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From Vital and Health Statistics of the National Center for Health Statistics Number 109 • May 23, 1985

Hospital Use by Children: United States, 1983

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Introduction

During 1983 an estimated 3.7 million children under 15 years of age were discharged from short-stay non-Federal hospitals in the United States. They spent an average of 4.6 days in the hospital. These and other statistics presented in this report are based on data collected by the National Center for Health Statistics, by means of the National Hospital Discharge Survey, a continuous voluntary survey. In 1983 data for the survey were abstracted from the medical records of approximately 206,000 patients discharged form 418 participating hospitals. A brief description of the sample design, source of data, and definition of terms used can be found in the Technical notes. The design of the survey has been described in a published report.[1]

Although other reports[2–4] based on the 1983 survey include data on children under 15 years of age, this report contains data on the four age groups within the under 15 years group: under 1 year, 1–4 years, 5–9 years, and 10–14 years. Data for the age groups are presented by selected characteristics of discharges, diagnoses, and procedures. Estimates of the number of discharges, rates per 1,000 population, and average lengths of stay are shown for children. Summary statistics for 1973 and 1978 are also presented. This is the first detailed presentation of data from the survey on the four specific age groups of children. The report is also intended to update the U.S data from an earlier comparative study, "Hospital Use by Children in the United States and Canada,"[5] which was based on 1978 data.

Data for newborn infants are excluded from this report. The diagnostic and procedural data are coded according to the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM).[6]

Highlights

- The discharges of children under 1 year of age increased from 15 percent of all children's discharges in 1973 to 26 percent in 1983.
- In 1983 males had a higher rate of discharges than females for the age groups under 1 year, 1–4 years, and 5–9 years.
- The average length of stay for children did not differ significantly by sex or geographic region.
- By region, the South had the largest number of children's discharges, an estimated 41 percent of the total.
- Private insurance was the leading principal expected source of payment of hospital costs for children.
- Medicaid and the self-pay category were more likely to be the expected source of payment for children under 1 year of age and 1–4 years than for older children.
- Diseases of the respiratory system accounted for a fourth of the discharges for children under 1 year of age, more than a third of the hospitalizations for children 1–4 and 5–9 years, and 20 percent of the discharges for the 10–14 years age group.
- Disorders relating to short gestation and unspecified low birth weight was a major diagnosis for children under 1 year of age.
- Pneumonia was an important diagnosis for children 1–4 years; and chronic disease of tonsils and adenoids was important for children 5–9 years and 10–14 years of age.
- For children under 15 years of age, tonsillectomies with or without adenoidectomies were the most frequently performed procedures, followed by myringotomies.

Table 1. Numbers, rates, and average lengths of stay for patients under 15 years of age (excluding newborn infants) discharged from short-stay non-Federal hospitals, by age groups and sex: United States, 1973, 1978, and 1983

Age group	1973			1978			1983		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Number of discharges								
Under 15 years	3,933	2,231	1,700	3,488	1,946	1,542	3,654	2,084	1,570
Under 1 year	580	337	243	691	394	297	936	542	394
1–4 years	1,214	703	510	1,044	601	443	1,146	664	482
5–9 years	1,138	639	499	910	506	404	769	451	319
10–14 years	1,001	552	448	843	445	398	803	427	375
	Rate per 1,000 population								
Under 15 years	70.0	77.9	61.8	67.1	73.3	60.7	70.8	79.0	62.3
Under 1 year	185.6	211.0	158.5	207.7	231.6	182.6	255.8	289.2	220.7
1–4 years	88.4	100.3	75.9	84.2	94.7	73.1	80.9	91.7	69.6
5–9 years	62.2	68.5	55.7	52.6	57.3	47.7	48.1	55.1	40.8
10–14 years	47.6	51.5	43.5	44.5	46.0	43.0	45.1	47.0	43.2
	Average length of stay in days								
Under 15 years	4.5	4.5	4.6	4.4	4.5	4.4	4.6	4.5	4.6
Under 1 year	6.4	6.2	6.7	5.9	5.7	6.2	6.6	6.5	6.7
1–4 years	4.3	4.1	4.6	4.0	4.0	4.0	3.7	3.6	3.7
5–9 years	3.8	3.8	3.7	3.6	3.7	3.4	3.4	3.4	3.3
10–14 years	4.6	4.6	4.6	4.7	4.9	4.5	4.6	4.6	4.7

Children's discharges

Trends by age and sex

The 3.8 million discharges for children under 15 years of age in 1983 translated to a rate of 70.8 per 1,000 children in the population (table 1). Neither the total number nor the rate changed significantly from 1973 through 1983, but there were changes during this period for specific age groups.

Children under 1 year of age, who had the highest discharge rates of the four children's age groups, were the only age group for which the numbers and rates of discharges increased. They accounted for 15 percent of children's discharges in 1973, expanded to 20 percent in 1978, and to 26 percent in 1983. The discharge rate for children in this age group grew 38 percent from 1973 through 1983. The 1–4 years age group made up virtually the same proportion of the discharges, approximately 30 percent, in each of the 3 years.

The hospitalizations of children 5–9 years of age decreased during the period 1973–83. This group made up 29 percent of children's discharges in 1973, but fell to 26 percent in 1978, and to 21 percent in 1983. The discharge rate of the 5–9 years age group decreased 23 percent during the period, with the rate for males declining 20 percent and the rate for females falling 27 percent. The number of discharges for children 10–14 years of age also decreased. Children in this group accounted for 25 percent of all children's discharges in 1973, 22 percent in 1983.

Neither the total average length of stay for all children under 15 years nor the lengths of stay for the four specific age groups changed significantly from 1973 through 1983. The longest lengths of stay were for children under 1 year of age. The 5–9 years age group had lengths of stay below the average for all children in 1973, 1978, and 1983.

Average lengths of stay were approximately the same for both males and females in all the age groups in the period 1973–83. However, discharge rates were higher for males than for females under 15 years throughout the period. Not all the sex differences in discharge rates for the specific age groups were significant, but males had consistently higher discharge rates than females in the 1–4 years age group. In 1983 males also had higher discharge rates than females in the under 1 year and 5–9 years age groups.

Geographic distribution

The South Region of the country had the largest number of children's discharges in 1983 (table 2). Although the South had the largest population of children of any region, this high number of discharges also reflects a children's discharge rate that was higher than the average for all the regions. In two of the three geographic divisions that make up the region, East South Central and West South Central, the discharge rates were higher than the average.

The North Central Region had the second highest population of children and the second highest number of children's discharges. Within the region, the West North Central Division had a discharge rate that was higher than the average.

The third-ranking region in number of discharges was the Northeast, even though it had the smallest regional population of children. The New England Division of this region had the smallest number of children's discharges of any division because of its small population of children and a discharge rate for children that was well below the average for the country. Among the regions, the West had the smallest number and rate of children's discharges. This is primarily attributable to the very low discharge rate for the Pacific Division of the region. Lengths of stay for children by region

Table 2. Numbers, rates, and average lengths of stay for patients under 15 years of age (excluding newborn infants) discharged from short-stay non-Federal hospitals, by geographic regions and divisions: United States, 1983

Region and division	Number in thousands	Rate per 1,000 population	Average length of stay in days
All regions	3,654	70.8	4.6
Northeast	682	68.8	4.5
New England	125	50.9	4.5
Middle Atlantic	557	74.7	4.5
North Central	987	74.5	4.8
East North Central	622	66.6	4.9
West North Central	365	93.2	4.5
South	1,507	83.9	4.6
South Atlantic	511	62.7	4.3
East South Central	384	110.8	4.3
West South Central	612	96.5	5.1
West	478	45.7	4.0
Mountain	194	62.8	4.0
Pacific	284	38.5	4.1

Table 3. Numbers, percent distributions, and average lengths of stay for patients under 15 years of age (excluding newborn infants) discharged from short-stay non-Federal hospitals, by expected principal sources of payment and age groups: United States, 1983

Source of payment	Under 15 years	Under 1 year	1–4 years	5–9 years	10–14 years
			Number of discharges		
Total	3,654	936	1,146	769	803
Medicaid	801	248	288	139	126
Private insurance	2,295	485	692	542	575
Self pay	325	129	98	47	51
Other	233	74	68	41	51
			Percent distribution		
Total	100.0	100.0	100.0	100.0	100.0
Medicaid	21.9	26.5	25.1	18.1	15.7
Private insurance	62.8	51.8	60.4	70.5	71.7
Self pay	8.9	13.8	8.5	6.2	6.3
Other	6.4	8.0	5.9	5.2	6.3
			Average length of stay in days		
Total	4.6	6.6	3.7	3.4	4.6
Medicaid	5.0	6.8	4.2	3.6	5.0
Private insurance	4.2	5.9	3.4	3.3	4.6
Self pay	5.2	7.4	3.7	3.3	4.4
Other	5.7	8.5	4.4	4.5	4.3

were not significantly different from the average for the country as a whole.

Source of payment

The expected principal sources of payment for children's hospitalizations are shown in table 3. Private insurance was the leading expected source for children in each of the four age groups. It was the expected source of payment for more than 70 percent of the hospitalizations of children 5–9 and 10–14 years of age and a smaller proportion of the hospitalizations of children 1–4 years and under 1 year, 60 percent and 52 percent respectively.

Medicaid, a government health program that provides benefits to low-income persons, was the second most common expected source of payment for children. It was more likely to be the expected principal source of payment for children under 1 year and 1–4 years of age than for children in the two older age groups.

The self-pay category is one in which the costs of hospitalization are expected to be paid by the family rather than any insurance or other program. More of the hospitalizations of children under 1 year, 14 percent, fell into this category than did hospitalizations of other age groups, though children 1–4 years of age were more likely to have hospital

stays in the self-pay category than were older children.

The average length of stay varied somewhat for hospitalizations with different expected principal sources of payment. For children under 15 years of age as a group, average stays were shorter when private insurance was the payment source than when Medicaid or self pay were. Children under 1 year in the self-pay category had significantly longer average stays than those covered by private insurance. The 1–4 years age group had significantly longer stays when covered by Medicaid than when covered by private insurance. However, for children 5–9 and 10–14 years of age, average stays were not significantly different for these three payment sources.

Diagnoses

Under 1 year of age

Estimates of numbers and rates of discharges and of the average lengths of stay for children under 1 year of age are shown in table 4 by selected diagnoses and sex. Three diagnostic categories accounted for 61 percent of the discharges of children in this age group: diseases of the respiratory system, certain conditions originating in the perinatal period, and diseases of the digestive system.

Diseases of the respiratory system were responsible for one-fourth of the discharges of the under 1 year age group. Acute bronchitis and bronchiolitis, other acute respiratory infections, and pneumonia accounted for more than three-fourths of the respiratory disease discharges.

Certain conditions originating in the perinatal period made up 22 percent of the total discharges. Disorders relating to short gestation and unspecified low birth weight accounted for 42 percent of the discharges in the category. It should be pointed out that babies who remain in the hospital where they are born are categorized as newborn infants and are not included in this report. However, infants admitted or transferred to another hospital at any time after birth are considered patients under 1 year of age in the hospital to which they are admitted or transferred. This latter group, made up mainly of very young babies, accounts for a large proportion of discharges in the perinatal conditions category.

Diseases of the digestive system made up 14 percent of the total discharges of children under 1 year of age. Two diagnoses accounted for three-fourths of the digestive disease discharges: noninfectious enteritis and colitis (54 percent) and inguinal hernia (22 percent).

The discharge rate for males under 1 year was almost a third larger than the rate for females, and the differences in rates by sex were even larger for some of the diagnostic categories. For example, the discharge rate for diseases of the respiratory system was 49 percent higher for males, and within the category, males had a 73-percent higher rate for other acute respiratory infections. Males also had a 47-percent higher discharge rate for diseases of the digestive system and made up 89 percent of the discharges for inguinal hernia.

The average length of stay for the under-1-year age group was 6.6 days, ranging from 1.7 days for inguinal hernia to 19.5 days for disorders relating to short gestation

Table 4. Numbers, rates, and average lengths of stay for patients under 1 year of age (excluding newborn infants) discharged from short-stay non-Federal hospitals, by selected first-listed diagnoses and sex: United States, 1983

Diagnostic category and ICD–9–CM code[1]	*Both sexes*	*Male*	*Female*	*Both sexes*	*Male*	*Female*	*Both sexes*	*Male*	*Female*
	Number in thousands			Rate per 1,000 population			Average length of stay in days		
Total[2]	936	542	394	255.8	289.2	220.7	6.6	6.5	6.7
Infectious and parasitic diseases 001–139	75	41	34	20.4	21.8	19.0	4.9	4.5	5.4
Diseases of the nervous system and sense organs 320–389	61	32	29	16.7	17.1	16.4	5.2	6.1	4.1
Otitis media and eustachian tube disorders 381,382	33	17	16	8.9	9.0	8.9	3.3	3.2	3.3
Diseases of the respiratory system 460–519	237	144	92	64.6	77.0	51.6	4.5	4.6	4.4
Acute bronchitis and bronchiolitis 466	62	37	24	16.8	20.0	13.5	4.6	4.5	4.8
Other acute respiratory infections 460–465	48	31	17	13.2	16.6	9.6	3.3	3.5	2.9
Pneumonia 480–486	76	44	32	20.7	23.2	18.1	5.2	5.3	4.9
Diseases of the digestive system 520–579	127	77	50	34.6	41.0	27.9	3.9	3.8	4.1
Inguinal hernia 550	27	24	*	7.5	12.6	*	1.7	1.8	*
Noninfectious enteritis and colitis 555–558	69	35	33	18.7	18.7	18.8	4.3	4.5	4.0
Congenital anomalies 740–759	75	45	30	20.4	23.9	16.7	6.3	6.0	6.7
Certain conditions originating in the perinatal period 760–779	206	115	90	56.2	61.6	50.5	12.8	12.7	13.0
Disorders relating to short gestation and unspecified low birth weight 765	86	49	38	23.6	26.0	21.1	19.5	19.9	19.0
Intrauterine hypoxia, birth asphyxia, and other respiratory conditions of newborn 768–770	35	21	14	9.5	11.2	7.6	12.1	9.5	16.2
Hemolytic disease of fetus or newborn due to isoimmunization and other perinatal jaundice 773–774	33	20	14	9.1	10.6	7.6	3.0	3.0	3.0
Symptoms, signs, and ill-defined conditions 780–799	32	19	13	8.8	10.4	7.2	4.1	4.2	3.9
Injury and poisoning 800–999	29	17	12	7.9	9.1	6.7	4.3	3.5	5.4
Injuries (including fractures) 800–959	20	12	*9	5.5	6.2	*4.8	4.5	4.0	*5.1

[1]Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM).
[2]Includes diagnostic conditions not shown in table.

and unspecified low birth weight. A much longer than average stay, 12.8 days, was recorded for "certain conditions originating in the perinatal period." This category contained not only the disorders relating to short gestation and unspecified low birth weight but intrauterine hypoxia and other respiratory conditions of the newborn, for which the average length of stay was 12.1 days. On the other hand, the length of stay for hemolytic disease of newborn due to isoimmunization and other perinatal jaundice was only 3.0 days, well below the average for all conditions.

In most diagnostic categories the average lengths of stay for males and females under 1 year varied by less than 1 day. There were some exceptions, though. The stays of males were 2 days longer than stays of females for diseases of the nervous system and sense organs. Females had stays 1.9 days longer for injury and poisoning and 6.7 days longer for intrauterine hypoxia and other respiratory conditions of the newborn.

1–4 years of age

Children 1–4 years of age had a total of 1.1 million discharges in 1983 (table 5). A greater number of these discharges were for diseases of the respiratory system, 420,000 (37 percent), than for any other diagnostic category. Every fourth diagnosis in the respiratory disease category for this age group was pneumonia. Other acute respiratory infections contributed an additional 21 percent of the respiratory disease diagnoses. Chronic disease of tonsils and adenoids and asthma were also important diagnoses for this age group, accounting for 18 and 15 percent, respectively, of the discharges for respiratory diseases.

Three categories were very similar in importance as discharge diagnoses for the 1–4 years age group, each making up 12 percent of total discharges. One category was "diseases of the nervous system and sense organs." The major diagnosis within this category was otitis media and eustachian tube disorders, which was responsible for 63 percent of the discharges in the category. The second category, diseases of the digestive system, also had one main diagnosis, noninfectious enteritis and colitis, which accounted for 53 percent of the discharges in the category. Almost half of the third category, injury and poisoning, was made up of discharges for a variety of injuries (other than fractures), such as concussions, sprains, lacerations, and burns.

The discharge rate for males 1–4 years of age was almost one-third larger than the rate for females. In the largest diagnostic category, diseases of the respiratory system, the male discharge rate was 50 percent higher than the female rate. Within the category, the sex difference was particularly marked for chronic disease of tonsils and adenoids, for which the male discharge rate was 65 percent higher. Males also made up 71 percent of the discharges for chronic and unspecified bronchitis.

In addition, a greater than average sex difference in discharge rates was found for the "diseases of the digestive system." The male rate was 44 percent higher for the category

Table 5. Numbers, rates, and average lengths of stay for patients under 1–4 years of age discharged from short-stay non-Federal hospitals, by selected first-listed diagnoses and sex: United States, 1983

Diagnostic category and ICD–9–CM code[1]	*Both sexes*	*Male*	*Female*	*Both sexes*	*Male*	*Female*	*Both sexes*	*Male*	*Female*
	Number in thousands			Rate per 1,000 population			Average length of stay in days		
Total[2]	1,146	664	482	80.9	91.7	69.6	3.7	3.6	3.7
Infectious and parasitic diseases 001–139	68	37	31	4.8	5.1	4.5	4.0	4.0	3.9
Diseases of the nervous system and sense organs 320–389	137	76	61	9.7	10.4	8.9	3.0	2.9	3.1
Disorders of the central nervous system 320–336,340–349	22	12	11	1.6	1.6	1.5	7.0	7.0	7.1
Otitis media and eustachian tube disorders 381,382	86	49	37	6.1	6.8	5.4	2.2	2.2	2.3
Diseases of the respiratory system 460–519	420	257	164	29.7	35.4	23.6	3.3	3.3	3.3
Acute bronchitis and bronchiolitis 466	38	24	14	2.7	3.3	2.1	3.3	3.2	3.5
Other acute respiratory infections 460–465	90	56	34	6.3	7.7	4.9	2.9	2.8	2.9
Chronic disease of tonsils and adenoids 474	75	48	27	5.3	6.6	4.0	1.7	1.7	1.6
Pneumonia 480–486	105	61	45	7.4	8.4	6.5	4.4	4.6	4.3
Bronchitis, chronic and unspecified 490–491	24	17	*7	1.7	2.4	*0.9	3.4	3.3	*3.8
Asthma 493	62	34	27	4.4	4.7	4.0	3.5	3.5	3.5
Diseases of the digestive system 520–579	135	81	54	9.5	11.2	7.8	2.9	2.7	3.2
Inguinal hernia 550	26	21	*5	1.8	2.9	*0.7	1.6	1.6	*1.4
Noninfectious enteritis and colitis 555–558	71	39	32	5.0	5.4	4.6	3.3	3.4	3.3
Diseases of the genitourinary system 580–629	44	21	23	3.1	2.9	3.3	3.6	3.8	3.4
Congenital anomalies 740–759	64	41	24	4.5	5.6	3.4	5.7	5.3	6.5
Symptoms, signs, and ill-defined conditions 780–799	24	14	10	1.7	2.0	1.4	3.1	2.9	3.4
Injury and poisoning 800–999	133	77	56	9.4	10.6	8.1	4.4	4.5	4.4
Fractures, all sites 800–829	26	15	11	1.8	2.1	1.6	7.0	7.5	6.3
Injuries other than fractures 850–959	64	37	27	4.5	5.0	4.0	3.8	4.3	3.2

[1]Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM).
[2]Includes diagnostic conditions not shown in table.

as a whole. Within the category, males accounted for 81 percent of the discharges for inguinal hernia. The male discharge rate was also 65 percent higher than the female rate for the congenital anomalies category.

The average lengths of stay by diagnosis ranged from 1.6 days to 7 days for children 1–4 years of age. Stays of less than 2 days were the average for both inguinal hernia and chronic disease of tonsils and adenoids. The average stays of 7 days were recorded for disorders of the central nervous system and fractures. Both the total average lengths of stay and the average stays for specific diagnoses were similar for males and females.

5–9 years of age

Table 6 shows hospital use by diagnostic categories for children 5–9 years of age. The respiratory disease category accounted for the largest number of discharges, 260,000, which was one-third of the total number of discharges for the children 5–9 years of age. Chronic disease of tonsils and adenoids was the most important diagnosis within the respiratory disease category. It made up almost half of respiratory disease diagnoses, and by itself was responsible for significantly more discharges than any of the other diagnostic categories except injury and poisoning.

Injury and poisoning ranked second in importance among the diagnostic categories with 125,000 discharges, 16 percent of total discharges. Fractures accounted for 40 percent of the discharges in the category, and intracranial injuries, excluding those with skull fractures, made up an additional 18 percent of the category.

Other important diagnostic categories for the 5–9 years age group were diseases of the nervous system and sense organs with 10 percent of total discharges, and diseases of the digestive system with 11 percent. Otitis media and eustachian tube disorders made up more than half of the discharges for diseases of the nervous system and sense organs. Noninfectious enteritis and colitis accounted for almost a fourth of the discharges for diseases of the digestive system.

The discharge rate was 35 percent higher for males than for females 5–9 years of age. The sex difference was especially pronounced for the injury and poisoning category, in which the male discharge rate was 82 percent higher than the female rate. Within the category males had a 70 percent higher discharge rate for fractures, and they accounted for more than three-fourths of the discharges for intracranial injury.

The sex difference in discharge rates was also large for the congenital anomalies category, in which the male rate was 85 percent higher than the female rate. In addition, the male discharge rate was 57 percent higher for otitis media and eustachian tube disorders and 94 percent higher for asthma.

The range in average lengths of stay for diagnostic categories was not wide, from 1.6 to 4.8 days. Stays of less than 2 days were the average for otitis media and eustachian tube disorders and for chronic disease of tonsils and adenoids. Average stays of more than 4.5 days were found for pneumonia and fractures. The average lengths of stay of males and females were different by less than a day for all the diagnoses and diagnostic categories.

Table 6. Numbers, rates, and average lengths of stay for patients 5–9 years of age discharged from short-stay non-Federal hospitals, by selected first-listed diagnoses and sex: United States, 1983

Diagnostic category and ICD–9–CM code[1]		*Both sexes*	*Male*	*Female*	*Both sexes*	*Male*	*Female*	*Both sexes*	*Male*	*Female*
		Number in thousands			Rate per 1,000 population			Average length of stay in days		
Total[2]		769	451	319	48.1	55.1	40.8	3.4	3.4	3.3
Infectious and parasitic diseases	001–139	38	19	19	2.4	2.3	2.4	3.6	3.4	3.9
Diseases of the nervous system and sense organs	320–389	77	45	32	4.8	5.5	4.0	2.0	2.0	2.0
Otitis media and eustachian tube disorders	381–382	43	27	16	2.7	3.3	2.1	1.6	1.5	1.8
Diseases of the respiratory system	460–519	260	148	113	16.3	18.1	14.4	2.8	2.9	2.6
Acute respiratory infections	460–466	34	18	16	2.1	2.2	2.1	2.8	2.9	2.8
Chronic diseases of tonsils and adenoids	474	127	67	60	7.9	8.2	7.7	1.8	1.9	1.7
Pneumonia	480–486	40	23	17	2.5	2.9	2.2	4.8	4.8	4.8
Asthma	493	37	25	12	2.3	3.1	1.6	3.5	3.5	3.7
Diseases of the digestive system	520–579	88	49	39	5.5	6.0	4.9	3.5	3.6	3.5
Noninfectious enteritis and colitis	555–558	21	11	10	1.3	1.3	1.3	3.1	3.2	3.0
Diseases of the genitourinary system	580–629	32	14	17	2.0	1.8	2.2	3.5	3.8	3.3
Congenital anomalies	740–759	30	19	10	1.9	2.4	1.3	3.5	3.2	4.0
Symptoms, signs, and ill-defined conditions	780–799	18	10	*9	1.2	1.2	*1.1	2.3	2.6	*2.1
Injury and poisoning	800–999	125	82	43	7.8	10.0	5.5	4.1	4.0	4.2
Fractures, all sites	800–829	50	32	18	3.1	3.9	2.3	4.7	5.0	4.2
Intracranial injury, excluding those with skull fracture	850–854	22	17	*5	1.4	2.1	*0.7	2.7	2.9	*2.2
Other injuries	830–848,860–959	39	24	15	2.4	2.9	1.9	4.2	3.9	4.7

[1]Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM).
[2]Includes diagnostic conditions not shown in table.

10–14 years of age

Children 10–14 years of age had 803,000 hospital discharges in 1983 (table 7). There were more diagnostic categories with sizable numbers of discharges for this age group than for the younger age groups. The following categories each accounted for more than 20,000 discharges for children 10–14 years but for less than 20,000 discharges for children in each of the other three age groups: neoplasms; endocrine, nutritional and metabolic diseases, and immunity disorders; diseases of the blood and blood- forming organs; mental disorders; and diseases of the musculoskeletal system and connective tissue.

The leading diagnostic categories for the 10–14 years age group were diseases of the respiratory system and injury and poisoning, which were each responsible for 20 percent of all discharges. Chronic disease of tonsils and adenoids was again the most important respiratory disease diagnosis, making up 42 percent of all discharges in the category. Fractures accounted for 39 percent of the discharges in the injury and poisoning category.

Diseases of the digestive system was the third-ranking diagnostic category in number of discharges. Fourteen percent of all discharges for children 10–14 years were in this category. Noninfectious enteritis and colitis was the most frequent diagnosis, making up 23 percent of the digestive disease category.

The total discharge rates for males and females 10–14 years of age were not significantly different, but sex differences were found in the rates for specific diagnoses and diagnostic categories. The discharge rate for chronic disease of tonsils and adenoids was 78 percent higher for females than for males. This difference is especially noteworthy because the rates for the diagnosis were higher for males 1–4 years of age and were not significantly different by sex for children 5–9 years of age. However, for the injury and poisoning category the discharge rate of males 10–14 years of age was almost twice the female rate. Within the category males had rates more than 1.5 times higher than females for fractures. They accounted for 69 percent of the discharges for intracranial injury, and had more than double the female rate for other injuries.

The longest average length of stay for children 10–14 years of age was 19.4 days for mental disorders. Lengths of stay for other diagnostic categories ranged between 6.3 days for "endocrine, nutritional, and metabolic diseases and immunity disorders" and 2.9 days for "symptoms, signs, and ill-defined conditions" and "diseases of the respiratory system." The shortest stay, 1.7 days, for chronic disease of tonsils and adenoids was within the respiratory disease category.

The total average lengths of stay for males and females were not significantly different, but there were sex differences in the lengths of stay for specific conditions. The length of stay of females was twice that of males for diseases of the blood and blood-forming organs, and females had

Table 7. Numbers, rates, and average lengths of stay for patients 10–14 years of age discharged from short-stay non-Federal hospitals, by selected first-listed diagnoses and sex: United States, 1983

Diagnostic category and ICD–9–CM code[1]		*Both sexes*	*Male*	*Female*	*Both sexes*	*Male*	*Female*	*Both sexes*	*Male*	*Female*
		Number in thousands			Rate per 1,000 population			Average length of stay in days		
Total[2]		803	427	375	45.1	47.0	43.2	4.6	4.6	4.7
Infectious and parasitic diseases	001–139	28	14	14	1.6	1.5	1.6	3.6	3.8	3.4
Neoplasms	140–239	27	17	10	1.5	1.8	1.2	3.6	2.7	5.1
Endocrine, nutritional and metabolic diseases, and immunity disorders	240–279	26	12	14	1.5	1.3	1.6	6.3	5.1	7.3
Diseases of the blood and blood-forming organs	280–289	24	12	12	1.3	1.3	1.4	4.2	2.8	5.6
Mental disorders	290–319	36	17	19	2.0	1.9	2.2	19.4	17.7	21.0
Diseases of the nervous system and sense organs	320–389	38	21	17	2.1	2.3	2.0	3.6	3.5	3.7
Diseases of the respiratory system	460–519	159	78	81	8.9	8.6	9.3	2.9	3.0	2.7
Acute respiratory infections	460–466	22	11	11	1.2	1.2	1.3	3.1	3.2	2.9
Chronic diseases of tonsils and adenoids	474	66	24	42	3.7	2.7	4.8	1.7	1.6	1.8
Pneumonia	480–486	21	13	*8	1.2	1.4	*0.9	5.0	4.8	*5.3
Asthma	493	24	15	*9	1.3	1.6	*1.1	3.6	3.7	*3.5
Diseases of the digestive system	520–579	111	62	49	6.2	6.8	5.6	4.1	3.9	4.3
Noninfectious enteritis and colitis	555-558	26	15	11	1.5	1.6	1.3	3.2	3.0	3.4
Diseases of the genitourinary system	580–629	47	23	23	2.6	2.6	2.7	3.7	3.3	4.2
Diseases of the musculoskeletal system and connective tissue	710–739	39	16	23	2.2	1.8	2.6	5.9	7.1	5.0
Congenital anomalies	740–759	23	13	11	1.3	1.4	1.2	5.8	6.9	4.6
Symptoms, signs, and ill-defined conditions	780–799	29	13	16	1.7	1.5	1.9	2.9	2.8	3.0
Injury and poisoning	800–999	164	110	54	9.2	12.1	6.2	4.2	4.8	3.1
Fractures, all sites	800–829	64	47	17	3.6	5.2	2.0	5.0	5.7	2.9
Intracranial injury, excluding those with skull fracture	850–854	26	18	*8	1.5	2.0	*0.9	3.6	4.0	*2.8
Other injuries	830–848,860–959	54	38	17	3.1	4.2	1.9	3.7	3.9	3.3

[1]Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM).
[2]Includes diagnostic conditions not shown in table.

89 percent longer stays for neoplasms. Males had 50 percent longer stays for congenital anomalies and 55 percent longer stays for injury and poisoning. Within the injury and poisoning category, the average stays of males were almost twice those of females for fractures.

Procedures

In 1983, 2.3 million operations and other procedures were performed in hospitals on children under 15 years of age. Both the numbers and the rates of procedures were higher for males under 15 years than for females (tables 8 and 9). Children under 1 year of age had the lowest number of procedures but the highest rate among the four age groups. The other age groups each accounted for about the same number of procedures, but the rate of procedures for children 10–14 years of age was significantly below the average for all children under 15 years.

The largest number of procedures for children under 15 years was in the category "operations on the nose, mouth, and pharynx," which contained almost 20 percent of all procedures. Tonsillectomies with and without adenoidectomies were responsible for more than 60 percent of the procedures in this category. The other major procedure categories for children under 15 years were operations on the ear, more than three-fourths of which were myringotomies; operations on the digestive system, more than half of which were appendectomies and inguinal hernia repairs; operations on the musculoskeletal system, 40 percent of which were reductions of fracture; and miscellaneous diagnostic and therapeutic procedures, one-fourth of which were computerized axial tomographies and diagnostic ultrasounds.

The leading procedure categories for children under 1 year of age were somewhat different than for the other three age groups. In addition to operations on the digestive system and miscellaneous diagnostic and therapeutic procedures, leading categories for these children were operations on the nervous system and operations on the cardiovascular system. The under-1-year age group had higher rates than the other three age groups for all these procedure categories. They also had higher rates for cardiac catheterizations, repair of inguinal hernia, computerized axial tomography, and for spinal taps and biopsies of the nervous system, which accounted for 81 percent of the operations on the nervous system.

The largest procedure category both for children 1–4 and 5–9 years of age was operations on the nose, mouth, and pharynx. Tonsillectomies with and without adenoidectomies made up more than half of the procedures in the category for children 1–4 years of age, and almost three-fourths for children 5–9 years, who had the highest rate for the procedure among the four age groups. Children 1–4 and 5–9 years were the only age groups for which operations on the ear was a leading category. Myringotomies accounted for more than 90 percent of the ear operations on children

Table 8. Number of all-listed procedures for patients under 15 years of age (excluding newborn infants) discharged from short-stay non-Federal hospitals, by selected procedure categories, sex, and age groups: United States, 1983

Procedure category and ICD–9–CM code[1]	Under 15 years			Under 1 year	1–4 years	5–9 years	10–14 years
	Both sexes	Male	Female				
	Number in thousands						
Total[2]	2,293	1,346	947	423	643	609	619
Operations on the nervous system 01–05	143	76	66	80	32	17	14
Spinal tap and biopsies on the nervous system 01.1,03.3,04.1,05.1	101	55	46	65	22	*8	*6
Operations on the ear 18–20	220	132	88	*9	95	91	25
Myringotomy 20.0	169	101	68	*7	86	66	10
Operations on the nose, mouth, and pharynx 21–29	451	239	213	12	139	178	122
Tonsillectomy with or without adenoidectomy 28.2–28.3	279	143	136	*	78	130	71
Adenoidectomy without tonsillectomy 28.6	50	32	18	*	24	20	*
Operations on the cardiovascular system 35–39	117	61	56	58	36	12	11
Cardiac catheterization 37.21–37.23	32	16	16	11	12	*6	*
Operations on the digestive system 42–54	281	183	98	65	65	64	87
Appendectomy, excluding incidental 47.0	75	38	36	–	*	25	47
Repair of inguinal hernia 53.0–53.1	81	67	13	28	28	17	*8
Operations on the musculoskeletal system 76–84	249	142	107	13	42	68	127
Reduction of fracture 76.7,79.0–79.6	100	66	34	*	12	38	48
Operations on the integumentary system 85–86	121	69	52	*6	37	32	45
Excision or destruction of lesion or tissue of skin and subcutaneous tissue 86.2	30	16	14	*	*8	*7	13
Miscellaneous diagnostic and therapeutic procedures 87–99	302	172	130	91	71	55	85
Computerized axial tomography 87.03,87.41,87.71,88.01,88.38	46	28	17	13	10	10	13
Diagnostic ultrasound 88.7	31	16	15	16	*	*	*8

[1]Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM).
[2]Includes procedures not shown in table.

Table 9. Rates for all-listed procedures for patients under 15 years of age (excluding newborn infants) discharged from short-stay non-Federal hospitals, by selected procedure categories, sex, and age groups: United States, 1983

Procedure category and ICD–9–CM code[1]	Under 15 years			Under 1 year	1–4 years	5–9 years	10–14 years
	Both sexes	Male	Female				
	Rate per 10,000 population						
Total[2]	444.6	510.2	375.8	1,155.8	453.6	381.3	347.9
Operations on the nervous system 01–05	27.6	28.9	26.3	219.0	22.4	10.3	7.9
Spinal tap and biopsies on the nervous system 01.1,03.3,04.1,05.1	19.5	20.7	18.3	178.1	15.8	*4.9	*3.1
Operations on the ear 18–20	42.6	50.0	34.8	*25.0	66.8	56.9	14.0
Myringotomy 20.0	32.7	38.1	26.9	*20.5	60.5	41.2	5.4
Operations on the nose, mouth, and pharynx 21–29	87.5	90.5	84.3	33.2	98.0	111.5	68.7
Tonsillectomy with or without adenoidectomy 28.2–28.3	54.1	54.3	53.9	*	54.8	81.5	39.7
Adenoidectomy without tonsillectomy 28.6	9.7	12.0	7.3	*	17.1	12.8	*
Operations on the cardiovascular system 35–39	22.7	23.2	22.1	158.7	25.7	7.3	6.2
Cardiac catheterization 37.21–37.23	6.2	6.0	6.5	30.3	8.5	*3.6	*
Operations on the digestive system 42–54	54.5	69.4	38.9	176.7	46.2	39.9	49.1
Appendectomy, excluding incidental 47.0	14.5	14.6	14.4	–	*	15.6	26.7
Repair of inguinal hernia 53.0–53.1	15.6	25.5	5.3	75.4	19.6	10.5	*4.7
Operations on the musculoskeletal system 76–84	48.3	53.9	42.5	35.2	29.3	42.8	71.2
Reduction of fracture 76.7,79.0–79.6	19.4	24.9	13.6	*	8.7	23.8	26.8
Operations on the integumentary system 85–86	23.5	26.0	20.8	*17.7	26.2	20.2	25.3
Excision or destruction of lesion or tissue of skin and subcutaneous tissue 86.2	5.8	6.0	5.7	*	*5.8	*4.1	7.2
Miscellaneous diagnostic and therapeutic procedures 87–99	58.5	65.3	51.5	248.2	50.0	34.6	47.8
Computerized axial tomography 87.03,87.41,87.71,88.01,88.38	8.8	10.7	6.9	36.0	7.1	*6.1	7.1
Diagnostic ultrasound 88.7	6.1	6.2	6.0	43.5	*	*	*4.7

[1]Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM).
[2]Includes procedures not shown in table.

1–4 years and almost three-fourths on children 5–9 years. The other leading procedure categories both for children 1–4 and 5–9 years of age were operations on the digestive system and miscellaneous diagnostic and therapeutic procedures.

Children 5–9 years of age also shared with children 10–14 years the leading procedure category "operations on the musculoskeletal system." Reduction of fractures accounted for more than half of the category for the 5–9 years age group, 38 percent for children 10–14 years of age. The other leading procedure categories for the 10–14 years age group were operations on the nose, mouth, and pharynx; operations on the digestive system; and the miscellaneous category. This age group had a higher rate than the other three for one procedure, appendectomy.

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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 standard of reliability or precision
#	Figure suppressed to comply with confidentiality requirements

Technical notes

Survey Methodology

Source of data

The National Hospital Discharge Survey (NHDS) encompasses patients discharged from short-stay 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 and an average length of stay of less than 30 days for all patients are included in the survey. Discharges of newborn infants are excluded from this report.

The original universe for the survey consisted of 6,965 hospitals contained in the 1963 National Master Facility Inventory. New hospitals were sampled for inclusion in the survey in 1972, 1975, 1977, 1979, 1981, and 1983. In all, 553 hospitals were sampled in 1983. Of these hospitals, 78 refused to participate, and 57 were out of scope. The 418 participating hospitals provided approximately 206,000 abstracts of medical records.

Sample design and data collection

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 beds were stratified, the primary strata being 24 size-by-region classes. Within each of these 24 primary strata, 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 type of 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.

Sample discharges were selected within the hospitals using the daily listing sheet of discharges as the sampling frame. These discharges were selected by a random technique, usually on the basis of the terminal digit or digits of the patient's medical record number, a number assigned when the patient was admitted to the hospital. The within-hospital sampling ratio for selecting sample discharges varied inversely with the probability of selection of the hospital.

The sample selection and the transcription of information from the hospital records to abstract forms were performed by the hospital staff or by representatives of the National Center for Health Statistics or by both. The data were abstracted from the face sheets of the medical records. 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.

Presentation of estimates

Statistics produced by 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 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.[7,8]

Based on consideration of the complex sample design of NHDS, the following guidelines are used for presenting NHDS estimates in this report:

- If the sample size is less than 30, the value of the estimate is not reported. Only an asterisk (*) is shown in the tables.
- If the sample size is 30–59, the value of the estimate is reported but should be used with caution. The estimate is preceded by an asterisk (*) in the tables.

Sampling errors and rounding of numbers

The standard error is a measure of the sampling variability that occurs by chance because only a sample, rather than an entire universe, is surveyed. The relative standard error of the estimate is obtained by dividing the standard error by the estimate itself and is expressed as a percent of the estimate. Relative standard errors for discharges and first-listed diagnoses are shown in table I, relative standard errors for days of care are shown in table II, and relative standard errors for all-listed procedures are shown in table III.

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

Table I: Approximate relative standard errors for estimated numbers of discharges and first-listed diagnoses: United States, 1983

Size of estimate	*Relative standard error*
5,000	16.0
10,000	12.8
50,000	8.1
100,000	6.8
300,000	5.3
500,000	4.8
1,000,000	4.2
3,000,000	3.5
5,000,000	3.2
10,000,000	2.9
20,000,000	2.7
30,000,000	2.5
40,000,000	2.5

Table II: Approximate relative standard errors for estimated numbers of days of care, by region and all other characteristics: United States, 1983

Size of estimate	Region	All other characteristics
10,000	38.4	20.3
30,000	28.9	15.7
50,000	25.4	14.0
100,000	21.4	12.0
300,000	16.5	9.5
500,000	14.7	8.6
1,000,000	12.6	7.5
3,000,000	10.0	6.2
5,000,000	9.0	5.7
10,000,000	7.9	5.1
50,000,000	5.9	4.0
100,000,000	5.2	3.6
200,000,000	4.7	3.3

Table III: Approximate relative standard errors for estimated numbers of all-listed procedures: United States, 1983

Size of estimate	Relative standard error
5,000	17.1
10,000	14.0
25,000	10.9
50,000	9.2
100,000	7.8
500,000	5.7
1,000,000	5.1
3,000,000	4.3
5,000,000	4.0
10,000,000	3.6
15,000,000	3.5
20,000,000	3.3
25,000,000	3.3

Tests of significance

In this report, the determination of statistical inference is based on the two-tailed Bonferroni test for multiple comparisons. 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.

Definition of terms

Hospitals—Short-stay general and special hospitals have 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 patient is a person who is 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 individual 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 from this report. The terms "patient" and "inpatient" are used synonymously.

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

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

Average length of stay—The total number of days of care accumulated at the time of discharge by patients discharged during the year divided by the number of patients discharged forms the average length of stay. A stay of less than 1 day (patient admission and discharge on the same day) is counted as 1 day in the summation of total days of care. For patients admitted and discharged on different days, the number of days of care is computed by counting all days from (and including) the date of admission to (but not including) the date of discharge.

Discharge diagnoses—One or more diseases or injuries (or some factor that influences health status and contact with health services which is not itself a current illness or injury) listed by the attending physician on the medical record of a patient constitute the discharge diagnoses. In NHDS all discharge (or final) diagnoses listed on the face sheet (summary sheet) of the medical record for patients discharged from the inpatient service of short-stay hospitals are transcribed in the order listed. Each sample discharge is assigned a maximum of seven five-digit codes according to ICD–9–CM.[6] The number of principal or first-listed diagnoses is equivalent to the number of discharges.

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

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

Procedure—A procedure is one or more surgical or nonsurgical operations, procedures, or special treatments assigned by the physician to patients discharged from the inpatient service of short-stay hospitals. In NHDS all terms listed on the face sheet (summary sheet) of the medical record under the captions "operation," "operative procedures," "operations and/or special treatment," and the like are transcribed in the order listed. A maximum of four procedures are coded.

Rate of procedures—The ratio of the number of all-listed procedures during a year to the number of persons in the civilian population on July 1 of that year makes up the rate of procedures.

Age—Age refers to the age of the patient on the birthday prior to admission to the hospital inpatient service.

Private insurance—Health insurance provided by nongovernment sources including consumers, insurance companies, private industry, and philanthropic organizations is private insurance.

Medicaid—Medicaid is a joint Federal-State welfare program available in virtually all States that provides medical benefits for low income persons, including the aged. In order to qualify for this program, a person must meet each State's definition of "low income."

Self pay—The major share of the total costs for a self-pay hospitalization is expected to be paid by the patient, spouse, parents, or next of kin.

Other payments—This includes all other sources of payment such as workmen's compensation, Medicare, no charge, and other government programs.

Geographic regions and divisions—The 50 States and the District of Columbia are grouped by the Bureau of the Census into 4 regions and 9 divisions as follows:

Region and division	*States*
Northeast	
New England	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut
Middle Atlantic	New York, New Jersey, Pennsylvania
North Central	
East North Central	Michigan, Ohio, Illinois, Indiana, Wisconsin
West North Central	Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas
South	
South Atlantic	Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida
East South Central	Kentucky, Tennessee, Alabama, Mississippi
West South Central	Arkansas, Louisiana, Oklahoma, Texas
West	
Mountain	Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada
Pacific	Washington, Oregon, California, Hawaii, Alaska

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Suggested Citation

National Center for Health Statistics, E. McCarthy and L. J. Kozak: Hospital use by children, United States, 1983. *Advance Data From Vital and Health Statistics,* No. 109. DHHS Pub. No. (PHS) 85–1250. Public Health Service, Hyattsville, Md., May 23, 1985.

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