percent of all procedures for patients under 15 years of age, and required average stays of under 2 days.

While ALOS for patients with one procedure was similar for each sex under 15 years of age, 3.9 days for males and 3.7 days for females, men aged 15–44 years who had surgery had a longer ALOS than women in this age group: 5.2 versus 3.9 days, respectively (tables 6 and 11). This is a result of the relatively short length of stay associated with some of the female-specific procedures frequently performed for women aged 15–44 years, such as episiotomy (3.1 days), procedures to assist delivery (3.3 days), diagnostic dilation and curettage of uterus (2.2 days), and bilateral destruction of fallopian tubes (2.6 days).

The difference in ALOS between the sexes for patients with a single procedure was less than one-half day for patients aged 45–64 years (tables 7 and 12). Females in this age range have an average stay of 10 or more days for division of peritoneal adhesions and for bronchoscopy, while for men a stay of 10 days or more is the average for direct heart revascularization, open reduction of fracture, excision of intervertebral disc, resection of intestine, and procedures involving a pacemaker.

For both sexes there was an increase in ALOS for patients aged 65 years and over with a single-listed procedure compared to patients aged 45–64 years (tables 7, 8, 12, and 13). For males this increase was 2.6 days and for females it was 4.6 days. There were a number of procedures for which elderly patients had relatively

long lengths of stay. Some of the longest stays were for procedures involving the musculoskeletal system: arthroplasty and replacement of hip (20.0 days for males and 21.1 days for females); open reduction of fracture (17.1 for males and 19.0 for females); men with an amputation of a lower limb stayed an average of 21.1 days; and females with repair and plastic operations on bones, except facial bones, stayed an average of 18.0 days.

Preoperative and postoperative stays

Figure 2 graphs the proportional use of preoperative and postoperative days of care for patients with a single procedure or two procedures performed on the same day, and represents 58 percent of all patients with procedures. (This is less than the number of all patients with a single procedure because of invalid entries and nonresponse for the variable date of procedure.)

Length of stay for a patient is the number of days spent in the hospital. The length of stay of a patient admitted and discharged on the same day is calculated as one day. Data in figure 2 of this section count a patient admitted, operated on, and discharged on the same day as having one day of operative care and zero preoperative and postoperative days of care.

For the majority of these patients, 78 percent, procedures were performed on the day of admission or the day following admission (zero and one preoperative days of care, respectively). Beyond these 2 days, 14 percent had a procedure 2, 3, or 4 days after admission, and 8 percent had procedures performed 5 or more days after admission.

The postoperative days of care curve is, as expected, more gradual. Nine percent of all patients with a single procedure or two procedures performed on the same day were discharged on the day of procedure, and just over half, 53 percent, left the hospital 1, 2, or 3 days after the day of procedure. While the preoperative and postoperative curves in figure 2 approach each other near the 9-day mark, the postoperative curve rises more sharply for 10 or more days of care. This may represent patients needing extended postoperative recovery time.

Day of the week of admission

Several studies have indicated that length of stay for patients with surgery is influenced by day of the week of admission to the hospital.^{14–16} Patients who have surgery and were admitted on a Friday or Saturday tend to have a longer length of stay than patients admitted on other days of the week, even when patient case mix and demographic factors are controlled.¹⁶ While similar control was not performed for data presented in figure 3, a longer average stay was evident nationally for patients with a procedure admitted on a Friday or Saturday compared with patients admitted on Sunday through Thursday. Patients admitted on Friday or Saturday having

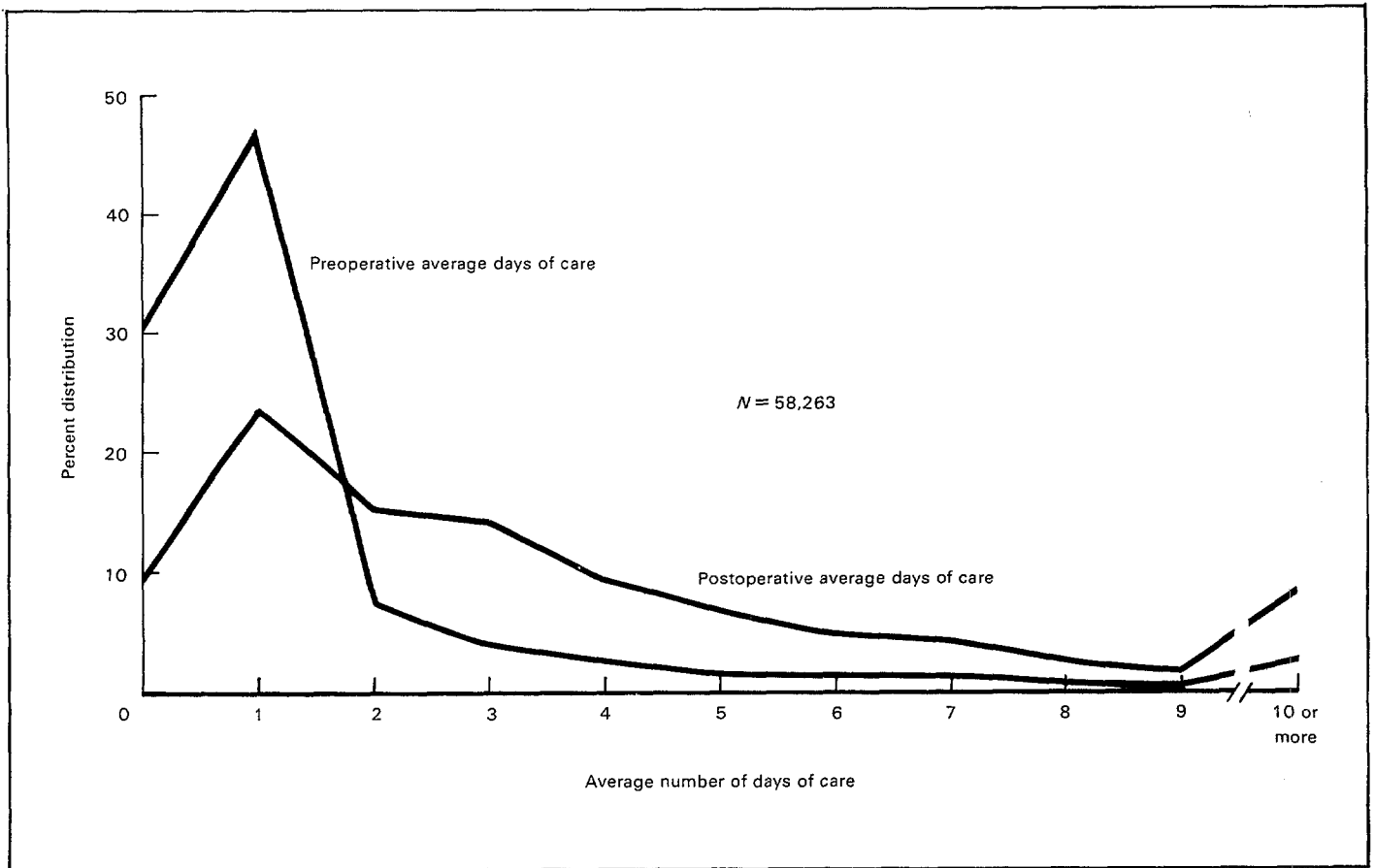


Figure 2. Percent distribution of average preoperative and postoperative days of care for patients discharged from short-stay hospitals with a single procedure or with two procedures performed on the same day: United States, 1979

one or more procedures stayed in the hospital an average of 1.2 and 2.3 days longer, respectively, than patients with a procedure admitted on Sunday through Thursday. This variation is not observed for patients without surgery who demonstrate only a small increase in ALOS for Friday admissions and no increase for Saturday admissions.

Patients with and without procedures also exhibit differences in percent distribution by day of the week of admission (table E). For all patients, proportionally more admissions occur on each day from Monday through Thursday than on Friday, Saturday, or Sunday. There are proportionally fewer admissions on Saturday (11.0 percent) and Sunday (11.8 percent) for patients without procedures while patients with procedures enter the hospital least frequently on Friday (9.1 percent) and Saturday (6.2 percent).

Day of the week also influences when surgery is performed. Not unexpectedly, fewer procedures are performed on Saturday and Sunday compared with Monday through Friday. Of all procedures coded in the NHDS with valid dates (19.1 million out of 29.6 million), 5.2 percent were performed on Saturday and 3.7 percent were performed on Sunday. In contrast, the percents of procedures performed Monday through Friday range from 17.8 to 19.3.

Discharge status

As expected, the proportion of patients discharged dead increased with age. There were 19,000 patients under 15 years of age discharged dead and 52,000 aged 15–44 discharged dead (table F). This is less than 1 percent of the total discharges in each of these age groups. These proportions increase to 2.5 percent discharged dead (217,000 patients) and 7.0 percent discharged dead (636,000 patients) for the age groups 45–64 years and 65 years or more, respectively (table F). Also, the proportion of patients discharged dead was less for patients with a procedure than those without a procedure in the two oldest age groups. While the number of patients aged 45–64 years with a procedure and without a procedure were almost the same, twice as many patients without a procedure (142,000) than with a procedure (72,000) were discharged dead. Similarly, 8.7 percent of all patients aged 65 years and older who did not have a procedure were discharged dead, but only 4.5 percent with a procedure were discharged dead.

Overall, patients discharged alive stayed in the hospital an average of 7.0 days and those discharged dead had an average length of stay of 13.4 days (table F). Average length of stay was greater for patients discharged dead in each of the age groups used in this

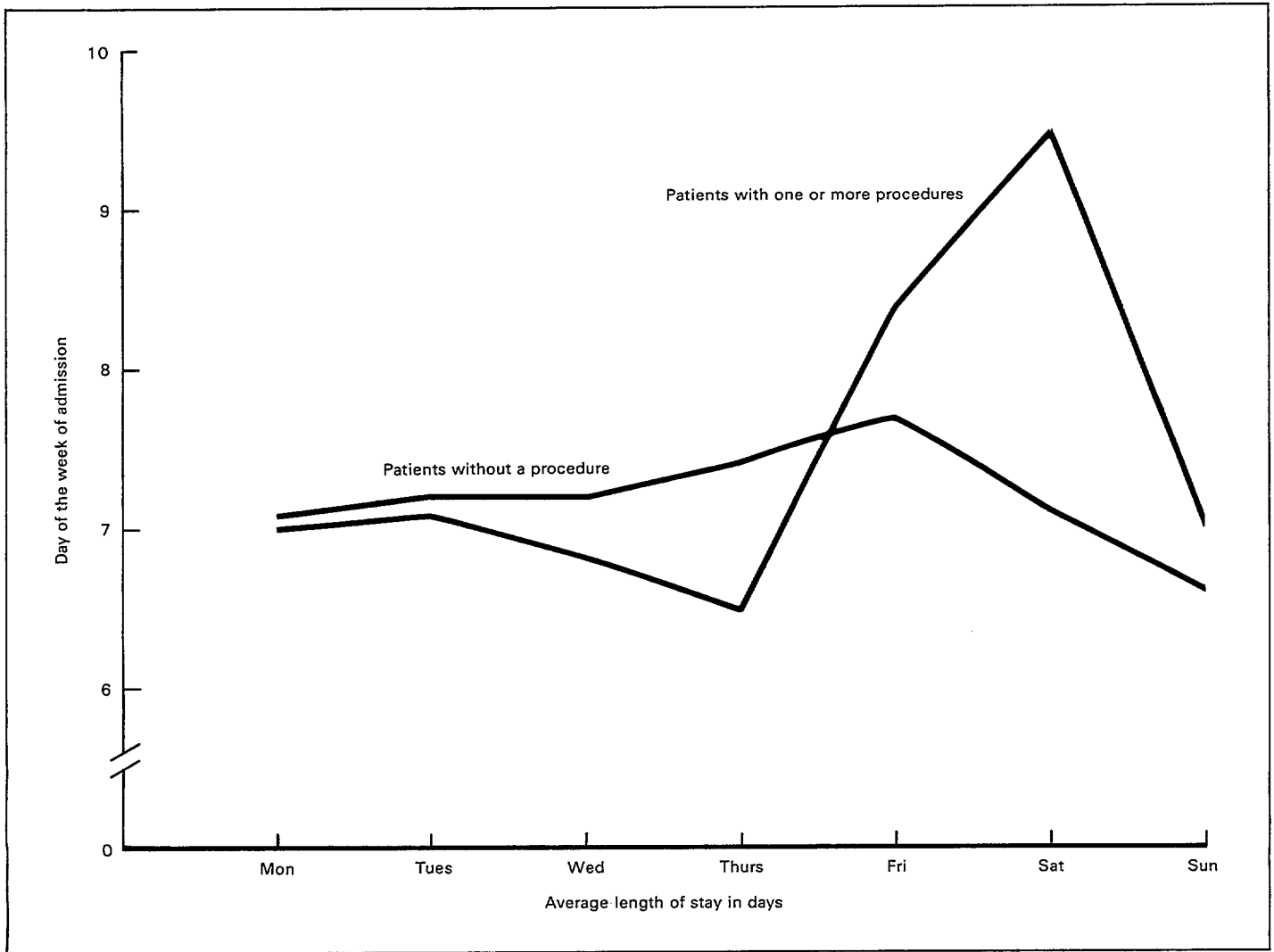


Figure 3. Average length of stay of patients discharged from short-stay hospitals with one or more procedures and patients without a procedure by day of the week of admission: United States, 1979

report. While patients with a procedure and patients without a procedure who were discharged alive generally had similar lengths of stay, patients who were discharged dead showed an increase in ALOS from 10.7 to 20.0

days if a procedure was performed. The effect of the interaction of these two conditions (having a procedure and being discharged dead) on length of stay was evident within each age group.

Table E. Percent distribution of discharges by day of admission according to patient status, and percent distribution of procedures by day of the week: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants]

Patients	Total used as base of percent in thousands	Day of the week						
		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Percent distribution by day of admission								
All patients.....	36,696	18.7	16.8	15.7	15.1	11.5	8.5	13.7
Patients without a procedure.....	17,818	17.8	16.1	14.9	14.4	14.0	11.0	11.8
Patients with a procedure.....	18,877	19.5	17.4	16.5	15.8	9.1	6.2	15.4
Percent distribution by day of procedure								
Patients with a procedure.....	19,089	17.9	19.3	17.8	17.8	18.5	5.2	3.7

Table F. Number, percent distribution, and average length of stay for inpatients by discharge status, according to age: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants]

Age	Total discharges	Live discharges	Dead discharges	Discharge status not stated	Total discharges	Live discharges	Dead discharges	Discharge status not stated	Total discharges	Live discharges	Dead discharges	Discharge status not stated
	Estimated number in thousands				Percent distribution				Average length of stay in days			
All ages	36,747	33,812	924	2,011	100	92.7	2.5	5.5	7.2	7.0	13.4	7.1
Patients without surgery . . .	17,850	16,258	656	937	100	91.1	3.7	5.2	7.2	7.0	10.7	7.2
Patients with surgery	18,896	17,554	268	1,074	100	92.9	1.4	5.7	7.2	7.0	20.0	7.1
Under 15 years	3,641	3,424	19	196	100	94.0	0.5	5.4	4.3	4.3	10.1	4.2
Patients without surgery . . .	1,576	1,475	8	91	100	93.6	0.5	5.8	4.4	4.3	7.6	3.8
Patients with surgery	2,067	1,949	11	107	100	94.3	0.5	5.2	4.3	4.3	13.5	4.5
15-44 years	15,486	14,572	52	864	100	94.1	0.3	5.6	5.2	5.2	15.0	5.2
Patients without surgery . . .	5,974	5,639	25	309	100	94.4	0.4	5.2	5.5	5.5	10.1	5.4
Patients with surgery	9,514	8,932	26	555	100	93.9	0.3	5.8	5.0	5.0	19.7	5.1
45-64 years	8,532	7,849	217	466	100	92.0	2.5	5.5	8.2	8.0	13.7	8.2
Patients without surgery . . .	4,325	3,949	145	232	100	91.3	3.4	5.4	7.7	7.6	10.5	7.5
Patients with surgery	4,207	3,901	72	234	100	92.7	1.7	5.6	8.7	8.4	20.1	8.8
65 years or more	9,086	7,967	636	483	100	87.7	7.0	5.3	10.8	10.5	13.3	10.9
Patients without surgery . . .	5,485	4,721	475	289	100	86.1	8.7	5.3	9.7	9.5	10.9	9.5
Patients with surgery	3,601	3,246	161	194	100	90.1	4.5	5.4	12.4	12.0	20.3	12.9

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Table 1. Number of all-listed procedures for inpatients discharged from short-stay hospitals by surgical category, ICD-9-CM codes, sex, and age: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants. Surgical groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Procedure category and ICD-9-CM codes		Both sexes				
		All ages	Under 15 years	15-44 years	45-64 years	65 years and over
		Number of all-listed procedures in thousands				
01	All procedures.	29,603	2,233	14,233	7,099	6,037
02	Operations on the nervous system 01-05	710	112	243	222	133
03	Incision and excision of the skull, brain, and cerebral meninges. 01.0, 01.2-01.6	79	12	23	22	21
04	Laminectomy. 03.0	70	*Z	30	30	10
05	Operations on the cranial and peripheral nerves 04.0, 04.2-04.9	216	6	93	82	34
06	Spinal tap and biopsies on the nervous system 01.1, 03.3, 04.1, 05.1	225	75	57	49	44
07	Residual	120	18	41	38	23
08	Operations on the endocrine system. 06-07	113	4	48	40	21
09	Thyroidectomy 06.2-06.6	72	*1	33	24	14
10	Other operations on the endocrine system. 06.7-07.9	41	4	15	16	7
11	Operations on the eye 08-16	945	80	121	212	532
12	Extraction of lens 13.1-13.6	418	7	18	87	305
13	Resection and recession of ocular muscle 15.1-15.6	62	44	13	4	*1
14	Residual	465	29	90	121	225
15	Operations on the ear. 18-20	429	252	96	51	31
16	Tympanoplasty 19.4-19.5	64	15	29	15	5
17	Myringotomy. 20.0	225	202	11	7	4
18	Residual	141	35	56	28	22
19	Operations on the nose, mouth, and pharynx. 21-29	1,667	502	811	256	99
20	Submucous resection of nasal septum 21.5	59	3	44	11	*1
21	Incision, excision, and destruction of nose and lesion of nose. 21.1, 21.3-21.4, 21.6	121	10	62	33	16
22	Reduction of nasal fracture 21.7	44	6	32	6	*1
23	Rhinoplasty and repair of nose 21.8	242	10	173	49	10
24	Forceps extraction of tooth 23.0	101	11	55	25	10
25	Surgical removal of tooth. 23.1	142	11	111	16	4
26	Plastic operations on mouth and palate 27.5-27.6	38	15	16	5	3
27	Tonsillectomy without adenoidectomy. 28.2	198	42	151	5	*Z
28	Tonsillectomy with adenoidectomy. 28.3	303	271	30	*1	-
29	Adenoidectomy without tonsillectomy 28.6	83	80	*1	*1	*Z
30	Residual	336	43	137	105	52
31	Operations on the respiratory system 30-34	813	38	170	323	282
32	Temporary tracheostomy 31.1	42	3	10	13	16
33	Laryngoscopy and tracheoscopy. 31.41-31.42	95	10	21	41	22
34	Lung lobectomy and pneumonectomy 32.3-32.5	32	*Z	4	17	11
35	Bronchoscopy. 33.21-33.23	195	8	30	81	76
36	Incision of chest wall and pleura. 34.0	108	5	40	34	29
37	Thoracentesis 34.91	75	3	14	23	35
38	Biopsy and other diagnostic procedures on the respiratory system. 31.43-31.44, 33.24-33.27, 34.2	164	*1	24	71	68
39	Residual	103	8	28	43	24
40	Operations on the cardiovascular system 35-39	1,196	62	197	524	412
41	Operations on valves of heart 35.1-35.2, 35.99	33	*1	7	16	9
42	Direct heart revascularization. 36.1	114	*1	11	76	26
43	Other open heart operations. 35.3-35.51, 35.53-35.98, 36.0, 36.2, 36.9, 37.10-37.11, 37.32-37.33, 37.5	19	9	*2	5	3
44	Cardiac catheterization 37.21-37.23	298	24	51	174	49
45	Pacemaker insertion, replacement removal, and repair. 37.7-37.8	172	*1	4	37	130
46	Ligation and stripping of varicose veins 38.5	66	*Z	27	31	8
47	Systemic shunt and graft bypass. 39.0-39.2	85	*2	10	37	36
48	Hemodialysis 39.95	35	*Z	12	14	9
49	Residual	373	24	72	135	142

Table 1. Number of all-listed procedures for inpatients discharged from short-stay hospitals by surgical category ICD-9-CM codes, sex, and age: United States, 1979—Con.

[Discharges from non-Federal hospitals, excluding newborn infants. Surgical groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Male					Female					
All ages	Under 15 years	15-44 years	45-64 years	65 years and over	All ages	Under 15 years	15-44 years	45-64 years	65 years and over	
Number of all-listed procedures in thousands—Con.										
11,007	1,285	3,647	3,137	2,938	18,596	948	10,586	3,962	3,099	01
361	66	131	100	64	349	46	113	122	68	02
46	6	16	12	12	33	6	7	11	9	03
39	*Z	19	16	3	31	-	11	14	7	04
89	5	47	24	14	126	*2	46	58	20	05
121	46	28	25	22	104	30	29	24	22	06
66	9	21	23	12	54	9	20	15	11	07
25	*2	11	8	4	88	3	37	31	17	08
11	*Z	6	*2	3	61	*1	27	21	11	09
14	*1	5	6	*1	28	*2	10	10	6	10
398	45	71	94	188	547	35	51	118	344	11
169	5	11	46	108	248	*2	7	41	198	12
28	21	5	*2	*Z	34	23	8	*2	*1	13
200	19	55	47	80	265	11	35	74	145	14
229	142	47	23	17	200	110	48	28	14	15
28	8	14	5	*1	36	7	15	10	4	16
125	115	5	3	*2	100	87	6	4	3	17
76	19	29	15	14	65	16	27	14	8	18
821	260	369	137	56	846	241	442	119	43	19
24	*1	18	5	*Z	35	*2	26	7	*1	20
68	6	33	19	9	53	3	29	14	7	21
27	4	20	4	Z	17	*2	12	*2	*1	22
117	6	81	25	6	126	5	93	24	4	23
47	5	26	11	5	54	6	28	13	6	24
64	5	48	9	*2	78	7	63	7	*2	25
22	9	9	*2	*2	16	6	6	*3	*1	26
69	17	50	*2	*Z	129	25	101	*2	*Z	27
146	135	10	*1	-	157	136	20	*1	-	28
51	49	*Z	*Z	*Z	32	31	*1	*1	-	29
187	24	74	59	30	149	19	63	46	22	30
470	22	102	181	165	343	16	68	142	117	31
26	*2	6	8	10	17	*1	4	5	6	32
48	6	9	22	11	46	4	12	19	11	33
19	*Z	3	9	6	14	*Z	*1	7	5	34
116	5	18	46	48	80	3	12	36	29	35
69	3	30	20	16	38	*2	10	14	13	36
37	*1	8	11	17	37	*1	6	12	18	37
102	*1	13	43	46	62	*Z	11	29	22	38
53	4	15	24	11	50	4	13	20	13	39
723	30	117	348	227	473	32	80	176	185	40
19	*Z	4	9	5	14	*Z	3	7	4	41
93	*Z	11	63	18	21	-	*1	13	8	42
10	4	*1	4	*1	8	5	*1	*1	*2	43
195	12	36	118	29	103	12	15	56	20	44
90	*Z	3	25	62	82	*1	*1	12	68	45
21	*Z	8	9	3	45	-	19	21	5	46
51	*Z	5	23	21	35	*2	5	14	15	47
20	*Z	7	8	5	16	*Z	5	6	4	48
223	12	41	88	82	149	13	30	47	59	49

Table 1. Number of all-listed procedures for inpatients discharged from short-stay hospitals by surgical category ICD-9-CM codes, sex, and age: United States, 1979—Con.

[Discharges from non-Federal hospitals, excluding newborn infants. Surgical groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Procedure category and ICD-9-CM codes		Both sexes				
		All ages	Under 15 years	15-44 years	45-64 years	65 years and over
Number of all-listed procedures in thousands—Con.						
50	Operations on the hemic and lymphatic system..... 40-41	329	21	85	103	119
51	Splenectomy..... 41.5	32	*2	17	7	6
52	Biopsies on the hemic and lymphatic system..... 40.1, 41.3	210	14	43	65	89
53	Residual.....	86	5	25	32	24
54	Operations on the digestive system..... 42-54	5,081	294	1,926	1,483	1,378
55	Esophagoscopy and gastroscopy (natural orifice)..... 42.23, 44.13	210	8	50	73	80
56	Partial gastrectomy..... 43.5-43.8	42	*Z	10	15	16
57	Local excision and destruction of lesion and tissue of stomach and intestine..... 43.4, 45.3-45.4	59	*1	10	21	27
58	Resection of intestine..... 45.6-45.8	174	5	29	50	90
59	Intestinal anastomosis and repair..... 45.9, 46.4-46.9	111	6	33	33	40
60	Ileostomy, colostomy, and other enterostomy..... 46.1-46.3	83	3	16	24	40
61	Appendectomy, excluding incidental..... 47.0	311	79	189	30	13
62	Local excision and destruction of lesion and tissue of rectum and anus except anal fistula..... 48.3, 49.3	103	*2	45	34	23
63	Hemorrhoidectomy..... 49.43-49.46	166	*Z	84	61	21
64	Cholecystectomy..... 51.2	445	*2	165	154	123
65	Repair of inguinal hernia..... 53.0-53.1	500	91	137	148	123
66	Repair of umbilical hernia..... 53.4	65	13	22	22	8
67	Other hernia repair..... 53.2-53.3, 53.5-53.9	143	6	37	55	45
68	Laparotomy..... 54.1	111	4	53	25	29
69	Incision and excision of abdominal wall and peritoneum except laparotomy..... 54.0, 54.3-54.4, 54.91	126	10	40	42	34
70	Division of peritoneal adhesions..... 54.5	230	4	133	52	41
71	Biopsies and other endoscopies of the digestive system..... 42.21-42.22, 42.24, 44.11-44.12, 44.14-44.15, 45.1-45.2, 48.2, 49.2, 50.1, 51.1, 52.1, 54.2	1,265	23	459	380	403
72	Residual.....	936	37	413	261	224
73	Operations on the urinary system..... 55-59	1,925	159	492	564	709
74	Nephrotomy, pyelotomy, and complete nephrectomy..... 55.0-55.1, 55.5	63	*2	22	24	16
75	Endoscopies of the urinary system through natural orifice..... 55.21-55.22, 56.31, 57.32, 58.22	894	74	196	259	365
76	Transurethral excision or destruction of bladder tissue..... 57.4	120	*1	12	34	73
77	Urethral meatotomy..... 58.1	39	16	9	5	9
78	Dilation of urethra..... 58.6	201	27	54	51	68
79	Retropubic urethral suspension..... 59.5	45	*Z	17	22	6
80	Ureteral catheterization..... 59.8	48	4	15	16	13
81	Biopsies and other endoscopies of the urinary system..... 55.23-55.24, 56.32-56.33, 57.31, 57.33-57.34, 58.21, 58.23-58.24, 59.2	71	3	14	23	31
82	Residual.....	444	32	153	130	129
83	Operations on the male genital organs..... 60-64	757	114	144	170	329
84	Prostatectomy..... 60.2-60.6	293	*1	3	71	218
85	Excision of hydrocele and other lesion of tunica vaginalis..... 61.2, 61.92	50	22	9	12	7
86	Orchiectomy and orchiopexy..... 62.3-62.5	68	24	15	8	21
87	Vasectomy and ligation of vas deferens..... 63.7	45	-	18	9	18
88	Circumcision..... 64.0	102	45	34	13	10
89	Biopsy and other diagnostic procedures on the male genital organs..... 60.1, 61.1, 62.1, 63.0, 64.1	68	*1	10	20	37
90	Residual.....	131	21	55	37	18
91	Operations on the female genital organs..... 65-71	4,240	25	3,175	829	210
92	Local excision or destruction of ovarian lesion or tissue..... 65.2	92	*2	83	5	3
93	Unilateral oophorectomy and salpingo-oophorectomy..... 65.3-65.4	175	*2	142	24	7
94	Bilateral oophorectomy and salpingo-oophorectomy..... 65.5-65.6	272	*Z	124	125	23
95	Bilateral endoscopic destruction or occlusion of fallopian tubes..... 66.2	196	*Z	190	6	-
96	Other bilateral destruction or occlusion of fallopian tubes..... 66.3	414	*Z	409	5	*Z
97	Total bilateral salpingectomy..... 66.5	46	-	41	4	*Z
98	Conization of cervix..... 67.2	88	-	72	13	3

Table 1. Number of all-listed procedures for inpatients discharged from short-stay hospitals by surgical category ICD-9-CM codes, sex, and age: United States, 1979—Con.

[Discharges from non-Federal hospitals, excluding newborn infants. Surgical groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Male					Female					
All ages	Under 15 years	15-44 years	45-64 years	65 years and over	All ages	Under 15 years	15-44 years	45-64 years	65 years and over	
Number of all-listed procedures in thousands—Con.										
155	12	41	47	54	174	9	44	56	65	50
19	*1	11	5	*2	13	*1	6	2	4	51
92	7	19	28	39	118	7	24	37	50	52
43	4	12	14	13	43	*1	14	17	11	53
2,228	184	674	716	654	2,853	110	1,252	768	723	54
100	5	22	35	38	109	3	27	38	41	55
24	*Z	5	9	10	18	*Z	5	7	6	56
28	*1	4	11	12	31	*Z	6	10	14	57
80	3	16	25	36	94	*2	13	25	54	58
50	3	15	15	17	61	*2	17	18	23	59
43	3	9	12	20	40	*1	7	12	20	60
162	43	97	17	6	149	36	92	14	7	61
48	*1	21	15	11	55	*1	24	19	12	62
83	*Z	41	31	10	84	*Z	43	30	11	63
119	*1	26	46	46	326	*2	139	109	77	64
449	76	122	138	112	51	15	14	10	12	65
22	6	6	7	3	43	7	16	15	5	66
55	*2	15	23	15	88	4	23	32	30	67
40	*1	16	13	11	71	*2	37	13	18	68
51	7	15	17	12	75	3	25	26	21	69
34	*2	8	11	13	196	*2	125	41	28	70
484	12	119	177	177	781	11	341	203	226	71
356	19	115	114	107	580	18	298	147	117	72
1,045	73	191	299	483	880	87	301	266	226	73
35	*2	12	12	9	28	*1	9	12	6	74
534	30	82	156	266	359	44	114	103	99	75
82	*1	4	24	53	38	*Z	8	10	20	76
30	13	5	4	7	9	3	4	*1	*2	77
79	5	14	20	40	121	22	40	31	28	78
-	-	-	-	-	45	*Z	17	22	6	79
24	*2	6	8	8	24	*2	9	8	6	80
38	*1	7	11	19	32	*2	7	12	12	81
222	19	60	62	81	223	14	94	68	48	82
757	114	144	170	329	...	...	...	...	...	83
293	*1	3	71	218	...	...	...	...	...	84
50	22	9	12	7	...	...	...	...	...	85
68	24	15	8	21	...	...	...	...	...	86
45	-	18	9	18	...	...	...	...	...	87
102	45	34	13	10	...	...	...	...	...	88
68	*1	10	20	37	...	...	...	...	...	89
131	21	55	37	18	...	...	...	...	...	90
...	...	...	...	...	4,240	25	3,175	829	210	91
...	...	...	...	...	92	*2	83	5	3	92
...	...	...	...	...	175	*2	142	24	7	93
...	...	...	...	...	272	*Z	124	125	23	94
...	...	...	...	...	196	*Z	190	6	-	95
...	...	...	...	...	414	*Z	409	5	*Z	96
...	...	...	...	...	46	-	41	4	*Z	97
...	...	...	...	...	88	-	72	13	3	98

Table 1. Number of all-listed procedures for inpatients discharged from short-stay hospitals by surgical category ICD-9-CM codes, sex, and age: United States, 1979-Con.

[Discharges from non-Federal hospitals, excluding newborn infants. Surgical groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Procedure category and ICD-9-CM codes		Both sexes				
		All ages	Under 15 years	15-44 years	45-64 years	65 years and over
Number of all-listed procedures in thousands-Con.						
99	Other excision or destruction of lesion or tissue of cervix, uterus, and supporting structures 67.3-67.4, 68.2, 69.1	114	*Z	72	31	10
100	Abdominal hysterectomy 68.3-68.4, 68.6	475	1	305	144	25
101	Vaginal hysterectomy 68.5, 68.7	164	*Z	102	43	18
102	Dilation and curettage of uterus to terminate pregnancy. 69.01	60	*1	58	-	-
103	Dilation and curettage of uterus after delivery or abortion 69.02	298	*2	294	*2	-
104	Diagnostic dilation and curettage of uterus 69.09	935	4	646	246	39
105	Aspiration curettage of uterus for termination of pregnancy. 69.51	103	*1	102	-	-
106	Repair of cystocele and rectocele 70.5	175	*Z	69	69	36
107	Incision and excision of lesion of vulva and perineum. 71.0, 71.2-71.4	68	*2	50	12	4
108	Biopsy and other diagnostic procedures on the female genital organs. 65.1, 66.1, 67.1, 68.1, 70.2, 71.1	188	*1	113	59	15
109	Residual	376	7	303	40	26
110	Obstetrical procedures 72-75	3,471	16	3,433	22	-
111	Low forceps operation with and without episiotomy. 72.0-72.1	513	*2	507	4	-
112	Extraction procedures to assist delivery 72.2-72.5, 72.7-72.9, 73.2	109	*1	107	*1	*Z
113	Episiotomy. 73.6	1,498	6	1,484	7	*Z
114	Other procedures to assist delivery 72.6, 73.0-73.1, 73.3-73.5, 73.8-73.9	211	*1	209	*Z	-
115	Cesarean section. 74.0-74.2, 74.4, 74.99	599	*2	592	5	-
116	Repair of current obstetric laceration 75.5-75.6	341	*1	337	*2	-
117	Residual	200	3	195	*2	*Z
118	Operations on the musculoskeletal system. 76-84	3,044	241	1,482	740	581
119	Incision of bone 76.0, 77.0-77.3	87	7	44	23	12
120	Reduction of fracture and dislocation of jawbone 76.71-76.77, 76.93-76.96	61	3	49	7	*2
121	Bunionectomy. 77.5	112	*2	47	46	18
122	Partial excision of bone 76.2-76.3, 77.6-77.8	198	10	101	59	27
123	Removal of internal bone fixation device 76.97, 78.6	88	6	48	19	15
124	Open reduction of fracture 76.79, 79.2-79.3, 79.5-79.6	352	25	149	66	112
125	Other reduction of fracture. 76.70, 76.78, 79.0-79.1, 79.4	282	69	97	58	58
126	Reduction of dislocation of joint. 79.7-79.8	40	5	23	4	8
127	Repair and plastic operations on bone (except facial) 78.0-78.5, 78.7, 78.9, 79.9	122	11	50	24	38
128	Excision or destruction of intervertebral disc 80.5	132	*Z	66	54	11
129	Excision of semilunar cartilage of knee. 80.6	155	4	119	27	5
130	Spinal fusion. 81.0	52	4	29	17	*2
131	Arthroplasty of knee. 81.41-81.47	110	4	63	19	24
132	Arthroplasty and replacement of hip. 81.5-81.6	130	*1	7	29	94
133	Arthroplasty of other joints 81.3, 81.48-81.49, 81.7-81.8	107	3	64	28	12
134	Operations on muscles, tendons, fascia, and bursa 82-83.1, 83.3-83.9	406	46	210	109	40
135	Amputation of the lower limb 84.1	80	*2	11	22	45
136	Residual	531	39	305	128	60
137	Operations on the integumentary system 85-86	1,885	137	873	543	332
138	Excision or destruction of breast tissue (partial mastectomy). 85.20-85.23	162	3	80	58	21
139	Mastectomy. 85.4	112	*Z	19	49	44
140	Incision of skin and subcutaneous tissue 86.0	146	17	73	33	23
141	Excision of pilonidal cyst or sinus. 86.21	59	*1	55	*2	*Z
142	Debridement of wound, infection, or burn 86.22	164	22	79	32	30
143	Other excision or destruction of lesion of skin and subcutaneous tissue. 86.23-86.4	470	37	195	142	96
144	Suture of skin and subcutaneous tissue 86.5	186	22	116	29	19
145	Skin graft (except lip or mouth). 86.6-86.7	162	19	67	40	35
146	Biopsies on the integumentary system 85.1, 86.1	232	3	90	88	51
147	Residual	192	11	100	70	12
148	Miscellaneous diagnostic and therapeutic procedures 87-99	2,998	176	937	1,016	869
149	Computerized axial tomography (CAT scan). 87.03, 87.41, 87.71, 88.01, 88.38	194	18	54	55	67

Table 1. Number of all-listed procedures for inpatients discharged from short-stay hospitals by surgical category ICD-9-CM codes, sex, and age: United States, 1979—Con.

[Discharges from non-Federal hospitals, excluding newborn infants. Surgical groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Male					Female					
All ages	Under 15 years	15-44 years	45-64 years	65 years and over	All ages	Under 15 years	15-44 years	45-64 years	65 years and over	
Number of all-listed procedures in thousands—Con.										
...	...	...	...	...	114	*Z	72	31	10	99
...	...	...	...	...	475	*1	305	144	25	100
...	...	...	...	...	164	*Z	102	43	18	101
...	...	...	...	...	60	*1	58	-	-	102
...	...	...	...	...	298	*2	294	*2	-	103
...	...	...	...	...	935	4	646	246	39	104
...	...	...	...	...	103	*1	102	-	-	105
...	...	...	...	...	175	*Z	69	69	36	106
...	...	...	...	...	68	*2	50	12	4	107
...	...	...	...	...	188	*1	113	59	15	108
...	...	...	...	...	376	7	303	40	26	109
...	...	...	...	...	3,471	16	3,433	22	-	110
...	...	...	...	...	513	*2	507	4	-	111
...	...	...	...	...	109	*1	107	*1	*Z	112
...	...	...	...	...	1,498	6	1,484	7	*Z	113
...	...	...	...	...	211	*1	209	*Z	-	114
...	...	...	...	...	599	*2	592	5	-	115
...	...	...	...	...	341	*1	337	*2	-	116
...	...	...	...	...	200	3	195	*2	*Z	117
1,616	156	958	335	167	1,428	85	523	406	414	118
43	4	24	10	4	44	3	20	13	8	119
44	*2	37	4	*1	17	*1	12	3	*1	120
16	*Z	7	7	*2	96	*2	40	39	16	121
93	7	54	26	6	105	3	47	33	21	122
51	4	34	9	4	38	*2	14	11	11	123
194	20	113	34	26	158	4	36	32	86	124
150	45	70	25	11	131	24	27	33	47	125
26	3	18	3	*2	14	*2	5	*1	6	126
58	7	34	10	7	65	4	16	14	30	127
77	*Z	43	28	5	55	-	24	26	6	128
110	3	91	15	*2	45	*1	28	12	4	129
31	*1	18	10	*1	21	*2	11	7	*Z	130
69	3	49	9	7	41	*1	14	10	17	131
38	-	4	12	21	92	*1	3	16	73	132
54	*2	41	8	3	53	*1	23	20	9	133
222	29	123	51	18	184	17	87	59	22	134
43	*2	7	12	22	37	*1	4	10	22	135
298	22	192	61	24	232	16	113	67	36	136
719	87	371	158	104	1,166	50	502	385	228	137
7	*1	4	*1	*1	155	*2	76	57	20	138
8	*Z	3	*2	*2	104	-	16	46	42	139
82	12	44	17	9	63	5	29	16	14	140
28	*Z	25	*2	*Z	31	*1	30	*Z	*Z	141
114	17	61	21	15	50	5	19	11	15	142
188	19	75	54	40	282	18	120	88	56	143
135	16	89	20	9	51	6	27	9	10	144
101	14	46	24	16	61	5	21	16	19	145
23	*1	4	9	8	210	*2	86	79	42	146
34	4	19	8	*2	159	7	80	62	9	147
1,460	92	420	522	426	1,538	83	517	494	443	148
93	9	28	23	33	101	9	26	32	34	149

Table 1. Number of all-listed procedures for inpatients discharged from short-stay hospitals by surgical category ICD-9-CM codes, sex, and age: United States, 1979—Con.

[Discharges from non-Federal hospitals, excluding newborn infants. Surgical groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Procedure category and ICD-9-CM codes		Both sexes				
		All ages	Under 15 years	15-44 years	45-64 years	65 years and over
Number of all-listed procedures in thousands						
150	Contrast myelogram 87.21	290	5	152	105	29
151	Intravenous pyelogram 87.73	267	17	87	77	86
152	Retrograde pyelogram 87.74	180	7	54	63	56
153	Arteriography using contrast material 88.4	300	5	59	126	110
154	Angiocardiography using contrast material 88.5	226	9	36	146	35
155	Diagnostic ultrasound 88.7	222	7	81	64	71
156	Radioisotope scan 92.0-92.1	531	13	102	185	231
157	Residual	787	94	313	194	185

Table 1. Number of all-listed procedures for inpatients discharged from short-stay hospitals by surgical category ICD-9-CM codes, sex, and age: United States, 1979—Con.

[Discharges from non-Federal hospitals, excluding newborn infants. Surgical groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*]

<i>Male</i>					<i>Female</i>					
<i>All ages</i>	<i>Under 15 years</i>	<i>15-44 years</i>	<i>45-64 years</i>	<i>65 years and over</i>	<i>All ages</i>	<i>Under 15 years</i>	<i>15-44 years</i>	<i>45-64 years</i>	<i>65 years and over</i>	
Number of all-listed procedures in thousands—Con.										
157	3	85	57	13	134	*2	67	49	16	150
132	9	38	37	49	135	8	50	41	37	151
92	4	22	32	34	89	3	31	32	22	152
167	3	32	75	59	132	3	27	51	51	153
155	5	28	103	20	71	4	8	43	15	154
83	4	18	26	36	139	3	63	38	35	155
242	7	42	88	105	289	6	60	97	127	156
339	51	128	82	78	448	44	185	112	106	157

Table 2. Rate of all-listed procedures for inpatients discharged from short-stay hospitals by surgical category, ICD-9-CM codes, sex, and age: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants. Surgical groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Procedure category and ICD-9-CM codes		Both sexes				
		All ages	Under 15 years	15-44 years	45-64 years	65 years and over
		Rate of all-listed procedures per 100,000				
01	All procedures	13,712.3	4,458.3	14,385.8	16,326.3	25,833.7
02	Operations on the nervous system 01-05	328.7	223.9	245.9	509.6	567.2
03	Incision and excision of the skull, brain, and cerebral meninges 01.0, 01.2-01.6	36.6	24.8	23.1	51.7	91.0
04	Laminectomy 03.0	32.5	*0.1	30.2	68.9	44.1
05	Operations on the cranial and peripheral nerves 04.0, 04.2-04.9	100.0	12.8	94.2	188.6	146.1
06	Spinal tap and biopsies on the nervous system 01.1, 03.3, 04.1, 05.1	104.0	149.8	57.1	112.9	187.8
07	Residual	55.6	36.4	41.3	87.6	98.3
08	Operations on the endocrine system 06-07	52.4	8.5	48.6	91.6	90.1
09	Thyroidectomy 06.2-06.6	33.3	*1.4	33.8	54.4	60.4
10	Other operations on the endocrine system 06.7-07.9	19.1	7.1	14.8	37.1	29.7
11	Operations on the eye 08-16	437.8	160.4	122.7	486.9	2,275.3
12	Extraction of lens 13.1-13.6	193.5	14.4	18.3	200.0	1,307.1
13	Resection and recession of ocular muscle 15.1-15.6	28.9	87.8	13.6	9.3	*4.1
14	Residual	215.4	58.2	90.8	277.5	964.1
15	Operations on the ear 18-20	198.8	502.8	96.6	116.8	132.4
16	Tympanoplasty 19.4-19.5	29.4	30.2	28.9	34.5	20.5
17	Myringotomy 20.0	104.3	403.3	11.4	17.1	18.3
18	Residual	65.1	69.3	56.3	65.3	93.5
19	Operations on the nose, mouth, and pharynx 21-29	772.3	1,001.2	819.4	589.1	423.0
20	Submucous resection of nasal septum 21.5	27.4	5.4	44.3	26.4	*5.0
21	Incision, excision, and destruction of nose and lesion of nose 21.1, 21.3-21.4, 21.6	56.0	19.1	62.3	76.8	70.0
22	Reduction of nasal fracture 21.7	20.4	11.4	31.9	12.7	*4.9
23	Rhinoplasty and repair of nose 21.8	112.2	20.8	175.2	111.7	42.9
24	Forceps extraction of tooth 23.0	46.7	21.9	55.4	56.5	44.8
25	Surgical removal of tooth 23.1	65.8	22.3	111.9	37.0	18.0
26	Plastic operations on mouth and palate 27.5-27.6	17.7	30.0	15.8	10.7	12.4
27	Tonsillectomy without adenoidectomy 28.2	91.6	82.9	152.6	10.7	*1.8
28	Tonsillectomy with adenoidectomy 28.3	140.2	542.0	30.2	*3.0	-
29	Adenoidectomy without tonsillectomy 28.6	38.4	160.1	*1.2	*3.0	*1.1
30	Residual	155.8	85.4	138.5	240.4	222.2
31	Operations on the respiratory system 30-34	376.8	76.8	172.0	743.1	1,205.4
32	Temporary tracheostomy 31.1	19.6	6.2	10.1	29.3	70.6
33	Laryngoscopy and tracheoscopy 31.41-31.42	43.9	19.9	21.7	94.1	95.5
34	Lung lobectomy and pneumonectomy 32.3-32.5	14.9	*0.9	4.0	38.2	48.2
35	Bronchoscopy 33.21-33.23	90.4	15.4	30.0	187.1	327.2
36	Incision of chest wall and pleura 34.0	49.9	10.8	40.1	77.2	124.0
37	Thoracentesis 34.91	34.5	5.1	13.8	53.2	150.3
38	Biopsy and other diagnostic procedures on the respiratory system 31.43-31.44, 33.24-33.27, 34.2	75.8	*2.0	24.0	164.4	289.0
39	Residual	47.7	16.5	28.2	99.7	100.7
40	Operations on the cardiovascular system 35-39	554.0	124.3	199.2	1,206.2	1,763.5
41	Operations on valves of heart 35.1-35.2, 35.99	15.3	*1.7	7.2	37.1	38.7
42	Direct heart revascularization 36.1	52.8	*1.4	11.4	174.5	111.8
43	Other open heart operations 35.3-35.51, 35.53-35.98, 36.0, 36.2, 36.9, 37.10-37.11, 37.32-37.33, 37.5	8.6	17.0	*2.3	12.0	11.0
44	Cardiac catheterization 37.21-37.23	138.1	48.4	51.8	400.0	209.3
45	Pacemaker insertion, replacement removal, and repair 37.7-37.8	79.7	*2.0	4.2	84.2	557.4
46	Ligation and stripping of varicose veins 38.5	30.7	*0.3	27.6	70.3	34.8
47	Systemic shunt and graft bypass 39.0-39.2	39.6	*4.0	10.2	84.9	156.0
48	Hemodialysis 39.95	16.4	*0.8	12.1	32.2	38.4
49	Residual	172.7	48.7	72.4	311.2	605.9

Table 2. Rate of all-listed procedures for inpatients discharged from short-stay hospitals by surgical category ICD-9-CM codes, sex, and age: United States, 1979—Con.

[Discharges from non-Federal hospitals, excluding newborn infants. Surgical groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Male					Female					
All ages	Under 15 years	15-44 years	45-64 years	65 years and over	All ages	Under 15 years	15-44 years	45-64 years	65 years and over	
Rate of all-listed procedures per 100,000—Con.										
10,565.3	5,026.2	7,566.9	15,091.4	30,497.5	16,647.3	3,866.3	20,862.4	17,457.4	22,562.4	01
346.0	256.8	271.3	480.7	666.0	312.5	189.6	221.8	536.1	497.9	02
44.1	23.5	32.6	56.9	128.4	29.6	26.2	14.1	46.8	64.7	03
37.4	*0.2	39.9	78.1	35.7	27.9	-	20.9	60.4	50.0	04
85.8	17.9	98.0	114.2	143.3	113.2	*7.5	90.7	256.7	148.0	05
115.7	178.1	57.2	121.3	231.3	93.1	120.3	57.1	105.2	157.2	06
63.1	37.1	43.7	110.2	127.2	48.7	35.5	39.0	66.9	78.0	07
24.0	*6.5	23.3	40.1	39.7	79.0	10.5	72.7	138.7	125.4	08
10.9	*0.7	12.7	11.2	28.7	54.2	*2.1	53.9	94.0	82.6	09
13.1	*5.8	10.6	28.9	11.0	24.7	*8.4	18.8	44.7	42.9	10
382.0	176.4	147.1	452.7	1,950.3	489.9	143.8	99.6	518.2	2,503.3	11
162.6	20.8	22.1	220.5	1,116.7	222.3	*7.8	14.7	181.2	1,440.7	12
27.2	83.1	10.9	*8.3	*1.3	30.5	92.7	16.1	*10.2	*6.0	13
192.2	72.5	114.1	223.9	832.3	237.0	43.3	68.8	326.7	1,056.5	14
220.1	555.2	98.3	111.9	174.1	178.9	448.1	95.0	121.4	103.2	15
26.9	31.2	28.4	25.5	*11.0	31.8	29.1	29.4	42.8	27.2	16
120.2	449.8	10.7	16.3	*17.8	89.4	354.9	12.2	17.8	18.7	17
73.1	74.3	59.3	70.1	145.2	57.7	64.1	53.4	60.8	57.3	18
789.5	1,017.9	764.7	658.8	578.6	757.1	983.8	871.3	525.3	313.8	19
22.9	*3.0	36.6	24.0	*4.4	31.6	*7.9	51.6	28.6	*5.4	20
65.3	24.3	68.7	92.5	98.1	47.4	13.6	56.3	62.5	50.2	21
26.7	14.0	41.2	17.7	1.3	15.0	*8.7	23.1	*8.2	*7.5	22
112.1	21.6	167.5	118.3	62.2	112.4	20.0	182.5	105.6	29.4	23
45.2	19.1	54.7	53.3	49.3	48.1	24.8	56.1	59.4	41.7	24
61.4	19.1	99.2	44.2	*24.1	70.0	26.6	123.9	30.3	*13.7	25
21.5	35.1	19.4	*9.8	*21.1	14.2	24.7	12.4	*11.5	*6.3	26
66.2	66.1	102.9	*11.4	*1.6	115.2	100.5	199.9	*10.1	*1.9	27
139.9	529.6	20.1	*3.4	-	140.5	554.8	39.9	*2.7	-	28
48.5	193.5	*0.7	*2.4	*2.6	29.0	125.3	*1.2	*3.6	-	29
179.4	93.5	153.9	281.7	313.9	133.7	76.9	123.9	202.6	157.9	30
451.4	86.6	212.4	871.0	1,709.5	307.2	66.6	133.6	626.0	851.8	31
24.8	*6.9	12.6	37.7	105.1	14.8	*5.5	7.8	21.6	41.4	32
46.5	23.4	19.7	104.2	117.8	41.4	16.3	23.7	84.8	79.9	33
17.8	*0.5	6.7	44.2	63.6	12.1	*1.3	*1.4	32.6	37.3	34
111.9	17.9	36.6	219.6	494.4	71.3	12.7	23.7	157.3	209.9	35
66.5	13.4	62.4	95.1	165.6	34.4	*8.1	18.9	60.8	94.7	36
35.6	*4.9	16.8	52.4	174.6	33.5	*5.3	11.0	54.1	132.2	37
98.0	*2.7	27.4	204.8	473.7	55.2	*1.2	20.7	127.5	159.4	38
51.3	16.8	30.2	113.1	114.6	44.5	16.2	26.4	87.3	91.0	39
693.6	117.4	242.9	1,675.3	2,359.3	423.7	131.5	157.6	776.5	1,345.5	40
18.3	*1.9	9.0	42.8	55.3	12.6	*1.5	5.4	31.9	27.1	41
88.9	*2.8	22.2	304.6	185.3	19.2		*1.1	55.4	60.2	42
9.8	14.8	*2.0	21.3	10.6	*7.5	19.3	*2.6	*3.5	*11.3	43
187.5	48.4	75.7	566.3	301.2	92.1	48.3	29.6	247.3	144.9	44
86.8	*1.3	6.6	120.1	642.9	73.0	*2.7	*1.8	51.4	497.5	45
20.3	*0.7	17.3	45.1	34.2	40.3	-	37.4	93.4	35.3	46
48.6	*1.5	11.2	112.3	223.1	31.2	*8.6	9.2	59.8	109.0	47
19.0	*0.7	13.6	39.3	50.7	14.0	*1.0	10.8	25.7	29.8	48
214.5	45.4	85.9	423.6	856.0	133.8	52.1	59.6	208.2	430.6	49

Table 2. Rate of all-listed procedures for inpatients discharged from short-stay hospitals by surgical category, ICD-9-CM codes, sex, and age: United States, 1979—Con.

[Discharges from non-Federal hospitals, excluding newborn infants. Surgical groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Procedure category and ICD-9-CM codes		Both sexes				
		All ages	Under 15 years	15-44 years	45-64 years	65 years and over
Rate of all-listed procedures per 100,000—Con.						
50	Operations on the hemic and lymphatic system 40-41	152.2	41.7	86.0	237.9	510.2
51	Splenectomy 41.5	14.8	*3.6	17.1	16.3	26.4
52	Biopsies on the hemic and lymphatic system 40.1, 41.3	97.5	27.3	43.1	148.8	382.8
53	Residual	39.9	10.8	25.8	72.7	101.0
54	Operations on the digestive system 42-54	2,353.7	587.0	1,946.3	3,411.8	5,895.5
55	Esophagoscopy and gastroscopy (natural orifice) 42.23, 44.13	97.2	15.4	50.1	167.4	341.2
56	Partial gastrectomy 43.5-43.8	19.3	*0.8	10.1	35.5	68.1
57	Local excision and destruction of lesion and tissue of stomach and intestine 43.4, 45.3-45.4	27.5	*2.3	10.4	48.9	113.2
58	Resection of intestine 45.6-45.8	80.6	9.2	29.8	116.1	383.2
59	Intestinal anastomosis and repair 45.9, 46.4-46.9	51.6	11.3	33.0	75.9	171.7
60	Ileostomy, colostomy, and other enterostomy 46.1-46.3	38.5	1.6	16.0	55.4	170.5
61	Appendectomy, excluding incidental 47.0	144.1	157.8	191.3	69.5	53.6
62	Local excision and destruction of lesion and tissue of rectum and anus except anal fistula 48.3, 49.3	47.7	*3.1	45.4	78.0	97.3
63	Hemorrhoidectomy 49.43-49.46	77.0	*0.6	84.8	141.1	88.5
64	Cholecystectomy 51.2	206.2	*4.7	167.2	354.4	527.6
65	Repair of inguinal hernia 53.0-53.1	231.6	182.6	138.1	341.3	527.7
66	Repair of umbilical hernia 53.4	30.3	26.6	22.6	51.1	32.1
67	Other hernia repair 53.2-53.3, 53.5-53.9	66.4	12.0	37.8	125.9	193.6
68	Laparotomy 54.1	51.3	7.3	53.4	58.2	123.7
69	Incision and excision of abdominal wall and peritoneum except laparotomy 54.0, 54.3-54.4, 54.91	58.3	19.1	40.7	97.7	143.9
70	Division of peritoneal adhesions 54.5	106.5	7.1	134.1	120.6	176.6
71	Biopsies and other endoscopies of the digestive system 42.21-42.22, 42.24, 44.11-44.12, 44.14-44.15, 45.1-45.2, 48.2, 49.2, 50.1, 51.1, 52.1, 54.2	586.0	46.0	464.3	874.0	1,723.4
72	Residual	433.4	74.5	417.4	601.0	959.0
73	Operations on the urinary system 55-59	891.6	318.4	497.1	1,297.8	3,034.3
74	Nephrotomy, pyelotomy, and complete nephrectomy 55.0-55.1, 55.5	29.3	*4.7	21.8	54.2	67.6
75	Endoscopies of the urinary system through natural orifice 55.21-55.22, 56.31, 57.32, 58.22	414.0	147.8	198.2	594.8	1,561.5
76	Transurethral excision or destruction of bladder tissue 57.4	55.6	*2.3	11.7	78.7	313.1
77	Urethral meatotomy 58.1	18.0	32.0	9.1	12.0	37.0
78	Dilation of urethra 58.6	92.9	54.2	54.7	118.1	290.5
79	Retropubic urethral suspension 59.5	20.8	*0.5	16.8	51.3	24.2
80	Ureteral catheterization 59.8	22.4	7.2	15.3	37.1	57.8
81	Biopsies and other endoscopies of the urinary system 55.23-55.24, 56.32-56.33, 57.31, 57.33-57.34, 58.21, 58.23-58.24, 59.2	32.8	5.2	14.3	53.6	131.2
82	Residual	205.8	64.6	155.1	298.1	551.5
83	Operations on the male genital organs 60-64	...	...	...	...	...
84	Prostatectomy 60.2-60.6	...	...	...	...	...
85	Excision of hydrocele and other lesion of tunica vaginalis 61.2, 61.92	...	...	...	...	...
86	Orchiectomy and orchiopexy 62.3-62.5	...	...	...	...	...
87	Vasectomy and ligation of vas deferens 63.7	...	...	...	...	...
88	Circumcision 64.0	...	...	...	...	...
89	Biopsy and other diagnostic procedures on the male genital organs 60.1, 61.1, 62.1, 63.0, 64.1	...	...	...	...	...
90	Residual . . . . .	...	...	...	...	...
91	Operations on the female genital organs 65-71	...	...	...	...	...
92	Local excision or destruction of ovarian lesion or tissue 65.2	...	...	...	...	...
93	Unilateral oophorectomy and salpingo-oophorectomy 65.3-65.4	...	...	...	...	...
94	Bilateral oophorectomy and salpingo-oophorectomy 65.5-65.6	...	...	...	...	...
95	Bilateral endoscopic destruction or occlusion of fallopian tubes 66.2	...	...	...	...	...
96	Other bilateral destruction or occlusion of fallopian tubes 66.3	...	...	...	...	...
97	Total bilateral salpingectomy 66.5	...	...	...	...	...
98	Conization of cervix 67.2	...	...	...	...	...

Table 2. Rate of all-listed procedures for inpatients discharged from short-stay hospitals by surgical category ICD-9-CM codes, sex, and age: United States, 1979—Con.

[Discharges from non-Federal hospitals, excluding newborn infants. Surgical groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*]

All ages	Male					Female				
	Under 15 years	15-44 years	45-64 years	65 years and over	All ages	Under 15 years	15-44 years	45-64 years	65 years and over	
Rate of all-listed procedures per 100,000—Con.										
148.4	48.2	85.0	226.8	562.1	155.8	34.8	87.0	248.1	473.8	50
18.2	*4.6	22.2	22.9	*24.4	*11.7	*2.5	12.3	10.3	27.9	51
88.8	27.3	38.7	134.1	404.5	105.7	27.3	47.3	162.3	367.5	52
41.4	16.4	24.1	69.7	133.2	38.5	*5.1	27.4	75.5	78.4	53
2,138.5	720.6	1,397.8	3,442.9	6,792.1	2,554.3	447.6	2,467.8	3,383.3	5,266.5	54
96.3	19.2	46.3	166.5	399.2	98.0	11.4	53.7	168.1	300.5	55
22.8	*0.6	11.3	41.3	100.0	16.0	*1.1	9.0	30.1	45.7	56
27.3	*3.3	8.1	54.8	127.4	27.7	*1.2	12.6	43.6	104.1	57
76.4	11.0	33.1	121.8	368.6	84.6	*7.4	26.6	110.9	393.5	58
48.3	13.6	31.9	70.7	173.7	54.8	*9.0	34.1	80.6	170.2	59
41.5	10.9	19.7	58.7	204.6	35.6	*2.1	14.3	52.3	146.6	60
155.4	166.7	201.3	79.8	59.5	133.5	148.4	181.9	60.0	49.6	61
45.9	*2.5	44.2	71.7	113.7	49.5	*3.6	46.5	83.7	85.8	62
79.3	*0.6	85.6	151.4	101.0	74.9	*0.6	84.1	131.7	79.8	63
114.4	*3.2	54.9	219.0	480.9	291.9	*6.3	273.8	478.5	560.4	64
430.8	298.5	253.9	666.2	1,158.6	45.7	61.8	28.2	43.8	85.1	65
21.3	23.9	13.0	35.1	26.5	38.7	29.4	31.7	65.9	36.0	66
52.9	*8.7	30.8	109.6	158.9	79.0	15.5	44.5	140.9	218.0	67
38.5	*5.1	32.3	60.2	111.6	63.1	*9.5	73.5	56.3	132.1	68
49.2	26.1	32.1	81.5	127.2	66.8	11.8	48.8	112.5	155.8	69
32.4	*6.5	16.5	53.7	134.0	175.7	*7.7	245.8	181.8	206.5	70
464.3	45.9	246.0	851.1	1,832.6	699.5	46.2	671.6	894.9	1,646.8	71
341.4	74.3	238.6	550.1	1,114.3	519.2	74.7	587.1	647.6	850.0	72
1,003.3	284.0	395.8	1,436.6	5,013.8	787.4	354.3	593.3	1,170.6	1,644.5	73
33.9	*7.1	25.4	56.5	98.3	25.1	*2.1	18.4	52.1	46.0	74
512.6	117.8	170.6	750.3	2,761.3	321.7	179.0	224.5	452.4	719.9	75
78.8	*2.9	7.6	117.7	552.3	34.0	*1.7	15.6	43.0	145.3	76
28.9	51.9	11.3	20.9	72.6	7.9	11.4	7.0	*3.8	*12.0	77
76.0	19.5	29.9	97.1	410.7	108.6	90.3	78.3	137.3	206.2	78
-	-	-	-	-	40.1	*1.1	32.7	98.3	41.1	79
23.3	*7.4	12.6	40.9	80.5	21.6	*7.0	17.8	33.6	41.8	80
36.8	*4.1	14.2	54.5	198.3	29.0	*6.3	14.4	52.7	84.2	81
212.9	73.3	124.2	298.8	841.7	199.2	55.5	184.6	297.5	348.0	82
726.5	445.7	299.5	815.9	3,414.9	...	...	...	...	...	83
281.2	*3.5	7.2	340.3	2,261.5	...	...	...	...	...	84
48.1	85.0	18.0	59.5	76.1	...	...	...	...	...	85
65.4	94.3	31.2	39.1	215.8	...	...	...	...	...	86
43.4	-	37.1	42.9	190.9	...	...	...	...	...	87
98.1	176.5	71.2	60.9	104.7	...	...	...	...	...	88
64.9	*4.7	19.9	96.0	382.4	...	...	...	...	...	89
125.5	81.7	114.9	177.1	183.5	...	...	...	...	...	90
...	...	...	...	...	3,795.3	100.6	6,257.7	3,653.3	1,531.1	91
...	...	...	...	...	82.6	*10.1	162.6	20.9	18.7	92
...	...	...	...	...	156.9	*6.3	280.6	107.0	51.2	93
...	...	...	...	...	243.4	*1.7	244.8	549.0	164.5	94
...	...	...	...	...	175.6	*1.0	374.9	24.7	-	95
...	...	...	...	...	370.9	*0.7	806.2	21.0	*1.7	96
...	...	...	...	...	40.8	-	81.4	17.5	*2.2	97
...	...	...	...	...	78.9	-	142.1	57.2	21.8	98

Table 2. Rate of all-listed procedures for inpatients discharged from short-stay hospitals by surgical category, ICD-9-CM codes, sex, and age: United States, 1979—Con.

[Discharges from non-Federal hospitals, excluding newborn infants. Surgical groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Procedure category and ICD-9-CM codes		Both sexes				
		All ages	Under 15 years	15-44 years	45-64 years	65 years and over
Rate of all-listed procedures per 100,000—Con.						
99	Other excision or destruction of lesion or tissue of cervix, uterus, and supporting structures. 67.3-67.4, 68.2, 69.1	...	...	...	...	...
100	Abdominal hysterectomy. 68.3-68.4, 68.6	...	...	...	...	...
101	Vaginal hysterectomy 68.5, 68.7	...	...	...	...	...
102	Dilation and curettage of uterus to terminate pregnancy 69.01	...	...	...	...	...
103	Dilation and curettage of uterus after delivery or abortion 69.02	...	...	...	...	...
104	Diagnostic dilation and curettage of uterus. 69.09	...	...	...	...	...
105	Aspiration curettage of uterus for termination of pregnancy 69.51	...	...	...	...	...
106	Repair of cystocele and rectocele 70.5	...	...	...	...	...
107	Incision and excision of lesion of vulva and perineum. 71.0, 71.2-71.4	...	...	...	...	...
108	Biopsy and other diagnostic procedures on the female genital organs 65.1, 66.1, 67.1, 68.1, 70.2, 71.1	...	...	...	...	...
109	Residual. . . . .	...	...	...	...	...
110	Obstetrical procedures. 72-75	...	...	...	...	...
111	Low forceps operation with and without episiotomy 72.0-72.1	...	...	...	...	...
112	Extraction procedures to assist delivery. 72.2-72.5, 72.7-72.9, 73.2	...	...	...	...	...
113	Episiotomy 73.6	...	...	...	...	...
114	Other procedures to assist delivery 72.6, 73.0-73.1, 73.3-73.5, 73.8-73.9	...	...	...	...	...
115	Cesarean section 74.0-74.2, 74.4, 74.99	...	...	...	...	...
116	Repair of current obstetric laceration. 75.5-75.6	...	...	...	...	...
117	Residual. . . . .	...	...	...	...	...
118	Operations on the musculoskeletal system 76-84	1,410.1	481.6	1,497.6	1,702.2	2,486.7
119	Incision of bone. 76.0, 77.0-77.3	40.2	14.6	44.8	58.8	50.6
120	Reduction of fracture and dislocation of jawbone. 76.71-76.77, 76.93-76.96	28.1	5.5	49.4	15.6	*9.7
121	Bunionectomy 77.5	52.1	*4.1	47.5	105.3	75.5
122	Partial excision of bone. 76.2-76.3, 77.6-77.8	91.5	20.1	102.0	136.5	116.1
123	Removal of internal bone fixation device. 76.97, 78.6	41.0	12.7	48.7	44.8	62.1
124	Open reduction of fracture 76.79, 79.2-79.3, 79.5-79.6	163.1	49.0	150.9	152.5	479.0
125	Other reduction of fracture 76.70, 76.78, 79.0-79.1, 79.4	130.4	138.5	97.7	132.7	247.6
126	Reduction of dislocation of joint 79.7-79.8	18.4	9.3	22.8	10.0	35.2
127	Repair and plastic operations on bone (except facial). 78.0-78.5, 78.7, 78.9, 79.9	56.6	21.4	50.7	54.7	161.0
128	Excision or destruction of intervertebral disc. 80.5	61.0	*1.0	67.2	123.6	46.9
129	Excision of semilunar cartilage of knee 80.6	71.8	8.0	120.2	61.4	22.8
130	Spinal fusion 81.0	24.0	7.5	29.1	40.1	7.7
131	Arthroplasty of knee 81.41-81.47	50.9	8.3	63.8	43.7	101.3
132	Arthroplasty and replacement of hip 81.5-81.6	60.4	*1.1	7.2	65.6	403.4
133	Arthroplasty of other joints. 81.3, 81.48-81.49, 81.7-81.8	49.7	6.3	64.9	64.8	50.8
134	Operations on muscles, tendons, fascia, and bursa. 82-83.1, 83.3-83.9	188.0	92.7	212.2	251.7	171.0
135	Amputation of the lower limb. 84.1	37.0	*4.5	10.7	51.2	191.3
136	Residual.	245.9	76.9	308.0	294.3	254.7
137	Operations on the integumentary system. 85-86	873.4	273.4	882.7	1,248.9	1,420.9
138	Excision or destruction of breast tissue (partial mastectomy) 85.20-85.23	75.1	5.8	80.8	133.5	90.8
139	Mastectomy 85.4	51.9	*0.8	19.1	112.1	188.5
140	Incision of skin and subcutaneous tissue 86.0	67.4	33.7	73.6	75.5	98.7
141	Excision of pilonidal cyst or sinus 86.21	27.3	*2.5	55.6	*5.4	*1.3
142	Debridement of wound, infection, or burn. 86.22	76.0	44.9	79.9	74.1	130.0
143	Other excision or destruction of lesion of skin and subcutaneous tissue 86.23-86.4	217.6	74.5	196.6	326.5	410.6
144	Suture of skin and subcutaneous tissue. 86.5	86.3	43.8	117.3	67.5	81.6
145	Skin graft (except lip or mouth) 86.6-86.7	74.8	38.7	67.7	91.2	151.7
146	Biopsies on the integumentary system. 85.1, 86.1	107.7	6.0	91.4	202.8	217.3
147	Residual.	89.1	22.7	100.7	160.2	50.5
148	Miscellaneous diagnostic and therapeutic procedures 87-99	1,388.6	350.5	946.8	2,337.2	3,718.6
149	Computerized axial tomography (CAT scan) 87.03, 87.41, 87.71, 88.01, 88.38	89.8	35.5	55.0	126.2	285.5

Table 2. Rate of all-listed procedures for inpatients discharged from short-stay hospitals by surgical category ICD-9-CM codes, sex, and age: United States, 1979—Con.

[Discharges from non-Federal hospitals, excluding newborn infants. Surgical groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Male					Female					
All ages	Under 15 years	15-44 years	45-64 years	65 years and over	All ages	Under 15 years	15-44 years	45-64 years	65 years and over	
Rate of all-listed procedures per 100,000—Con.										
...	...	...	...	...	101.8	*0.2	141.9	137.4	75.6	99
...	...	...	...	...	424.9	*2.6	601.0	632.4	185.6	100
...	...	...	...	...	147.1	*1.8	201.1	191.5	133.6	101
...	...	...	...	...	53.3	*2.5	114.9	-	-	102
...	...	...	...	...	267.2	*9.5	579.2	*9.8	-	103
...	...	...	...	...	836.8	17.2	1,272.5	1,084.3	282.0	104
...	...	...	...	...	92.3	*4.9	200.1	-	-	105
...	...	...	...	...	156.6	*1.3	136.0	306.0	263.5	106
...	...	...	...	...	61.0	*7.0	99.1	52.3	31.0	107
...	...	...	...	...	168.4	*5.4	222.3	261.5	107.1	108
...	...	...	...	...	336.9	28.0	596.9	176.6	192.6	109
...	...	...	...	...	3,106.9	63.4	6,764.4	96.4	-	110
...	...	...	...	...	459.0	*6.2	999.2	18.3	-	111
...	...	...	...	...	97.7	*2.1	211.5	*5.2	*1.4	112
...	...	...	...	...	1,341.2	26.3	2,924.8	32.2	*2.0	113
...	...	...	...	...	188.6	*4.4	412.5	*1.4	-	114
...	...	...	...	...	536.4	*7.6	1,166.9	22.6	-	115
...	...	...	...	...	304.9	*4.5	664.7	*9.5	-	116
...	...	...	...	...	179.1	12.3	384.8	*7.2	*1.3	117
1,551.5	610.8	1,988.2	1,609.4	1,738.1	1,278.3	347.0	1,031.6	1,787.3	3,011.7	118
41.5	16.7	50.8	50.0	42.9	39.0	12.5	39.1	57.3	56.0	119
42.2	*8.8	76.6	17.9	*11.5	14.9	*2.1	23.5	13.5	*8.5	120
15.4	*1.8	15.3	31.7	*16.5	86.3	*6.4	78.2	172.6	116.8	121
88.9	26.1	111.1	126.4	63.8	93.9	13.9	93.4	145.8	152.8	122
48.9	16.8	70.5	43.0	39.0	33.6	*8.5	27.9	46.4	78.3	123
185.9	79.0	234.7	164.2	271.9	141.8	17.8	71.2	141.8	624.3	124
144.4	176.6	144.6	120.0	111.2	117.4	98.9	53.0	144.3	343.3	125
25.2	12.2	36.5	15.0	*25.2	12.2	*6.3	9.8	*5.5	42.2	126
55.2	25.4	70.2	46.8	77.5	57.9	17.3	32.1	61.8	219.6	127
73.7	*1.9	89.0	135.4	54.5	49.2	-	46.5	112.9	41.6	128
105.8	10.6	188.9	71.3	*16.7	40.0	*5.3	54.9	52.3	27.0	129
29.7	*4.9	37.5	49.3	*14.3	18.6	*10.1	21.1	31.7	*3.1	130
65.8	11.3	101.9	45.2	74.1	37.0	*5.2	27.6	42.3	120.3	131
36.7	-	9.3	60.1	221.3	82.4	*2.1	5.1	70.6	531.2	132
52.1	*1.2	84.5	39.0	32.6	47.5	*3.4	46.3	88.3	63.6	133
212.8	115.3	255.2	245.0	190.3	164.9	69.2	171.5	257.8	157.5	134
40.9	*6.6	13.8	57.9	230.5	33.4	*2.4	7.8	45.1	163.8	135
286.3	87.7	398.0	291.1	244.5	208.1	65.6	222.6	297.3	261.9	136
690.4	339.1	770.1	758.0	1,077.4	1,044.0	204.8	989.7	1,698.5	1,661.8	137
7.0	*4.1	7.3	*5.7	*15.4	138.6	*7.5	150.5	250.6	143.6	138
7.3	*1.5	6.6	*10.9	*18.5	93.5	-	30.9	204.8	307.7	139
79.1	47.1	91.9	81.7	94.9	56.5	19.7	56.3	69.8	101.4	140
26.6	*1.3	52.5	*9.4	*1.3	28.0	*3.8	58.6	*1.7	*1.3	141
109.5	67.5	125.7	100.4	159.2	44.9	21.2	36.5	50.0	109.5	142
180.3	76.0	155.1	258.1	414.4	252.4	72.8	236.0	389.0	407.9	143
129.7	64.1	185.7	97.3	94.1	45.9	22.8	52.3	40.3	72.8	144
96.6	54.5	96.2	116.1	168.0	54.5	22.3	40.7	68.5	140.2	145
21.9	*5.3	9.1	41.9	86.7	187.7	*6.7	169.7	350.3	308.9	146
32.4	17.6	39.9	36.6	*25.0	142.1	28.0	158.4	273.5	68.5	147
1,401.0	360.8	870.5	2,511.3	4,419.4	1,376.9	339.7	1,019.3	2,172.7	3,227.4	148
89.1	34.1	58.1	111.8	341.3	90.4	37.0	52.0	139.4	246.4	149

Table 2. Rate of all-listed procedures for inpatients discharged from short-stay hospitals by surgical category, ICD-9-CM codes, sex, and age: United States, 1979—Con.

[Discharges from non-Federal hospitals, excluding newborn infants. Surgical groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Procedure category and ICD-9-CM codes		Both sexes					
		All ages	Under 15 years	15-44 years	45-64 years	65 years and over	
Rate of all-listed procedures per 100,000—Con.							
150	Contrast myelogram	87.21	134.6	9.6	153.4	242.2	122.2
151	Intravenous pyelogram	87.73	123.8	33.1	88.1	178.2	368.3
152	Retrograde pyelogram	87.74	83.6	14.6	54.4	145.6	239.8
153	Arteriography using contrast material	88.4	139.0	10.6	59.1	289.7	471.5
154	Angiocardiology using contrast material	88.5	104.8	18.9	35.9	336.3	149.8
155	Diagnostic ultrasound	88.7	102.9	14.0	81.4	147.2	302.2
156	Radioisotope scan	92.0-92.1	245.8	25.6	102.9	425.2	989.1
157	Residual		364.4	188.6	316.6	446.7	790.4

Table 3. Number of all-listed and single-listed procedures, and average length of stay for single-listed procedures for all inpatients discharged from short-stay hospitals, by selected surgical categories and ICD-9-CM codes: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants]

Surgical category and ICD-9-CM codes	All-listed operations	Single-listed operations	Average length of stay for single-listed operations	
	Number in thousands		Days	
All operations	29,603	11,564	5.9	
Total of selected categories	9,281	4,812	4.4	
Episiotomy	73.6	1,498	1,151	3.1
Diagnostic dilation and curettage of uterus	69.09	935	365	2.2
Endoscopies of the urinary system through natural orifice	55.21-55.22, 56.31, 57.32, 58.22	894	193	6.3
Procedures to assist delivery	72.0-72.9, 73.0-73.5, 73.8-73.9	833	418	3.3
Hysterectomy	68.3-68.7	639	97	7.3
Bilateral destruction or occlusion of fallopian tubes	66.2-66.3	610	224	2.6
Cesarean section	74.0-74.2, 74.4, 74.99	599	444	6.4
Tonsillectomy with or without adenoidectomy	28.2-28.3	500	401	2.0
Repair of inguinal hernia	53.0-53.1	500	356	4.7
Cholecystectomy	51.2	445	159	10.1
Extraction of lens	13.1-13.6	418	240	4.0
Operations on muscles, tendons, fascia, and bursa	82-83.1, 83.3-83.9	406	161	3.3
Open reduction of fracture	76.79, 79.2-79.3, 79.5-79.6	352	218	11.9
Repair of current obstetric laceration	75.5-75.6	341	126	2.8
Appendectomy, excluding incidental	47.0	311	259	5.3

Table 2. Rate of all-listed procedures for inpatients discharged from short-stay hospitals by surgical category ICD-9-CM codes, sex, and age: United States, 1979—Con.

[Discharges from non-Federal hospitals, excluding newborn infants. Surgical groupings and code number inclusions are based on the *International Classification of Diseases, 9th Revision, Clinical Modification*]

Male					Female					
All ages	Under 15 years	15-44 years	45-64 years	65 years and over	All ages	Under 15 years	15-44 years	45-64 years	65 years and over	
Rate of all-listed procedures per 100,000—Con.										
150.3	10.3	175.6	272.0	133.3	119.8	*9.0	132.4	214.9	114.4	150
126.8	33.3	77.8	177.0	511.2	121.1	32.8	97.9	179.3	268.0	151
87.9	14.9	46.4	151.8	351.5	79.5	14.2	61.9	140.0	161.4	152
160.8	9.8	65.5	358.5	611.0	118.6	11.4	53.1	226.6	373.7	153
149.0	20.2	57.1	494.5	205.0	63.6	17.6	15.8	191.3	111.1	154
79.9	13.9	37.2	126.1	368.9	124.3	14.0	123.4	166.4	255.5	155
232.1	26.6	87.4	425.2	1,085.0	258.6	24.7	117.6	425.2	921.9	156
325.1	197.7	265.3	394.4	812.3	401.1	179.0	365.3	494.6	775.1	157

Table 4. Number of all-listed and single-listed procedures, and average length of stay for single-listed procedures for male inpatients of all ages discharged from short-stay hospitals, by selected surgical categories and ICD-9-CM codes: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants]

Surgical category and ICD-9-CM codes	All-listed operations	Single-listed operations	Average length of stay for single-listed operations
	Number in thousands		Days
All operations	11,007	4,047	6.6
Total of selected categories	3,159	1,412	5.2
Endoscopies of the urinary system through natural orifice 55.21-55.22, 56.31, 57.32, 58.22	534	111	5.4
Repair of inguinal hernia 53.0-53.1	449	316	4.7
Prostatectomy 60.2-60.6	293	83	9.4
Tonsillectomy with or without adenoidectomy 28.2-28.3	215	163	2.0
Operations on muscles, tendons, fascia, and bursa 82-83.1, 83.3-83.9	222	85	3.3
Cardiac catheterization 37.21-37.23	195	74	5.0
Open reduction of fracture 76.79, 79.2-79.3, 79.5-79.6	194	101	8.6
Extraction of lens 13.1-13.6	169	98	3.9
Appendectomy, excluding incidental 47.0	162	148	5.0
Suture of skin and subcutaneous tissue 86.5	135	46	4.2
Myringotomy 20.0	125	35	1.8
Cholecystectomy 51.2	119	42	10.8
Rhinoplasty and repair of nose 21.8	117	38	2.7
Bronchoscopy 33.21-33.23	116	51	10.3
Debridement of wound, infection, or burn 86.22	114	21	10.3

Table 5. Number of all-listed and single-listed procedures, and average length of stay for single-listed procedures for male inpatients under 15 years discharged from short-stay hospitals, by selected surgical categories and ICD-9-CM codes: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants]

<i>Surgical category and ICD-9-CM codes</i>	<i>All-listed operations</i>	<i>Single-listed operations</i>	<i>Average length of stay for single-listed operations</i>
	Number in thousands		Days
All operations	1,285	598	3.9
Total of selected categories	673	335	2.8
Tonsillectomy with or without adenoidectomy..... 28.2-28.3	152	105	1.7
Myringotomy..... 20.0	115	31	1.5
Repair of inguinal hernia..... 53.0-53.1	76	41	2.3
Adenoidectomy without tonsillectomy..... 28.6	49	6	1.4
Circumcision..... 64.0	45	38	3.4
Appendectomy, excluding incidental..... 47.0	43	40	4.7
Endoscopies of the urinary system through natural orifice..... 55.21-55.22, 56.31, 57.32, 58.22	30	7	3.6
Operations on muscles, tendons, fascia, and bursa..... 82-83.1, 83.3-83.9	29	11	3.3
Orchiectomy and orchiopexy..... 62.3-62.5	24	8	3.4
Excision of hydrocele and other lesion of tunica vaginalis..... 61.2, 61.92	22	3	1.7
Resection and recession of ocular muscle..... 15.1-15.6	21	18	1.7
Open reduction of fracture..... 76.79, 79.2-79.3, 79.5-79.6	20	14	4.1
Debridement of wound, infection, or burn..... 86.22	17	3	6.1
Suture of skin and subcutaneous tissue..... 86.5	16	6	3.2
Skin graft (except lip or mouth)..... 86.6-86.7	14	4	14.1

Table 6. Number of all-listed and single-listed procedures, and average length of stay for single-listed procedures for male inpatients aged 15-44 years discharged from short-stay hospitals, by selected surgical categories and ICD-9-CM codes: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants]

<i>Surgical category and ICD-9-CM codes</i>	<i>All-listed operations</i>	<i>Single-listed operations</i>	<i>Average length of stay for single-listed operations</i>
	Number in thousands		Days
All operations	3,647	1,476	5.2
Total of selected categories	1,162	559	4.1
Operations on muscles, tendons, fascia, and bursa..... 82-83.1, 83.3-83.9	123	42	2.7
Repair of inguinal hernia..... 53.0-53.1	122	97	4.0
Open reduction of fracture..... 76.79, 79.2-79.3, 79.5-79.6	113	51	6.2
Appendectomy, excluding incidental..... 47.0	97	90	4.7
Excision of semilunar cartilage of knee..... 80.6	91	38	4.6
Suture of skin and subcutaneous tissue..... 86.5	89	31	3.4
Endoscopies of the urinary system through natural orifice..... 55.21-55.22, 56.31, 57.32, 58.22	82	24	4.2
Rhinoplasty and repair of nose..... 21.8	81	31	2.7
Debridement of wound, infection, or burn..... 86.22	61	10	6.8
Tonsillectomy with or without adenoidectomy..... 28.2-28.3	59	55	2.3
Partial excision of bone..... 76.2-76.3, 77.6-77.8	54	17	4.8
Arthroplasty of knee..... 84.41-81.47	49	10	6.0
Surgical removal of tooth..... 23.1	48	33	1.9
Operations on the cranial and peripheral nerves..... 04.0, 04.2-04.9	47	18	3.1
Skin graft (except lip or mouth)..... 86.6-86.7	46	12	11.1

Table 7. Number of all-listed and single-listed procedures, and average length of stay for single-listed procedures for male inpatients aged 45–64 years discharged from short-stay hospitals, by selected surgical categories and ICD–9–CM codes: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants]

<i>Surgical category and ICD–9–CM codes</i>	<i>All-listed operations</i>	<i>Single-listed operations</i>	<i>Average length of stay for single-listed operations</i>
	Number in thousands		Days
All operations	3,137	1,082	7.4
Total of selected categories	904	400	6.7
Endoscopies of the urinary system through natural orifice 55.21–55.22, 56.31, 57.32, 58.22	156	38	4.7
Repair of inguinal hernia 53.0–53.1	138	100	5.0
Cardiac catheterization 37.21–37.23	118	45	4.3
Prostatectomy 60.2–60.6	71	23	8.0
Direct heart revascularization 36.1	63	34	12.4
Operations on muscles, tendons, fascia, and bursa 82–83.1, 83.3–83.9	51	23	3.6
Extraction of lens 13.1–13.6	46	32	3.8
Bronchoscopy 33.21–33.23	46	21	9.3
Cholecystectomy 51.2	46	17	9.3
Open reduction of fracture 76.79, 79.2–79.3, 79.5–79.6	34	21	11.0
Hemorrhoidectomy 49.43–49.46	31	11	5.7
Excision or destruction of intervertebral disc 80.5	28	11	11.3
Partial excision of bone 76.2–76.3, 77.6–77.8	26	5	4.4
Resection of intestine 45.6–45.8	25	6	12.5
Pacemaker insertion, replacement, removal, and repair 37.7–37.8	25	13	10.6

Table 8. Number of all-listed and single-listed procedures, and average length of stay for single-listed procedures for male inpatients aged 65 years and over discharged from short-stay hospitals, by selected surgical categories and ICD–9–CM codes: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants]

<i>Surgical category and ICD–9–CM codes</i>	<i>All-listed operations</i>	<i>Single-listed operations</i>	<i>Average length of stay for single-listed operations</i>
	Number in thousands		Days
All operations	2,938	891	10.0
Total of selected categories	1,108	394	9.5
Endoscopies of the urinary system through natural orifice 55.21–55.22, 56.31, 57.32, 58.22	266	41	7.1
Prostatectomy 60.2–60.6	218	59	9.9
Repair of inguinal hernia 53.0–53.1	112	79	6.4
Extraction of lens 13.1–13.6	108	58	4.0
Pacemaker insertion, replacement, removal, and repair 37.7–37.8	62	38	9.5
Transurethral excision or destruction of bladder tissue 57.4	53	10	7.6
Bronchoscopy 33.21–33.23	48	23	12.0
Cholecystectomy 51.2	46	15	13.9
Dilation of urethra 58.6	40	-	-
Resection of intestine 45.6–45.8	36	8	16.1
Cardiac catheterization 37.21–37.23	29	10	6.2
Open reduction of fracture 76.79, 79.2–79.3, 79.5–79.6	26	15	17.1
Amputation of the lower limb 84.1	22	14	21.1
Systemic shunt and graft bypass 39.0–39.2	21	7	15.1
Arthroplasty and replacement of hip 81.5–81.6	21	17	20.0

Table 9. Number of all-listed and single-listed procedures, and average length of stay for single-listed procedures for female inpatients of all ages discharged from short-stay hospitals, by selected surgical categories and ICD-9-CM codes: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants]

<i>Surgical category and ICD-9-CM codes</i>	<i>All-listed operations</i>	<i>Single-listed operations</i>	<i>Average length of stay for single-listed operations</i>
	Number in thousands		Days
All operations	18,596	7,516	5.6
Total of selected categories	7,624	3,753	3.7
Episiotomy..... 73.6	1,498	1,151	3.1
Diagnostic dilation and curettage of uterus..... 69.09	935	365	2.2
Procedures to assist delivery..... 72.0-72.9, 73.0-73.5, 73.8-73.9	833	418	3.3
Hysterectomy..... 68.3-68.7	639	97	7.4
Bilateral destruction or occlusion of fallopian tubes..... 66.2-66.3	610	224	2.6
Cesarean section..... 74.0-74.2, 74.4, 74.99	599	444	6.4
Endoscopies of the urinary system through natural orifice..... 55.21-55.22, 56.31, 57.32, 58.22	359	83	7.6
Repair of current obstetric laceration..... 75.5-75.6	341	126	2.8
Cholecystectomy..... 51.2	326	117	9.8
Dilation and curettage of uterus after delivery or abortion..... 69.02	298	251	1.8
Tonsillectomy with or without adenoidectomy..... 28.2-28.3	286	238	2.1
Bilateral oophorectomy and salpingo-oophorectomy..... 65.5-65.6	272	7	7.0
Extraction of lens..... 13.1-13.6	248	142	4.0
Division of peritoneal adhesions..... 54.5	196	14	12.2
Operations on muscles, tendons, fascia, and bursa..... 82-83.1, 83.3-83.9	184	76	3.2

Table 10. Number of all-listed and single-listed procedures, and average length of stay for single-listed procedures for female inpatients under 15 years discharged from short-stay hospitals, by selected surgical categories and ICD-9-CM codes: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants]

<i>Surgical category and ICD-9-CM codes</i>	<i>All-listed operations</i>	<i>Single-listed operations</i>	<i>Average length of stay for single-listed operations</i>
	Number in thousands		Days
All operations	948	463	3.7
Total of selected categories	480	253	2.6
Tonsillectomy with or without adenoidectomy..... 28.2-28.3	161	122	1.8
Myringotomy..... 20.0	87	22	1.5
Endoscopies of the urinary system through natural orifice..... 55.21-55.22, 56.31, 57.32, 58.22	44	10	3.4
Appendectomy, excluding incidental..... 47.0	36	32	5.0
Adenoidectomy without tonsillectomy..... 28.6	31	3	1.5
Resection and recession of ocular muscle..... 15.1-15.6	23	20	1.6
Dilation of urethra..... 58.6	22	-	-
Operations on muscles, tendons, fascia, and bursa..... 82-83.1, 83.3-83.9	17	8	3.9
Repair of inguinal hernia..... 53.0-53.1	15	14	2.1
Cardiac catheterization..... 37.21-37.23	12	6	2.1
Tympanoplasty..... 19.4-19.5	7	3	2.2
Surgical removal of tooth..... 23.1	7	4	2.2
Episiotomy..... 73.6	6	5	3.4
Incision and excision of the skull, brain, and cerebral meninges..... 01.0, 01.2-01.6	6	2	31.7
Forceps extraction of tooth..... 23.0	6	2	1.7

Table 11. Number of all-listed and single-listed procedures, and average length of stay for single-listed procedures for female inpatients aged 15–44 years discharged from short-stay hospitals, by selected surgical categories and ICD–9–CM codes: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants]

<i>Surgical category and ICD–9–CM codes</i>	<i>All-listed operations</i>	<i>Single-listed operations</i>	<i>Average length of stay for single-listed operations</i>
	Number in thousands		Days
All operations	10,586	4,678	3.9
Total of selected categories	6,051	3,192	3.5
Episiotomy 73.6	1,484	1,141	3.1
Procedures to assist delivery 72.0–72.9, 73.0–73.5, 73.8–73.9	824	414	3.3
Diagnostic dilation and curettage of uterus 69.09	646	227	2.2
Bilateral destruction or occlusion of fallopian tubes 66.2–66.3	599	221	2.6
Cesarean section 74.0–74.2, 74.4, 74.99	592	439	6.4
Hysterectomy 68.3–68.7	407	83	7.2
Repair of current obstetric laceration 75.5–75.6	337	124	2.8
Dilation and curettage of uterus after delivery or abortion 69.02	294	248	1.8
Unilateral oophorectomy and salpingo-oophorectomy 65.3–65.4	142	17	6.4
Cholecystectomy 51.2	139	48	8.2
Division of peritoneal adhesions 54.5	125	4	9.1
Bilateral oophorectomy and salpingo-oophorectomy 65.5–65.6	124	5	6.9
Tonsillectomy with or without adenoidectomy 28.2–28.3	122	114	2.3
Endoscopies of the urinary system through natural orifice 55.21–55.22, 56.31, 57.32, 58.22	114	27	5.6
Aspiration curettage of uterus for termination of pregnancy 69.51	102	80	1.5

Table 12. Number of all-listed and single-listed procedures, and average length of stay for single-listed procedures for female inpatients aged 45–64 years discharged from short-stay hospitals, by selected surgical categories and ICD–9–CM codes: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants]

<i>Surgical category and ICD–9–CM codes</i>	<i>All-listed operations</i>	<i>Single-listed operations</i>	<i>Average length of stay for single-listed operations</i>
	Number in thousands		Days
All operations	3,962	1,249	7.0
Total of selected categories	1,272	409	5.1
Diagnostic dilation and curettage of uterus 69.09	246	122	2.3
Hysterectomy 68.3–68.7	187	12	7.8
Bilateral oophorectomy and salpingo-oophorectomy 65.5–65.6	125	2	6.7
Cholecystectomy 51.2	109	43	9.5
Endoscopies of the urinary system through natural orifice 55.21–55.22, 56.31, 57.32, 58.22	103	22	8.5
Repair of cystocele and rectocele 70.5	69	14	8.0
Operations on muscles, tendons, fascia, and bursa 82–83.1, 83.3–83.9	59	23	3.9
Operations on the cranial and peripheral nerves 04.0, 04.2–04.9	58	36	3.6
Excision or destruction of breast tissue (partial mastectomy) 85.20–85.23	57	35	2.8
Cardiac catheterization 37.21–37.23	56	22	5.8
Mastectomy 85.4	46	20	8.4
Division of peritoneal adhesions 54.5	41	4	11.1
Extraction of lens 13.1–13.6	41	29	4.2
Bunionectomy 77.5	39	11	5.3
Bronchoscopy 33.21–33.23	36	14	10.0

Table 13. Number of all-listed and single-listed procedures, and average length of stay for single-listed procedures for female inpatients aged 65 and over discharged from short-stay hospitals, by selected surgical categories and ICD-9-CM codes: United States, 1979

[Discharges from non-Federal hospitals, excluding newborn infants]

<i>Surgical category and ICD-9-CM codes</i>	<i>All-listed operations</i>	<i>Single-listed operations</i>	<i>Average length of stay for single-listed operations</i>	
	Number in thousands		Days	
All operations	3,099	1,126	11.6	
Total of selected categories	931	420	12.3	
Extraction of lens	13.1-13.6	198	107	4.1
Endoscopies of the urinary system through natural orifice	55.21-55.22, 56.31, 57.32, 58.22	99	23	10.9
Open reduction of fracture	76.79, 79.2-79.3, 79.5-79.6	86	71	19.0
Cholecystectomy	51.2	77	25	13.3
Arthroplasty and replacement of hip	81.5-81.6	73	57	21.1
Pacemaker insertion, replacement, removal, and repair	37.7-37.8	68	39	10.4
Resection of intestine	45.6-45.8	54	15	18.3
Hysterectomy	68.3-68.7	44	2	11.6
Mastectomy	85.4	42	19	10.3
Diagnostic dilation and curettage of uterus	69.09	39	14	3.5
Repair of cystocele and rectocele	70.5	36	8	7.7
Repair and plastic operations on bone (except facial)	78.0-78.5, 78.7, 78.9, 79.9	30	21	18.0
Bronchoscopy	33.21-33.23	29	13	9.5
Division of peritoneal adhesions	54.5	28	5	15.4
Dilation of urethra	58.6	28	1	10.9

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Appendix I. Technical notes on methods

Statistical design of the National Hospital Discharge Survey

Scope of the survey

The National Hospital Discharge Survey (NHDS) encompasses patients discharged from noninstitutional hospitals, exclusive of military and Veterans' Administration hospitals, located in the 50 States and the District of Columbia. Only hospitals with six or more beds for patient use and those in which the average length of stay for all patients is less than 30 days are included in the survey. Although all discharges of patients from these hospitals are within the scope of the survey, discharges of newborn infants from all hospitals, as well as discharges of patients from Federal hospitals, are excluded from this report.

Sampling frame and size of sample

The sampling frame (universe) for hospitals in the NHDS is the Master Facility Inventory of Hospitals and Institutions (MFI). A detailed description of the development, contents, plans for maintenance, and procedures for assessing completeness of coverage of the MFI has been previously published.¹⁷

The original universe for the survey consisted of 6,965 short-stay hospitals contained in the MFI in 1963. This universe is periodically updated, as shown in table I. The distribution of the hospitals in the NHDS universe and sample for 1979 is given by bed size and geographic region in table II.

The sample for 1979 consisted of 544 hospitals. Of these, 80 refused to participate, and 48 were out of scope either because the hospital had gone out of business or because it failed to meet the definition of a short-stay hospital. Thus 416 hospitals participated in the survey during 1979 and provided approximately 215,000 abstracts of medical records.

Table I. Number of hospitals in the NHDS universe and number of hospitals added to the NHDS universe, by year of addition and year of MFI used: United States, 1963-77

<i>MFI data year</i>	<i>NHDS universe</i>		
	<i>Year added</i>	<i>Number added</i>	<i>Total universe</i>
1963.....	1965	6,965	6,965
1969.....	1972	442	7,407
1972.....	1975	223	7,630
1975.....	1977	273	7,903
1977.....	1979	114	8,017

Sample design

All hospitals with 1,000 or more beds in the universe of short-stay hospitals were selected with certainty in the sample. All hospitals with fewer than 1,000 were stratified, the primary strata being the 24 size-by-region classes shown in table II. Within each primary stratum, the allocation of the hospitals was made through a controlled selection technique so that hospitals in the sample would be properly distributed with regard to ownership and geographic division. Sample hospitals were drawn with probabilities ranging from certainty for the largest hospitals to 1 in 40 for the smallest hospitals.

The within-hospital sampling ratio for selecting sample discharges varied inversely with the probability of hospital selection. The smallest sampling fraction of discharged patients was taken in the largest hospitals, and the largest fraction was taken in the smallest hospitals. The sampling was done to compensate for hospitals that were selected with probabilities proportionate to their size class and to ensure that the overall probability of selecting a discharge would be approximately the same in each size class.

In nearly all hospitals, the daily listing sheet of discharges was the frame from which the subsamples of discharges were selected within the sample hospitals. The sample discharges were selected by a random technique, usually on the basis of the terminal digit(s) of the patient's medical record number that was assigned when

NOTE: A list of references follows the text.

Table II. Distribution of short-stay hospitals in the NHDS universe, in the survey sample, and number of hospitals that participated in the survey by geographic region and bed size of hospital: United States, 1979

<i>Bed size of hospital</i>	<i>All regions</i>	<i>Northeast</i>	<i>North Central</i>	<i>South</i>	<i>West</i>
All sizes		Number of hospitals			
Universe	8,017	1,184	2,148	3,196	1,489
Total survey sample	544	132	153	176	83
Survey participants	416	109	116	128	63
6-49 beds					
Universe	3,521	223	899	1,670	729
Total survey sample	70	8	18	30	14
Survey participants	42	6	13	16	7
50-99 beds					
Universe	1,897	301	486	737	373
Total survey sample	80	14	20	32	14
Survey participants	56	10	13	23	10
100-199 beds					
Universe	1,411	298	412	479	222
Total survey sample	122	26	34	43	19
Survey participants	95	22	27	30	16
200-299 beds					
Universe	624	195	166	165	98
Total survey sample	98	31	27	24	16
Survey participants	76	26	22	15	13
300-499 beds					
Universe	411	113	134	111	53
Total survey sample	98	25	32	29	12
Survey participants	83	22	25	27	9
500-999 beds					
Universe	135	45	48	29	13
Total survey sample	58	19	19	13	7
Survey participants	47	15	13	12	7
1,000 or more beds					
Universe	18	9	3	5	1
Total survey sample	18	9	3	5	1
Survey participants	17	8	3	5	1

the patient was admitted to the hospital. If the daily discharge listing of the hospital did not show the medical record numbers, the sample was selected by starting with a randomly selected discharge and taking every *k*th discharge thereafter.

Data collection and processing

Data collection

Depending on the study procedure agreed on with the hospital administrator, the sample selection and the transcription of information from the hospital records to abstract forms were performed either by the hospital staff or by representatives of the National Center for Health Statistics (NCHS) or by both. In about two-thirds of the hospitals that participated in the NHDS during the year, this work was performed by the medical records department of the hospital. In the remaining

hospitals, the work was performed by personnel of the U.S. Bureau of the Census acting for NCHS.

Survey hospitals used an abstract form to transcribe data from the hospital records (figure I). The form provides space for recording demographic data, admission and discharge dates, zip code of the patient's residence, expected sources of payment, disposition of the patient at discharge, information on diagnoses and surgical operations or procedures, and dates of procedures. All discharge diagnoses and procedures were listed on the abstract in the order of the principal one, or the first-listed one if the principal one was not identified, followed by the order in which all other diagnoses or procedures were entered on the face sheet of the medical record. A revised abstract form was used in 1979 because of changes in the requirements for the collection of race and ethnicity data (figure I). Approximately half of the 1979 data were collected on each version of the form.

CONFIDENTIAL - All information which would permit identification of an individual or of an establishment will be held confidential, will be used only by persons engaged in and for the purposes of the survey, and will not be disclosed or released to other persons or used for any other purpose.

FORM HDS-1
(12-13-76)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
HEALTH RESOURCES ADMINISTRATION
NATIONAL CENTER FOR HEALTH STATISTICS

MEDICAL ABSTRACT - HOSPITAL DISCHARGE SURVEY

A. PATIENT IDENTIFICATION

1. Hospital number

2. HDS number

3. Medical Record number _____

4. Date of admission . . . - -

5. Date of discharge . . . - -

6. Residence ZIP Code

B. PATIENT CHARACTERISTICS

7. Date of birth . . . - -

8. Age (Complete only if Date of Birth not given) Units
 { 1 Years
 2 Months
 3 Days

9. Sex (Mark one) 1 Male 2 Female 3 Not stated

10. Race or Color (Mark one) 1 White 2 Black 3 Other 4 Not stated

11. Marital Status (Mark one) 1 Married 2 Single 3 Widowed 4 Divorced 5 Separated 6 Not stated

12. Expected Source(s) of payment

Principal (Mark one)	Other (Mark all that apply)
1 <input type="checkbox"/>	<input type="checkbox"/> Self-pay
2 <input type="checkbox"/>	<input type="checkbox"/> Workmen's Compensation
3 <input type="checkbox"/>	<input type="checkbox"/> Medicare
4 <input type="checkbox"/>	<input type="checkbox"/> Medicaid
5 <input type="checkbox"/>	<input type="checkbox"/> Other government payments
6 <input type="checkbox"/>	<input type="checkbox"/> Blue Cross
7 <input type="checkbox"/>	<input type="checkbox"/> Other private or commercial insurance
8 <input type="checkbox"/>	<input type="checkbox"/> No charge
9 <input type="checkbox"/>	<input type="checkbox"/> Other (Specify) _____
10 <input type="checkbox"/>	<input type="checkbox"/> Not stated

13. Disposition of Patient (Mark one)

1 Routine discharge/discharged home

2 Left against medical advice

3 Discharged/transferred to another facility or organization

4 Discharged/referred to organized home care service

5 Died

6 Not stated

C. DIAGNOSES

Principal: _____

Other/additional: _____

See reverse side

D. SURGICAL AND DIAGNOSTIC PROCEDURES

Principal: _____

Other/additional: _____

NONE

See reverse side

Completed by _____

Date _____

Figure 1. Medical abstract for the National Hospital Discharge Survey

CONFIDENTIAL - All information which would permit identification of an individual or of an establishment will be held confidential, will be used only by persons engaged in and for the purposes of the survey, and will not be disclosed or released to other persons or used for any other purpose.

FORM HDS-1
(6-13-79)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL CENTER FOR HEALTH STATISTICS

MEDICAL ABSTRACT — HOSPITAL DISCHARGE SURVEY

A. PATIENT IDENTIFICATION

1. Hospital number

2. HDS number

3. Medical record number _____

4. Date of admission . . - -
Month Day Year

5. Date of discharge . . - -
Month Day Year

6. Residence ZIP code

B. PATIENT CHARACTERISTICS

7. Date of birth . . . - -
Month Day Year

8. Age (Complete only if date of birth not given) Units
 { 1 Years
 2 Months
 3 Days

9. Sex (Mark (X) one) 1 Male 2 Female 3 Not stated

10. Race (Mark (X) one) 1 White 3 American Indian/Alaskan Native 5 Other (Specify) _____
 2 Black 4 Asian/Pacific Islander 6 Not stated

11. Ethnicity (Mark (X) one) 1 Hispanic origin 2 Non-Hispanic 3 Not stated

12. Marital status (Mark (X) one) 1 Married 3 Widowed 5 Separated
 2 Single 4 Divorced 6 Not stated

13. Expected source(s) of payment

Principal (Mark (X) one)	Other (Mark (X) all that apply)
1 <input type="checkbox"/>	<input type="checkbox"/> Self-pay
2 <input type="checkbox"/>	<input type="checkbox"/> Workmen's Compensation
3 <input type="checkbox"/>	<input type="checkbox"/> Medicare
4 <input type="checkbox"/>	<input type="checkbox"/> Medicaid
5 <input type="checkbox"/>	<input type="checkbox"/> Other government payments
6 <input type="checkbox"/>	<input type="checkbox"/> Blue Cross
7 <input type="checkbox"/>	<input type="checkbox"/> Other private or commercial insurance
8 <input type="checkbox"/>	<input type="checkbox"/> No charge
9 <input type="checkbox"/>	<input type="checkbox"/> Other (Specify) _____
10 <input type="checkbox"/>	Not stated

14. Disposition of patient (Mark (X) one)

1 Routine discharge/discharged home

2 Left against medical advice

3 Discharged/transferred to another facility or organization

4 Discharged/referred to organized home care service

5 Died

6 Not stated

C. FINAL DIAGNOSES

Principal: _____

Other/additional: _____

See reverse side

D. SURGICAL AND DIAGNOSTIC PROCEDURES

Principal: _____ - -
Date: Month Day Year

Other/additional: _____ - -

_____ - -

_____ - -

_____ - -

NONE See reverse side

Completed by _____ Date _____

Figure 1. Medical abstract for the National Hospital Discharge Survey—Con.

Completed abstract forms for each sample hospital were shipped, along with sample selection control sheets, to a Census Regional Office. Every shipment of abstracts was reviewed, and each abstract form was checked for completeness. Abstracts were then sent to NCHS for processing.

Medical coding and edit

The medical information recorded on the sample patient abstracts was coded centrally by the NCHS staff. A maximum of seven diagnostic codes was assigned for each sample abstract; in addition, if the medical information included surgical or nonsurgical procedures, a maximum of four codes for these procedures was assigned. Following conversion of the data on the medical abstract to computer tape, a final medical edit was accomplished by computer inspection runs and a review of rejected abstracts. If the sex or age of the patient was incompatible with the recorded medical information, priority was given to the medical information in the editing decision.

The system currently used for coding the diagnoses and procedures on NHDS sample patient abstracts is the *International Classification of Diseases, 9th Revision, Clinical Modification*² (ICD-9-CM). Earlier data for 1970-78 were coded according to the *Eighth Revision International Classification of Diseases, Adapted for Use in the United States*⁵ (ICDA), with some modifications. These modifications, which were necessary because of incomplete or ill-defined terminology in the abstracts, are presented elsewhere.¹⁸ It has not been necessary, however, to modify the ICD-9-CM for use in the NHDS.

Both the ICDA and the ICD-9-CM are divided into two main sections: (1) diseases and injuries and (2) surgical and nonsurgical procedures. However, many differences exist between the two classifications.⁶ One major difference is the expansion of categories, which has resulted in greater specificity and detail of both disease and procedure categories in the ICD-9-CM.

The entire procedure section has been extensively restructured in the ICD-9-CM. In addition to an increase in the specificity of the procedures, revisions include the presentation of procedures by anatomical site rather than by surgical specialty as was the case with the ICDA. Moreover, biopsies and other diagnostic procedures, which had previously been grouped into one class (the "A" codes), are now reallocated among the classes according to the particular anatomical site. More types of nonsurgical diagnostic and therapeutic procedures have also been added.

Prior to 1979, data on radiotherapy and physical medicine and rehabilitation (ICDA codes R1-R4) and some obstetrical procedures were not collected by means of the NHDS. The obstetrical procedures not coded

were artificial rupture of membranes; external, internal, and combined version; outlet and low forceps delivery with and without episiotomy; and episiotomy (ICDA codes 75.0-75.6 and 75.9). In addition, data for diagnostic endoscopy, radiography, and other nonsurgical procedures (ICDA codes A4-A9 and R9), although coded, were not published. Starting with 1979 data, however, coding of procedures is done by following the guidelines of the Uniform Hospital Discharge Data Set (UHDDS).⁷ The UHDDS is a minimum set of items uniformly defined and abstracted from hospital medical records. These items were selected on the basis of their continuous utility to organizations and agencies requiring hospital inpatient information.

According to UHDDS guidelines, all procedures are allocated into one of four classes. Classes 1-3 consist of significant procedures; that is, procedures that carry an operative or anesthetic risk or require highly trained personnel, special facilities, or special equipment. Class 4 procedures are not considered significant; therefore, reporting of them is optional. Consequently, with three exceptions, class 4 procedures are not coded in the NHDS. The class 4 procedures that are coded are circumcision (ICD-9-CM code 64.0), episiotomy (code 73.6), and removal of intrauterine contraceptive device (code 97.71). The following ICD-9-CM procedure codes identify UHDDS class 4 procedures: 01.18-01.19, 03.39, 04.19, 05.19, 06.19, 07.19, 08.19, 08.91-08.93, 09.19, 09.41-09.49, 10.29, 11.29, 12.29, 14.19, 15.09, 16.21, 16.29, 18.01, 18.11, 18.19, 20.39, 21.21, 21.29, 22.19, 24.19, 25.09, 25.91, 26.19, 27.29, 27.91, 28.19, 29.19, 31.48-31.49, 33.28-33.29, 34.28-34.29, 37.29, 38.29, 40.19, 41.38-41.39, 42.29, 44.19, 45.19, 45.28-45.29, 48.23, 48.29, 49.21, 49.29, 49.41, 50.19, 51.19, 52.19, 54.29, 55.29, 56.39, 57.39, 58.29, 59.29, 60.18, 61.19, 62.19, 63.09, 64.0, 64.19, 64.91, 64.94, 65.19, 66.19, 67.19, 68.19, 69.92, 70.21, 70.29, 71.19, 73.6, 73.91-73.92, 75.35, 76.19, 78.80-78.89, 81.98, 83.29, 85.19, 86.19, 86.92, 87.09-87.12, 87.16-87.17, 87.22-87.29, 87.36-87.37, 87.39, 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, 97.14-97.89, 99.02-99.24, 99.26-99.59, 99.71-99.79, and 99.82-99.99.

Presentation of estimates

Grouping of procedures

The procedure groupings used in this report are the groups numbered 1-16 in the ICD-9-CM section entitled "Procedure Classification." Specific categories

NOTE: A list of references follows the text.

of operations or procedures, the most detailed of these groupings shown, are subsets of the major groups and are based on the 4-digit codes provided by the ICD-9-CM.

In developing the tables of procedures, an effort was made to maximize specificity of the conditions or procedures consistent with clarity of characterization, the frequency of their occurrence, and their interest.

Patient characteristics not stated

The age and sex of the patient were not stated on the hospital records (the face sheet of the patient's medical record) for less than one-fourth of 1 percent of the discharges. Imputations of these missing items were made

by assigning the patient an age or sex consistent with the age or sex of other patients with the same diagnostic code.

If the dates of admission or discharge were not given and could not be obtained from the monthly sample listing sheet transmitted by the sample hospital, a length of stay was imputed by assigning the patient a length of stay characteristic of the stays of other patients of the same age. For abstracts with an invalid admission date and a valid discharge date the admission date is obtained by subtraction using the imputed length of stay. The reverse is done if the admission date is valid but not the discharge date. If both dates are invalid, neither is imputed.

Rounded numbers

Estimates of the numbers of inpatient discharges, discharges with procedures, and all-listed procedures have been rounded to the nearest thousand for tabular presentation. Therefore, detailed figures within the tables do not always add to totals. Rates and percents were calculated on the basis of unrounded figures and will not necessarily agree with computations made from the rounded data.

Population estimates

The population estimates used in computing rates are unpublished estimates for the U.S. civilian noninstitutionalized population on July 1 of the data year provided by the U.S. Bureau of the Census. The estimates by age and sex and by geographic region are presented in table III and are consistent with the population estimates published in *Current Population Reports, Series P-25*.¹⁹ However, they are not official population estimates of the Bureau of the Census.

Reliability of estimates

Estimation

Statistics produced by the NHDS are derived by a complex estimating procedure. The basic unit of estimation is the sample inpatient discharge abstract. The estimating procedure used to produce essentially unbiased national estimates in the NHDS has three principal components: inflation by reciprocals of the probabilities of sample selection, adjustment for nonresponse, and ratio adjustment to fixed totals. These components of estimation are described in appendix I of two earlier publications.^{20, 21}

Measurement errors

As in any survey, results are subject to nonsampling or measurement errors, which include errors because of

NOTE: A list of references follows the text.

Table III. Civilian noninstitutionalized population by sex, age, and geographic region: United States, July 1, 1979

[Population estimates consistent with Series P-25, *Current Population Reports*, U.S. Bureau of the Census]

Age and geographic region	Both sexes	Male	Female
Population in thousands			
All ages	215,884	104,180	111,704
Northeast	48,232	23,138	25,094
North Central	57,515	28,021	29,493
South	69,941	33,486	36,456
West	40,193	19,533	20,660
0-14 years	50,092	25,563	24,530
Under 1 year	3,279	1,679	1,600
1-4 years	12,362	6,319	6,043
5-14 years	34,451	17,564	16,887
Northeast	10,416	5,324	5,092
North Central	13,433	6,862	6,570
South	16,766	8,540	8,226
West	9,477	4,836	4,641
15-44 years	98,941	48,197	50,744
15-24 years	39,162	19,760	20,402
25-34 years	34,099	16,570	17,528
35-44 years	24,680	11,866	12,813
Northeast	21,679	10,577	11,102
North Central	26,588	13,128	13,460
South	31,808	15,303	16,506
West	18,865	9,189	9,676
45-64 years	43,481	20,786	22,695
45-54 years	22,747	10,995	11,752
55-64 years	20,734	9,792	10,943
Northeast	10,543	4,986	5,557
North Central	11,331	5,468	5,863
South	13,665	6,462	7,203
West	7,942	3,870	4,072
65 years and over	23,369	9,634	13,735
65-74 years	14,950	6,505	8,445
75 years and over	8,419	3,129	5,290
Northeast	5,594	2,251	3,343
North Central	6,163	2,563	3,600
South	7,702	3,181	4,521
West	3,909	1,638	2,271

hospital nonresponse, missing abstracts, information incompletely or inaccurately recorded on abstract forms, and processing errors. Some of these errors were discussed under the previous section entitled "Patient characteristics not stated."

The Institute of Medicine (IOM) has conducted three studies on the reliability of hospital abstract data collection;²²⁻²⁴ the most recent study was on the NHDS. The IOM NHDS study was performed by using data coded according to the ICDA; however, some of the findings are relevant to 1979 NHDS data, even though these data were coded according to the ICD-9-CM.

Some nonsampling errors may exist because of mistakes in the ICD-9-CM that have not been identified. Some sections of the ICD-9-CM have been extensively restructured. In this type of revision, errors,

oversights, and omissions are frequently not identified until the coding scheme has been in use for some time. For example, it has been found that some diagnoses that should have been included in the cataract category (ICD-9-CM code 366) were included in the congenital cataract category (743.3). This was due to an error which has been corrected in the alphabetic index of the ICD-9-CM.

Sampling errors

The standard error is primarily a measure of the variability attributed to a value obtained from a sample as an estimate of a population value. In this report it also reflects part of the measurement error. The value that would have been obtained if a complete enumeration of the population had been made will be contained in an interval represented by the sample estimate plus or minus 1 standard error about 68 out of 100 times and

NOTE: A list of references follows the text.

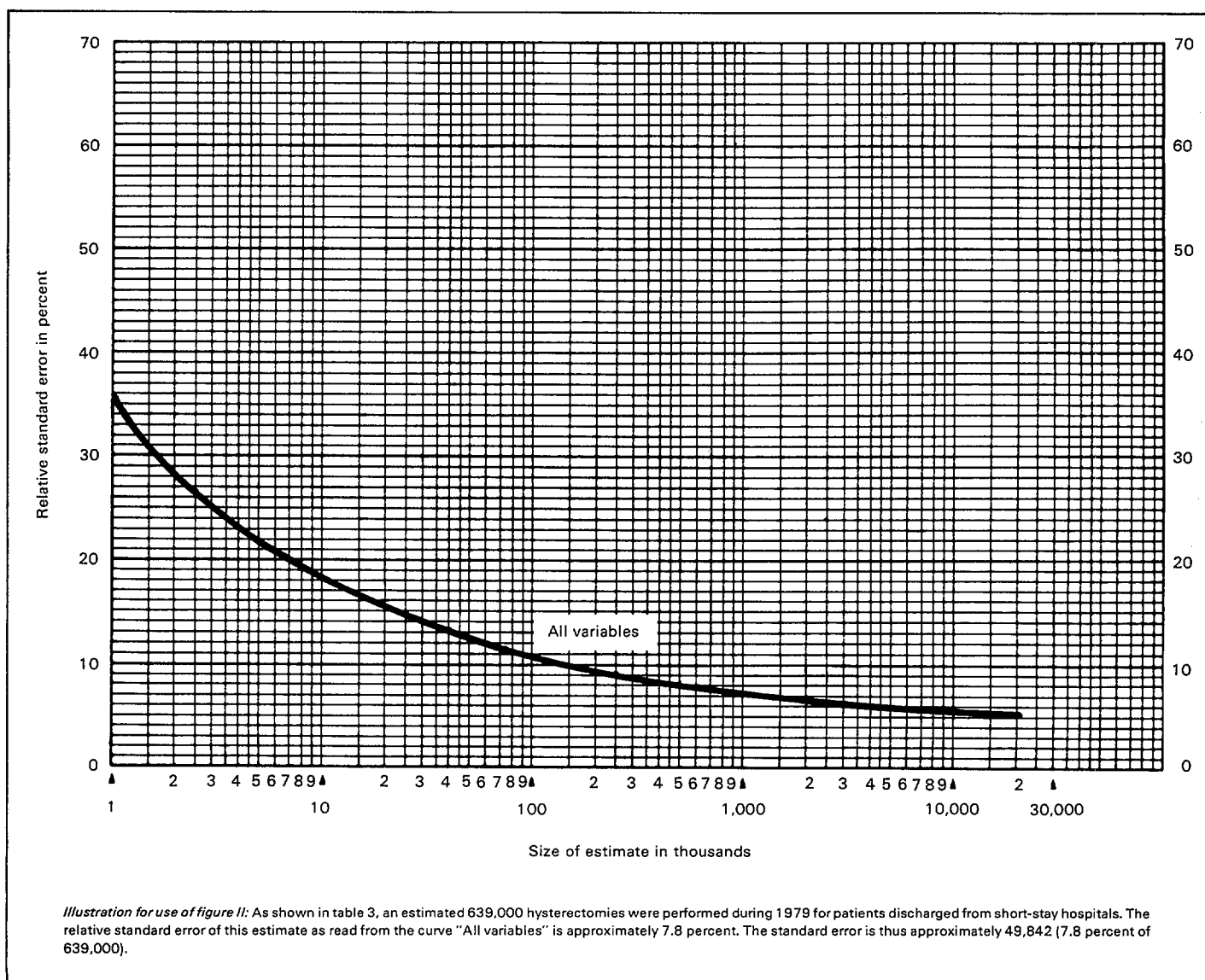


Figure II. Approximate relative standard errors of estimated numbers of procedures for patients discharged from short-stay hospitals

Table IV. Approximate standard errors in days of estimates presented in this report of average lengths of stay for patients with a single-listed procedure

Number of discharges (base of average in thousands)	Average length of stay in days									
	2	4	6	8	10	14	18	22	28	36
	Standard error in days									
10	0.27	0.47	0.68	0.89	1.10	1.53	1.98	2.45	3.16	4.14
20	0.23	0.40	0.57	0.75	0.93	1.30	1.68	2.07	2.68	3.51
30	0.21	0.37	0.52	0.68	0.84	1.18	1.53	1.89	2.45	3.34
40	0.19	0.34	0.49	0.64	0.79	1.11	1.44	1.78	2.31	3.01
50	0.18	0.32	0.46	0.61	0.75	1.06	1.38	1.70	2.19	2.89
60	0.18	0.31	0.45	0.58	0.73	1.03	1.38	1.65	2.14	2.81
80	0.17	0.29	0.41	0.54	0.67	0.94	1.21			
100	0.15	0.27	0.40	0.52	0.65	0.92	1.21			
500	0.11	0.20	0.30	0.40	0.50	0.73	0.95			
1,000	0.09	0.18	0.27	0.37	0.47	0.67	0.88			
2,000	0.08	0.16	0.25	0.34	0.44	0.63				
4,000	0.07	0.15	0.24	0.32	0.41					
6,000	0.07	0.15	0.23	0.32	0.40					
8,000	0.07	0.15	0.23	0.31	0.40					
10,000	0.07	0.14	0.22	0.31	0.39					

Illustration for use of table IV: Table 3 shows that the average length of stay was 7.3 days for the 97,000 patients with a single-listed hysterectomy. Linear interpolation between the values shown in table IV will yield an approximate standard error of 0.48 days for an estimated average length of stay of 7.3 days with a base of 97,000 discharges.

plus or minus 2 standard errors about 95 out of 100 times.

The relative standard error is obtained by dividing the standard error by the estimate. The resulting value is multiplied by 100, which expresses the standard error as a percent of the estimate.

In surveys such as NHDS that use complex sampling techniques, the standard error of one statistic is generally different from that of another, even when the two come from the same survey. To derive standard errors that would be applicable to a wide variety of statistics that could be prepared at a moderate cost, a number of approximations are required. As a result, the figures in this appendix provide general relative standard errors for a wide variety of estimates rather than the specific error for a particular statistic. Approximate relative standard errors have been prepared for measuring the variances applicable to estimates of all procedures performed by specific procedure for the patient characteristics age and sex (figure II). Standard errors have been

prepared for estimates of length of stay for patients with a single-listed procedure (table IV).

Tests of significance

In this report, the determination of statistical inference is based on the *t*-test with critical value of 1.96 (0.05 level of significance), or on using Bonferroni critical values for post-hoc multiple comparisons. The exception to this is that a weighted least-squares technique was used to test the difference between slopes in the regression of average length of stay on number of procedures.

Terms relating to differences, such as "higher" and "less," indicate that the 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 to be not significant.

Appendix II. Definitions of certain terms used in this report

Age.—Patient's age at birthday prior to admission to the hospital inpatient service.

All-listed procedures.—All coded procedures listed on the face sheet of the medical record exclusive of all but three class 4 procedures.

Average length of stay (ALOS).—Total number of patient days accumulated at time of discharge by patients discharged during the year divided by the number of patients discharged.

Discharge.—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.

Discharges with procedures.—Estimated number of patients discharged from non-Federal short-stay hospitals during the year who underwent at least one procedure during hospitalization.

Hospitals.—Short-stay special and general hospitals having six or more beds for inpatient use and an average length of stay of less than 30 days. Federal hospitals and hospital units of institutions are not included.

Patient.—A person formally admitted to the inpatient service of a short-stay hospital for observation, care, diagnosis, or treatment. In this report the number of patients refers to the number of discharges during the year including any multiple discharges of the same in-

dividual from one or more short-stay hospitals. Infants admitted on the day of birth, directly or by transfer from another medical facility, with or without mention of disease, disorder, or immaturity, are included. All newborn infants, defined as those admitted by birth to the hospital, are excluded. The terms "patient" and "inpatient" are used synonymously.

Procedure.—One or more surgical or nonsurgical operations, procedures, or special treatments assigned by the physician to the medical record of patients discharged from the inpatient service of short-stay hospitals. In the National Hospital Discharge Survey all terms listed on the face sheet (summary sheet) of the medical record under captions such as "operation," "operative procedures," and "operations and/or special treatments" are transcribed in the order listed. A maximum of four 4-digit codes are assigned per sample discharge according to ICD-9-CM and NHDS directives. (See "Medical coding and edit" in the "Data collection and processing" section of appendix I for further details.)

Rate of procedures.—Ratio of the number of all-listed procedures during a year to the number of persons in the civilian noninstitutionalized population on July 1 of that year.

Single-listed procedures.—Procedures that represent the only procedure listed on the face sheet of the medical record.

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