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VITAL STATISTICS REPORT



Hospital Discharge Survey Data

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NATIONAL CENTER FOR HEALTH STATISTICS

Surgery in Short-Stay Hospitals: United States, 1968

This report presents summary estimates on the frequency of surgical operations among inpatients discharged from short-stay hospitals in the United States. During 1968 more females than males were hospitalized in short-stay hospitals. Once hospitalized, a relatively higher proportion of males than females had at least one surgical operation (table 1). This and other findings have resulted from the 1968 national sample of short-stay hospitals. (See Technical Notes for definition of short-stay hospitals and other terms used in this report.)

This report consists of two kinds of data: (a) those concerned with the number of discharged *patients* with and without surgery and their characteristics and the hospitals in which they stayed; and (b) those pertaining to the number of *operations* by type and body site and by age and sex (table 2).

Patients and surgery.—Over 59 percent, or 16,801,000, of the patients discharged were females and over 39 percent, or 11,204,000, were males. Of all discharged patients, 39 percent had at least one



Table A. Number and percent of operated discharges from short-stay hospitals and average number of operations per operated patient, including and excluding obstetrical surgery, by sex: United States, 1968

	Including	obstetrical	surgery	Excluding obstetrical surgery					
Sex	Number of discharges in thousands	Percent of discharges	Average number of operations	Number of discharges in thousands	Percent of discharges	Average number of operations			
Both sexes ¹	10,942	100.0	1.3	10,230	100.0	1.4			
Male Female	4,528 6,393	41.4 58.4	1.3 1.4	4,528 5,680	44.3 55.5	1.3 1.4			

¹Includes data for which sex was not stated.

		Obstetrica	l discharges	from short-st	ay hospitals	
Region	Number of females 15-44 years in thousands	Number of obstetrical discharges in thousands	Rate of obstetrical discharges per 10,000 females $\frac{(2)}{(1)}$ x 10,000	Number of discharges with obstetrical surgery in thousands	Proportion of obstetrical patients with obstetrical surgery $\frac{(4)}{(2)}$ x 100	
<u></u>	(1)	(2)	(3)	(4)	(5)	
United States	40,639	4,183	1,029.3	713	17.0	
Northeast North Central South West	9,703 11,067 13,031 6,838	1,032 1,288 1,229 634	1,063.3 1,163.9 942.8 927.9	197 204 205 107	19.1 15.8 16.7 16.8	

Table B. Number, percent, and rate of obstetrical discharges for females 15-44 years of age from short-stay hospitals, by region: United States, 1968

operation during their episode of hospitalization (table 1). More specifically, out of a total of 14.6 million operations, 10.9 million patients averaged 1.3 operations per discharged operated patient. Of these, 58.4 percent were females with an average of 1.4 operations each and 41.4 percent were males with an average of 1.3 operations each. Even when obstetrical surgery is excluded, more females (55.5 percent) than males (44.3 percent) averaged at least one operation (table A). A higher percentage of males (40.4) than females (33.8) is found only when the percentage of operated hospitalized males, relative to total male discharges, is compared with that of nonobstetrical operated females, relative to total females discharged (table 1).

Geographic region. —Hospitals in the Northeast and South Regions showed the largest difference in percentages of their respective patients discharged with surgery. Hospitals in the Northeast had the highest percentage (43.5) of patients discharged with at least one surgical operation, while the South had the highest percentage (65.8) of patients discharged without surgery (table 1). Surgery was performed on 4.5 percent more discharged patients in the Northeast than the national average (39.0 percent). On the other hand, surgery was performed on 4.8 percent less discharged patients in the South than the national average (fig. 1).

In the area of total obstetrical discharges, the widest ranges were again found between the South and Northeast Regions. For the South the percentage of obstetrical (OB) discharges was 13.8 percent of its total discharges; for the Northeast, 16.4 percent; for the North Central, 14.9 percent; and for the West, 14.9 percent (table 1).

Table C. Perc	ent distributi	on of females 15-
44 years of	age and percen	t distribution of
discharges	with obstetri	cal surgery from
short-stay	hospitals, by	region: United
States, 1968	3	

Region	Females, 15-44 years	Discharges with obstetrical surgery
United States	100.0	100.0
Northeast North Central South West	23.9 27.2 32.1 16.8	27.6 28.6 28.8 15.9

Since females 15-44 years of age accounted for 99.4 percent, or 4,156,000, of all obstetrical discharges in the United States, OB rates were computed using this age-sex category and tables B and C reflect these computations. With 32.1 percent of the female population 15-44 years of age in the United States, the South had 4.9 percent more in the childbearing ages than did the North Central (the second highest region), and thus the greatest potential for obstetrical cases (tables B and C). But the discharge rate in the South for OB patients was only 942.8 per 10,000 females 15-44 years of age, whereas the discharge rate in the North Central was 1,163.9 (table B). Once hospitalized, obstetrical surgery was performed on slightly more (16.7 percent) OB patients in the South than in



the North Central (15.8 percent); but the percentages for both regions were below that for the Nation as a whole (table B).

The greatest variation around the national average for percentages of OB patients who received OB surgery was found between the North Central and Northeast Regions, which showed a range of 3.3 percentage points.

The Northeast Region, with the highest percentage (19.1) of its OB patients receiving OB surgery (table B), had the third highest percentage of women 15-44



years of age (table C) and the second highest OB discharge rate (1,063.3, table B). This would indicate not only that women in this region utilized hospital facilities for OB conditions more frequently than did those in the South or West, but that their hospital stay for OB care was more likely to be accompanied by OB surgery than in any other region.

The West Region had the lowest percentage of women in the childbearing ages (16.8) and the lowest rate of OB discharges (927.9). Its percentage of obstetrical surgery (16.8) for OB discharges was very similar to that in the South (16.7). This was 0.2 percent less than the national average in the West and 0.3 percent less in the South.

Hospital size and surgery. -- Surgery was performed on only 28.8 percent of discharged patients from hospitals that maintained less than 100 beds. On the other hand, surgery was performed on over 40 percent of discharged patients from hospitals that maintained 100 beds or more (table 1). This probably reflects the fact that some operations required either equipment or skills available only in larger institutions.

Hospital control and surgery. —A little over 72 percent of all short-stay-hospital patients were discharged from voluntary hospitals. This was over 3 1/3 times as many as those discharged from government hospitals, and almost 11 times as many as those discharged from proprietary hospitals (fig. 2). Over 76 percent of first-listed surgery was performed in voluntary hospitals. This was almost 5 times as much as in government hospitals and nearly 12 times as much as in proprietary hospitals (fig. 2).



Voluntary hospitals had the highest percentage (41.4) of *patients* discharged with surgery; proprietary hospitals, the second highest (38.0); and government hospitals, the lowest (31.1, table 1).

Of the total obstetrical case load for the United States (4,183,000), voluntary hospitals handled 72.3 percent of the cases: government hospitals, 23.4 percent; and proprietary hospitals, 4.2 percent (fig. 3). Considering all hospital types, proprietary hospitals not only had the smallest proportion of obstetrical cases in the country (4.2 percent) and the smallest percentage of OB cases with obstetrical surgery (4.3 percent, fig. 3), but, relative to their own total discharges, performed the smallest percentage of OB surgery (1.6 percent, table 1, fig. 4). Government hospitals, on the other hand, had the highest proportion of OB cases in the United States (23.4) and the highest percentage with surgery (24.1, fig. 3), but devoted a higher percentage of their total case load to obstetrical surgery (2.9) than either proprietary or voluntary hospitals (fig. 4).

Although most patients without surgery were discharged from all types of hospitals, 68.9 percent were discharged from government-controlled hospitals compared with 62.0 percent for proprietary hospitals and 58.6 percent for voluntary hospitals (table 1).

Operations by body site.--When all-listed operations are considered, the rate of operations for females per 100,000 population was higher (8,628) than that for males (6,229, table 3).

The body sites which contributed most to this higher rate were the uterus, cervix, and supporting structures. As a result, these sites were responsible for gynecological surgery having the second highest rate of operations for the total population and the highest rate for a single sex category. Following gynecological surgery was orthopedic surgery for females, with a rate of 880. Orthopedic surgery also ranked high for males, with a rate of 1,071, but the

Table D. Sex ratio of operations performed in short-stay hospitals, by selected body sites: United States, 1968

Operations by selected body sites	Ratio
Ratio of females to males: Breast Thyroid, parathyroid, and other endocrine glands Liver and biliary tract	17.8 4.4 2.3
Ratio of males to females: Repair of hernia Pancreas, spleen, and intra- abdominal blood vessels Bronchus and lung	3.3 2.0 2.1

highest rate of all-listed surgery (637) was for genitourinary surgery of the male reproductive organs. The operational specialty with the highest rate of discharges for all-listed operations for both sexes combined was gastrointestinal and abdominal surgery (1,576). The rate on this type of surgery was higher (1,700) for males than for females (1,454), table 2).

Comparisons between the sexes in rates of operations for particular body sites revealed that females had almost 18 times as high a rate of operations performed on the breast than did males; almost 4½ times as high on the thyroid, parathyroid, and other endocrine glands; and 2½ times as high on the liver and biliary tract (table D). On the other hand, hernial repair surgery for males was performed at a rate 3 1/3 times that for females. Surgery associated with the pancreas, spleen and intra-abdominal blood vessels, and with the bronchus and lungs was performed at twice the rate for females (table D).

Table E. Rate and age ratio of operations performed in short-stay hospitals, by selected body sites: United States, 1968

	Ra	Ratio	
Operations by selected body sites	15 years and over	Under 15 years	Under 15 years to 15 years and over
Pharynx, tonsils, and adenoids Orbit, eyeball, and ocular muscles EarAppendix	174.3 33.9 91.6 149.3	1,485.1 135.0 269.3 194.8	8.5 4.0 2.9 1.3

	To	tal	Discharges with surgery					Discharges without surgery						
Characteristic	disc	harges	To	al	Nonobsta	etrical ⁹	Obstet	rical	Toi	Total		etrical	Obstet	rical
	Number in thou- sands	Per- cent	Number in thou- sands	Per- cent	Number in thou- sands	Per- cent	Number in thou- sands	Per- cent	Number in thou- sands	Per- cent	Number in thou- sands	Per- cent	Number in thou- sands	Per- cent
AGE														
All ages ³	28,070	100.0	10,942	39.0	10,230	36.4	71.3	2.5	17,128	61.0	13,658	48.7	3,470	12.4
Under 15 years 15-44 years 45-64 years 65 years and over	3,988 12,036 6,517 5,520	100.0 100.0 100.0 100.0	1,998 4,718 2,641 1,583	50.1 39.2 40.5 28.7	1,996 4,011 2,637 1,583	50.0 33.3 40.5 28.7	3 706 4 •••	0.1 5.9 0.1	1,990 7,319 3,876 3,937	49.9 60.8 59.5 71.3	1,975 3,869 3,871 3,937	49.5 32.1 59.4 71.3	15 3,450 5	0.4 28.7 0.1
Both sexcs ⁴	28,070	100.0	10,942	39.0	10,230	36.4	713	2.5	17,128	61.0	13,658	48.7	3,470	12.4
Male Female	11,204 16,801	100.0 100.0	4,528 6,393	40.4 38.1	4,528 5,680	40.4 33.8	713	4.3	6,676 10,408	59.6 62.0	6,676 6,938	59.6 41.3	3,470	20.7
GEOGRAPHICAL REGION													-	
All regions	28,070	100.0	10,942	39.0	10,230	36.4	713	2.5	17,128	61.0	13,658	48.7	3,470	12.4
Northeast North Central South West	6,279 8,679 8,872 4,241	100.0 100.0 100.0 100.0 100.0	2,732 3,403 3,038 1,768	43.5 39.2 34.2 41.7	2,535 3,199 2,833 1,661	40.4 36.9 31.9 39.2	197 204 205 107	3.1 2.4 2.3 2.5	3,546 5,275 5,833 2,473	56.5 60.8 65.8 58.3	2,712 4,191 4,809 1,945	43.2 48.3 54.2 45.9	835 1,084 1,024 528	13.3 12.5 11.5 12.4
HOSPITAL SIZE														
All sizes	28,070	100.0	10,942	39.0	10,230	36.4	713	2.5	17,128	61.0	13,658	48.7	3,470	12.4
6-99 beds 100-499 beds 500 beds or more	6,208 17,541 4,322	100.0 100.0 100.0	1,788 7,301 1,854	28.8 41.6 42.9	1,682 6,849 1,699	27.1 39.0 39.3	106 451 156	1.7 2.6 3.6	4,420 10,240 2,467	71.2 58.4 57.1	3,706 8,080 1,872	59.7 46.1 43.3	714 2,160 596	11.5 12.3 13.8
HOSPITAL CONTROL														
All types	28,070	100.0	10,942	39.0	10,230	36.4	713	2.5	17,128	61.0	13,658	48.7	3,470	12.4
Voluntary Government Proprietary	20,264 5,916 1,890	100.0 100.0 100.0	8,382 1,842 718	41.4 31.1 38.0	7,871 1,670 688	38.8 28.2 36.4	511 171 31	2.5 2.9 1.6	11,882 4,074 1,171	58.6 68.9 62.0	9,368 3,265 1,025	46.2 55.2 54.2	2,514 809 147	12.4 13.7 7.8

Table 1. Number¹ and percent¹ distribution of patients discharged from short-stay hospitals, with and without surgery and nonobstetrical and obstetrical surgery, by age, sex, geographic region, haspital size, and hospital control: United States, 1968 [Excludes newborn]

¹Computations are based on unrounded figures, but rounded figures do not always add to totals. ¹Includes obscetrical patients with nonobstetrical surgery. ³Includes discharge data for which age was not stated. Includes discharge data for which sex was not stated.

NOTE: Symbol ... used in table denotes category not applicable.

Although most surgery was performed on those 15 years of age and over, for some types of operations the rates were higher for those under 15 years of age (table E). Leading the list for this younger age group was otorhinolaryngological surgery where the pharynx, tonsils, and adenoids accounted for most of this type surgery and at a rate 8½ times higher than that for the older age group. Another contributing factor for this higher rate of otorhinolaryngological surgery for those under 15 years of age was that this age group's third highest rate of operations was due to the number performed on the ear. These operations were performed

at approximately 3 times the rate (table E) for older patients.

Operations associated with the orbit, eyeball, and ocular muscles ranked second for those under 15 years of age or at 4 times the rate of older groups. The fourth highest rate of operations for the younger age group was for first-listed appendectomies¹ which were performed at 1 1/3 times the rate of those for patients 15 years of age and over.

 $^{1}\mathrm{If}$ the estimated number of all-listed appendectomies were used, it would include those done in conjunction with other surgery.

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Number and rate per 100,000 population of all-listed operations for inpatients discharged from short-stay hospitals, by **specialty** and body site, and by age and sex: United States, 1968 Table 2.

 $\left[Excludes newborn infants and all Federal hospitals \vec{j} \right]$

		(in Thousands)				Rate				
Specialty and body site, ICDA ¹ codes		A11 a	ages	/		All ages				
	Both sexes ²	Male	Female	15+ years	Both sexes ²	Male	Female	15+ years		
All operations	14,624	5,855	8,742	12,254	7,487	6,229	8,628	9,020		
Excluding obstetrical procedures	13,888	5,855	8,006	11,520	7,110	6,229	7,901	8,480		
Neurosurgery01-06	211	116	95	184	108	123	94	135		
Skull, brain, and cerebral meninges01-02 Spinal cord, nerve roots, and spinal meninges03 Peripheral and sympathetic nerves or ganglia05-06	79 27 105	49 16 50	30 11 54	61 25 99	41 14 54	53 17 53	29 11 54	44 18 73		
Ophthalmology10-18	527	247	278	411	270	263	274	303		
Orbit, eyeball, and ocular muscles	126 90	61 43	65 46	46 76	65 46	65 46	64 46	34 56		
Lens	223	48 95	39 127	73 216	45 114	51 101	39 125	53 159		
Otorhinolaryngology20-22,27	1,810	939	867	728	927	999	856	536		
Ear	285 325 81 1,120	161 173 51 553	122 151 29 564	124 292 74 237	146 166 41 573	172 184 55 588	121 149 29 557	92 215 54 175		
Oral and buccal surgery24-26	380	164	215	328	195	174	212	242		
Teeth and gums24 Salivary glands, buccal cavity, tongue, and palate25-26	311 69	128 37	182 33	276 52	159 35	136 39	180 32	203 38		
Thoracic surgery30-35	288	170	117	261	147	181	116	192		
Heart, pericardium, and intrathoracic vessels30-32 Bronchus and lung33,35 Chest wall, pleura, and mediastinum	112 64 111	64 42 64	48 22 47	92 63 106	57 33 57	68 45 68	48 21 46	68 47 78		
Gastrointestinal and abdominal surgery28,40-57	3,078	1,598	1,473	2,728	1,576	1,700	1,454	2,008		
Repair of hernia	710 426	535 142	174 284	550 390	363 218	569 151	172 280	405 287		
Appendix ³	270 319 317 120 389 470 59	$164 \\ 178 \\ 134 \\ 64 \\ 210 \\ 134 \\ 38$	105 140 182 55 179 334 21	257 204 304 115 386 466 56	138 163 162 61 199 240 30	175 189 142 68 223 143 40	103 138 180 55 176 330 20	189 150 224 85 284 343 41		
Genitourinary surgery60-09	1,203	902	299	956	616	960	295	704		
Kidney	73 100 163 268 233 172 76 119	36 53 94 120 233 172 76 119	37 47 68 147 	67 88 154 186 233 105 75 47	37 51 83 137 120 88 39 61	38 56 100 127 248 182 81 126	37 46 67 145 	49 65 113 137 172 78 55 35		
Gynecological surgery70-75	2,658		2,658	2,645	1,361		2,623	1,947		
Ovary	385 154 1,788 331	· · · · · · · · · ·	385 154 1,788 331	381 153 1,785 325	197 79 915 170		380 152 1,764 327	280 113 1,314 240		
Obstetrical procedures76.6-78.9	736		736	734	377		727	540		
Orthopedic surgery80-87	1,903	1,006	892	1,624	974	1,071	880	1,195		
Bone80-82 Joint structures83-84 Muscles, tendons, fascia, and bursa83-84 Amputation and disarticulation of extremities87	1,029 537 268 69	523 306 136 42	503 230 132 27	834 504 220 65	527 275 137 35	557 325 144 45	497 227 130 27	614 371 162 48		
Other general and specialized surgery	1,829	713	1,112	1,655	937	758	1,097	1,218		
Thyroid, parathyroid, and other endocrine glands08-09 Breast, male and female	88 416 286 1,040	15 20 120 558	72 395 165 480	84 413 273 885	45 213 146 532	16 21 127 593	71 390 163 473	62 304 201 652		

¹National Center for Health Statistics: <u>International Classification of Diseases</u>, <u>Adapted for Indexing Hospital Records by Dis</u>-<u>eases and Operations</u>. PHS Pub. No. 719 (Rev.), <u>Public Health Service</u>. Washington, U.S. Government Printing Office, Dec. 1962. ³Includes discharge data for which sex was not stated. ³Limited to estimated number of first-listed appendectomies to exclude majority that were performed incidental to other abdomi-nal surgery.

nal surgery.

NOTE: Symbol ... used in table denotes category not applicable.

Technical Notes

SOURCE OF DATA. The Hospital Discharge Survey collects data on patients discharged from noninstitutional short-stay hospitals located in the 50 States and the District of Columbia. All Federal hospitals are excluded. Although newborn infants are included in the survey, they are excluded in this report. Information for this report was obtained from a national sample of approximately 400 hospitals which furnished data on slightly over 210,000 medical abstracts of hospital discharges.

SAMPLING ERRORS. The estimates presented are subject to sampling error since a sample rather than the entire population has been surveyed. The standard errors appropriate for the estimates of the number of discharges are shown in table I.

ROUNDING. Due to rounding, detailed figures within tables may not add to totals. However, all rounded numbers are obtained from computations done on unrounded numbers.

DEFINITIONS. *Short-stay hospitals* are general and short-term special hospitals that have six beds or more for inpatient use and an average stay of less than 30 days.

A *patient or inpatient* is a person who has been formally admitted to the inpatient service of a shortstay hospital for observation, care, diagnosis, or treatment. Newborn infants who are defined as those admitted to the hospital by birth only are not included in this report.

A *discharge* is the formal release of an inpatient 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. Total discharges could include more than one period of hospitalization for any one patient, but no distinction is made between one and more than one hospital episodes per patient. "Discharges" and "patients (or inpatients)discharged" are used synonymously.

Discharge rate is the ratio of the number of hospital discharges during a specified year to the number of persons in the civilian, noninstitutional population as of July 1 of the specific year. Rates in this report are given for 100,000 persons in the population, unless otherwise stated.

Operation(s) is one or more surgical operations, procedures, or special treatments that are assigned by the physician to the medical record of patients discharged from the inpatient service. A maximum of three 3-digit codes are assigned per sample discharge, based on the operations and treatments section of the International Classification of Diseases, Adapted (ICDA) and Hospital Discharge Survey directives. All-listed operations are the aggregate of individually coded operations, procedures, and special treatments exclusive of spinal puncture, endoscopy, radiography, shock therapy, and certain other treatments not generally considered as surgery.

First-listed operation is the operation listed first on the patient's medical abstract.

Operated patient is a patient for whom at least one operation or procedure is performed during one period of hospitalization.

Obstetrical procedures or obstetrical surgery is used synonymously in this report and includes operations inducing or assisting delivery, operations after delivery or abortion, and cesarean section and other obstetrical operations. Hysterectomies and sterilizations by division or ligation of fallopian tubes are excluded as obstetrical procedures. Excluded from the survey completely are procedures involving low forceps and episiotomies, which, for the purposes of this report, are not considered surgery.

GROUPING OF OPERATIONS. Estimates of the number, rate, and distribution of operations by surgical specialty and body site are based on the classification of operations reported on sample patient abstracts in the 3-digit detail provided by the ICDA, revised edition, 1962. The groupings by surgical specialty that are used in this report are similar to but somewhat broader than the major classes (numbered 1-15) of the ICDA section "Classification of Operations and Treatments." Not used in this report is ICDA class No. 16—Certain Nonsurgical Procedures.

Subgroupings of operations are shown for most of the surgical specialties. These are described in terms of the body site involved with two minor exceptions, "repair of hernia" and "amputation and disarticulation of extremities."

TABLE I. APPROXIMATE STANDARD ERROR OF ESTI-MATED NUMBER OF DISCHARGES

Size of estimate	Standard error
10,000	1,830 4,710 7,610 28,850 55,000 263,500 524,000 1,566,000

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