

INFECTIONOUS DISEASES

IN CHILDREN

AGES 1-17

Volume 1, Issue 1

November 2005

INTRODUCTION

Quarterly, each hospital licensed by the Tennessee Department of Health reports, by law (Tennessee Code Annotated, Section 68-1-108), selected information on each inpatient discharged during the period for inclusion in the Tennessee Hospital Discharge Data System (HDDS). The annual number of reported inpatient records is approximately 900,000.

Hospitalizations are a major component in the provision of health care to all citizens, including the care of our younger citizens. This information is important to both public and private health researchers, but also to the general public.

This newsletter looks at all children ages 1 through 17 hospitalized in Tennessee for infectious and parasitic diseases from 1998-2002. Basic demographic characteristics of the children are examined first, and then a detailed breakdown by disease code is examined.

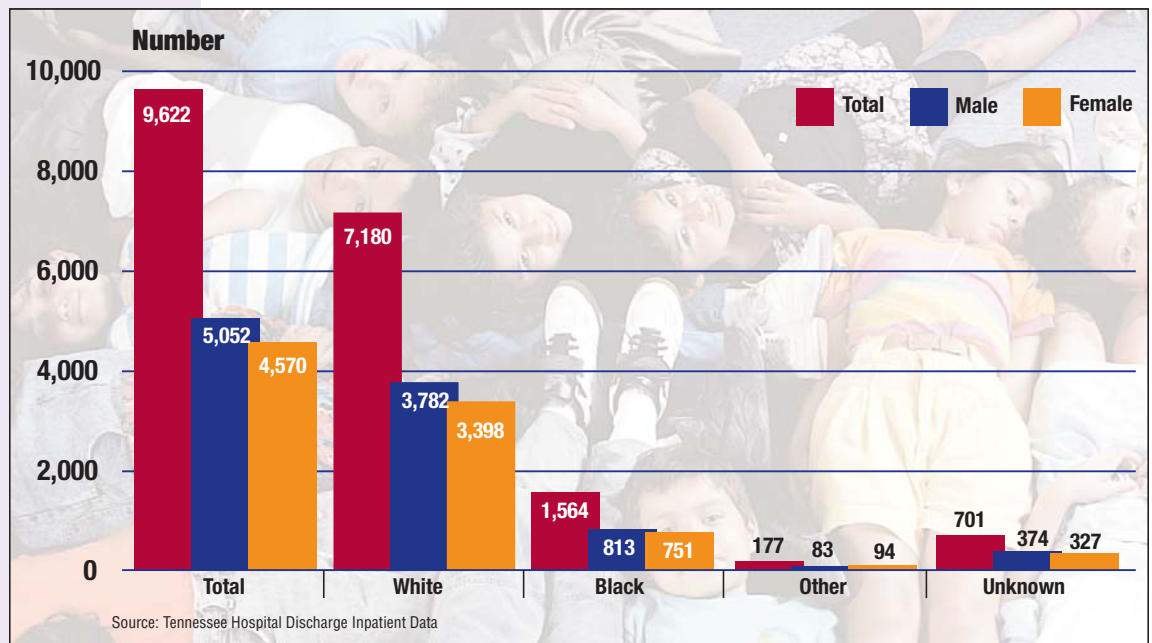
Due to the special health care needs of newborns, infants in the first year of life are excluded. By age 18, individuals are leaving home, entering the workforce, or going to college. Thus ages 1 through 17 seems the most appropriate age range to represent this childhood population.

Only those children with a primary diagnosis of infectious or parasitic diseases were included in this report. This is represented by the ICD-9-CM code values of 001-139, where 9,622 children ages 1-17 were found with this primary diagnosis. Note: Certain diseases coded according to the organ or system affected are not included in this report. Hospitalizations where the codes (001-139) are present only as other diagnostic codes also are not included.

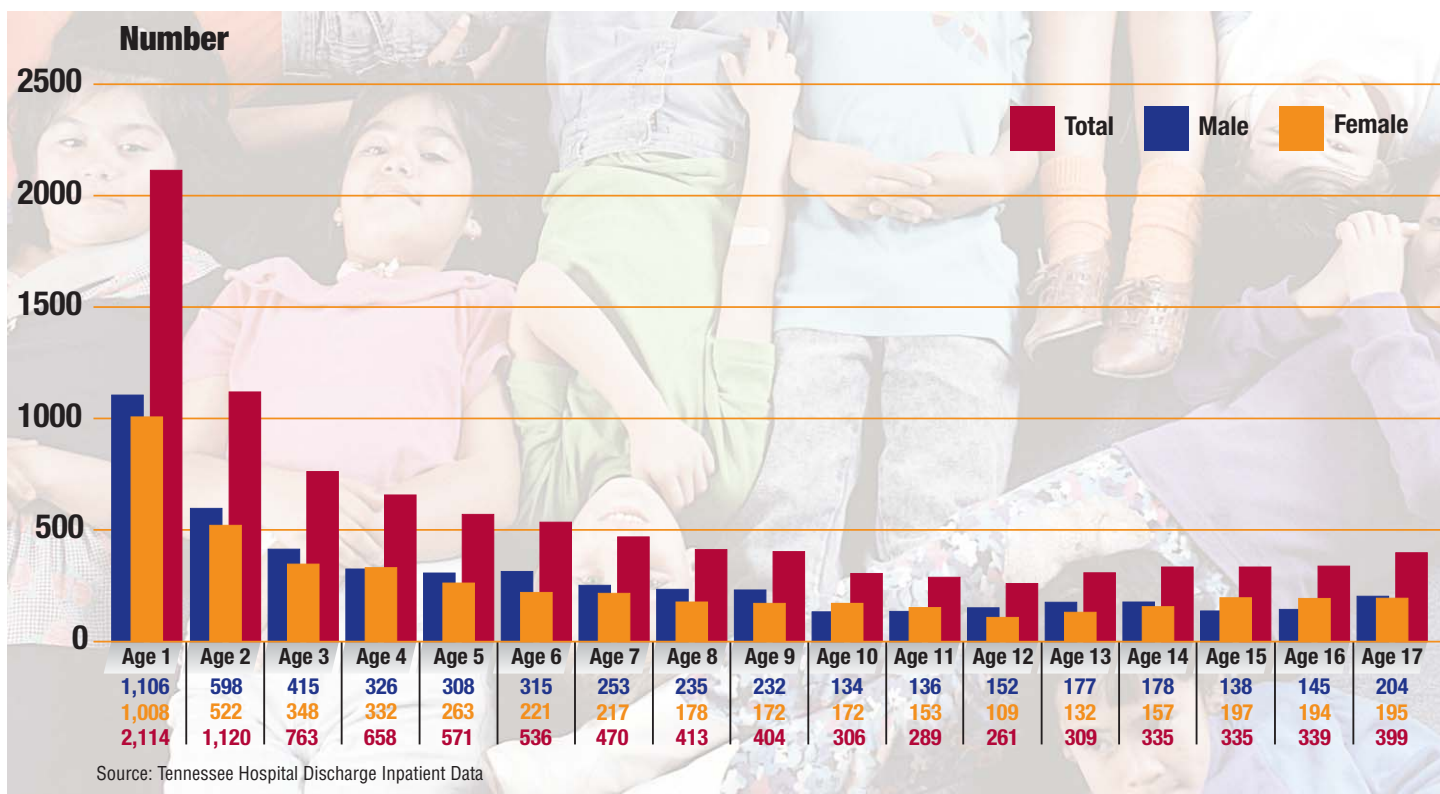
The first table is a frequency of race by gender. Slightly more males (52.5%) than females (47.5%) were hospitalized. Most of the children hospitalized were white (74.6%). Blacks were the second largest racial grouping (16.3%). These are the largest and second largest racial groups in the population, so this result would be expected.

INFECTIONOUS DISEASES IN CHILDREN AGES 1-17

By RACE AND GENDER, 1998-2002



INFECTIOUS DISEASES IN CHILDREN AGES 1-17 By AGE AND GENDER, 1998-2002



The younger age groups were hospitalized far more often than the older. The frequency of hospitalizations dropped to a low point at age 12, then rose slowly among older children.

The largest number of children were paid by “Other Insurance,” i.e. by private insurance. This is true for all racial groupings, except blacks, where the majority were paid by TennCare, Tennessee’s Medicaid waiver plan.



INFECTIOUS DISEASES IN CHILDREN AGES 1-17 By RACE AND PAYER, 1998-2002

RACE	PAYER						Total Cases
	TennCare	Medicare	Self pay	Other Insurance	Free Care	Other/Unknown	
White	2,616	22	235	4,055	7	245	7,180
Black	885	4	52	547	8	68	1,564
Other	75	0	21	78	1	2	177
Unknown	213	4	7	434	11	32	701
Total	3,789	30	315	5,114	27	347	9,622

Source: Tennessee Hospital Discharge Inpatient Data

INFECTIOUS DISEASES IN CHILDREN AGES 1-17 By YEAR AND PAYER, 1998-2002

YEAR	PAYER						Total Cases
	TennCare	Medicare	Self pay	Other insurance	Free care	Other/Unknown	
1998	775	7	86	1,131	7	49	2,055
1999	774	7	62	1,050	3	56	1,952
2000	594	1	59	886	2	68	1,610
2001	900	11	62	1,069	14	82	2,138
2002	746	4	46	978	1	92	1,867
Total	3,789	30	315	5,114	27	347	9,622

Source: Tennessee Hospital Discharge Inpatient Data

The most obvious point illustrated by the above table is the wide variation in the number of hospitalizations by year. Infectious disease frequencies are much more variable from year to year than are most other types such as injuries or chronic diseases.



CASES, WHITE, and BLACK are frequencies given in previous tables, but the other columns in the next two tables represent different information. MEAN LENGTH OF STAY is the average time a patient was in the hospital for that particular hospitalization. MEDIAN CHARGE is the middle charge for that category; half the patients were charged more, half were charged less. TOTAL CHARGE is the sum of all the charges for that category.

The table below presents this information by payer. "Other Insurance," i.e. private insurance, and TennCare had the vast majority of cases and thus the largest TOTAL CHARGES. However the handful of Medicare cases had the longest MEAN LENGTH OF STAY and the highest MEDIAN CHARGE.



INFECTIOUS DISEASES IN CHILDREN AGES 1-17 By PAYER, 1998-2002

PAYER	Mean Length of Stay	Median Charge	Total Charge	Total Cases
Total	3.2	\$2,921.37	\$65,248,914.32	9,622
TennCare	3.1	\$2,974.75	\$23,452,917.82	3,789
Medicare	4.6	\$4,285.11	\$309,791.18	30
Self pay	3.9	\$3,301.00	\$3,078,146.82	315
Other insurance	3.1	\$2,816.03	\$34,062,240.62	5,114
Free Care	2.6	\$3,198.90	\$115,982.75	27
Other/Unknown	4.1	\$3,548.66	\$4,229,835.13	347

Source: Tennessee Hospital Discharge Inpatient Data

INFECTIOUS DISEASES IN CHILDREN AGES 1-17

By DIAGNOSIS, 1998-2002

		MEAN LENGTH OF STAY	MEDIAN CHARGE	TOTAL CHARGE	CASES	WHITE	BLACK
DX	DIAGNOSIS						
	All infectious & parasitic	3.2	\$2,921.37	\$65,248,914.32	9,622	7,180	1,564
002-	Typhoid & paratyphoid	3.0	\$4,547.40	\$22,438.48	5	2	0
003-	Other salmonella	3.1	\$3,631.93	\$676,895.17	158	101	46
004-	Shigellosis	2.3	\$2,964.23	\$191,184.11	54	34	16
005-	Other food poisoning (bacterial)	1.5	\$1,663.28	\$68,150.21	29	23	3
006-	Amebiasis	3.0	\$8,703.00	\$8,703.00	1	1	0
007-	Other protozoal intestinal	3.4	\$2,958.72	\$100,159.01	22	19	2
008-	Other intestinal	2.2	\$2,114.00	\$9,523,293.31	3,321	2,625	410
008.0	E. coli	3.5	\$3,564.70	\$193,603.60	37	26	3
008.4	Other specified bacteria	3.9	\$4,832.36	\$1,248,389.25	154	128	18
008.5	Bacterial enteritis, unspecified	2.1	\$2,672.51	\$109,118.31	35	26	5
008.6	Enteritis due to specified virus	2.3	\$2,076.37	\$3,814,246.64	1,527	1,231	163
008.8	Other organism, NEC	1.9	\$1,997.23	\$4,157,935.51	1,568	1,214	221
009-	Ill-defined intestinal	2.4	\$2,897.60	\$593,929.41	138	110	11
010-	Primary tuberculosis infection	4.5	\$7,393.69	\$14,787.38	2	1	1
011-	Pulmonary tuberculosis	5.6	\$4,442.00	\$183,263.19	23	4	16
012-	Other respiratory TB	10.0	\$23,306.39	\$23,306.39	1	0	1
013-	TB of meninges & CNS	12.8	\$29,260.09	\$208,195.45	5	0	4
015-	TB of bones and joints	9.0	\$18,765.73	\$18,765.73	1	0	1
017-	Tuberculosis of other organs	1.0	\$3,602.21	\$3,602.21	1	0	1
018-	Miliary tuberculosis	22.0	\$52,833.14	\$105,666.28	2	0	1
020-	Plague	1.0	\$897.40	\$897.40	1	1	0
021-	Tularemia	4.5	\$4,747.79	\$52,551.59	10	9	1
026-	Rat-bite fever	2.0	\$5,342.05	\$5,342.05	1	1	0
027-	Other zoonotic bacterial	2.0	\$1,861.48	\$1,861.48	1	1	0
031-	Due to other mycobacteria	4.0	\$7,738.50	\$7,738.50	1	1	0
033-	Whooping cough	4.8	\$5,777.05	\$146,290.13	17	13	2
034-	Strep sore throat & scarlet fever	2.0	\$2,405.50	\$1,688,874.66	544	433	74
034.0	Streptococcal sore throat	2.0	\$2,403.44	\$1,542,255.94	499	401	65
034.1	Scarlet fever	2.2	\$2,682.00	\$146,618.72	45	32	9
035-	Erysipelas	2.1	\$2,275.23	\$71,159.52	24	21	1
036-	Meningococcal infection	6.7	\$10,420.47	\$2,296,049.75	129	81	30
036.0	Meningococcal meningitis	6.8	\$11,078.51	\$1,139,833.54	76	43	19
036.1	Meningococcal encephalitis	3.5	\$6,431.12	\$12,862.23	2	2	0
036.2	Meningococemia	6.9	\$6,973.00	\$1,104,729.89	45	32	9
036.8	Other specified meningococcal	6.0	\$12,209.38	\$24,418.76	2	2	0
036.9	Unspecified meningococcal	4.0	\$3,355.20	\$14,205.33	4	2	2
038-	Septicemia	7.0	\$8,657.06	\$14,012,430.80	702	548	105
038.0	Streptococcal septicemia	9.6	\$15,459.49	\$2,612,003.24	80	60	15
038.1	Staphylococcal septicemia	7.6	\$12,376.99	\$1,877,222.05	83	63	11
038.2	Pneumococcal septicemia	4.1	\$4,238.68	\$923,336.86	102	73	17
038.3	Due to anaerobes	16.7	\$67,963.50	\$204,291.88	3	2	0
038.4	Due to other gram-negative organisms	8.3	\$16,430.50	\$3,150,725.48	123	98	22
038.8	Other specified septicemias	8.6	\$8,701.00	\$536,949.74	21	17	2
038.9	Unspecified septicemia	6.4	\$7,515.38	\$4,707,901.55	290	235	38
039-	Actinomycotic infections	132.0	\$480,734.70	\$480,734.70	1	0	1
040-	Other bacterial	7.8	\$8,869.89	\$1,489,616.51	46	35	7
041-	Bacterial--class elsewhere & of unspecified site	4.3	\$6,590.23	\$386,986.71	44	29	6
042-	HIV	9.2	\$9,039.00	\$967,999.56	45	23	18
047-	Meningitis due to enterovirus	2.2	\$3,588.98	\$4,730,484.50	1,105	698	285
047.0	Coxsackie virus	1.0	\$1,768.83	\$1,768.83	1	1	0
047.1	ECHO virus	1.0	\$2,762.65	\$2,762.65	1	1	0
047.8	Other specified viral meningitis	2.6	\$4,549.55	\$209,022.19	40	24	10
047.9	Unspecified viral meningitis	2.2	\$3,576.10	\$4,516,930.83	1,063	672	275
048-	Other enterovirus of CNS	4.5	\$7,208.80	\$473,258.75	44	36	8
049-	Other non-arthropod-borne viral of CNS	6.0	\$9,393.34	\$1,414,057.67	84	63	11
050-	Smallpox	3.0	\$8,183.00	\$8,183.00	1	1	0
052-	Chickenpox	3.6	\$3,114.67	\$1,727,804.14	209	140	44

INFECTIOUS DISEASES IN CHILDREN AGES 1-17

By DIAGNOSIS, 1998-2002


		MEAN LENGTH OF STAY	MEDIAN CHARGE	TOTAL CHARGE	CASES	WHITE	BLACK
053-	Herpes zoster	5.8	\$8,087.46	\$1,638,794.98	116	87	14
054-	Herpes simplex	4.3	\$3,522.70	\$2,103,241.49	234	164	47
055-	Measles	3.5	\$4,830.81	\$9,661.61	2	1	0
057-	Other viral exanthemata	2.4	\$2,429.95	\$176,776.56	55	49	3
061-	Dengue	4.0	\$4,747.69	\$4,747.69	1	1	0
062-	Mosquito-borne viral encephalitis	8.9	\$20,464.78	\$474,597.41	16	12	0
063-	Tick-borne viral encephalitis	3.0	\$4,681.55	\$4,681.55	1	1	0
066-	Other arthropod-borne viral diseases	2.8	\$2,255.10	\$20,629.33	6	3	2
070-	Viral hepatitis	4.3	\$4,819.49	\$673,974.33	46	31	12
071-	Rabies	5.0	\$79,374.22	\$79,374.22	1	1	0
072-	Mumps	2.0	\$4,189.33	\$8,378.66	2	1	0
074-	Specific diseases due to Coxsackie virus	2.3	\$2,728.62	\$161,957.10	55	41	7
075-	Infectious mononucleosis	2.5	\$2,811.22	\$2,028,256.71	533	412	77
077-	Of conjunctiva due to viruses & Chlamydiae	1.4	\$1,871.26	\$17,049.16	8	5	1
078-	Other due to viruses & chlamydiae	4.6	\$4,814.10	\$1,518,684.54	110	80	11
078.1	Viral warts	2.0	\$4,842.64	\$33,094.67	7	4	2
078.3	Cat-scratch disease	4.0	\$5,023.08	\$524,251.23	51	42	2
078.4	Foot and mouth disease	2.0	\$5,520.82	\$5,520.82	1	1	0
078.5	Cytomegaloviral disease	10.7	\$16,303.36	\$877,515.47	21	11	6
078.8	Other specified due to viruses & Chlamydiae	1.9	\$2,122.50	\$78,302.35	30	22	1
079-	Viral & chlamydial—classified elsewhere	2.2	\$2,699.48	\$4,605,222.38	1,232	946	184
079.0	Adenovirus	7.8	\$5,295.35	\$346,680.06	12	12	0
079.1	ECHO virus	2.0	\$4,060.17	\$4,060.17	1	1	0
079.2	Coxsackie virus	2.4	\$2,210.20	\$28,007.05	7	6	0
079.4	Human papilloma virus	1.0	\$2,654.54	\$2,654.54	1	1	0
079.5	Retrovirus	2.3	\$2,537.25	\$8,374.85	3	2	1
079.6	Respiratory syncytial virus (RSV)	2.2	\$2,573.69	\$221,195.37	64	53	4
079.8	Other specified viral & chlamydial	3.0	\$2,421.75	\$175,397.99	34	28	2
079.9	Unspecified viral & chlamydial	2.1	\$2,699.48	\$3,818,852.35	1,110	843	177
082-	Tick-borne rickettsioses	3.3	\$4,220.14	\$808,959.13	115	95	7
082.0	Spotted fevers	3.3	\$4,038.53	\$648,649.63	94	74	7
082.4	Ehrlichiosis	4.0	\$7,038.90	\$114,104.77	11	11	0
082.8	Other specified tick-borne rickettsioses	2.7	\$7,009.83	\$21,616.73	3	3	0
082.9	Tick-borne rickettsioses, unspecified	2.3	\$3,055.00	\$24,588.00	7	7	0
083-	Other rickettsioses	3.0	\$4,072.03	\$49,664.81	11	10	1
084-	Malaria	2.8	\$2,692.30	\$58,529.09	16	1	11
085-	Leishmaniasis	3.0	\$7,008.71	\$7,008.71	1	0	0
087-	Relapsing fever	3.0	\$5,224.80	\$5,224.80	1	1	0
088-	Other arthropod-borne	12.7	\$2,704.40	\$250,459.22	3	2	1
094-	Neurosyphilis	20.0	\$21,357.75	\$21,357.75	1	1	0
098-	Gonococcal infections	3.2	\$5,867.00	\$230,661.02	33	6	26
099-	Other venereal	2.2	\$3,220.96	\$53,830.60	13	5	8
100-	Leptospirosis	4.3	\$6,031.19	\$50,208.04	6	6	0
101-	Vincent's angina	2.5	\$1,702.44	\$15,668.29	4	2	2
110-	Dermatophytosis	2.4	\$2,859.64	\$26,653.24	8	2	6
112-	Candidiasis	9.3	\$11,858.40	\$1,787,755.92	44	37	3
115-	Histoplasmosis	6.4	\$13,044.66	\$614,608.35	30	20	8
117-	Other mycoses	16.6	\$38,990.77	\$5,066,865.53	66	44	16
122-	Echinococcosis	3.0	\$11,585.41	\$11,585.41	1	0	0
123-	Other cestode infection	3.0	\$5,845.77	\$45,650.08	5	3	1
127-	Other intestinal helminthiases	3.8	\$7,460.33	\$33,324.14	4	4	0
128-	Other & unspecified helminthiases	4.0	\$2,825.99	\$2,825.99	1	1	0
129-	Intestinal parasitism, unspecified	5.0	\$10,442.95	\$10,442.95	1	1	0
131-	Trichomoniasis	1.8	\$3,242.80	\$14,455.52	5	2	2
132-	Pediculosis & phthirus infestation	2.0	\$971.00	\$971.00	1	0	0
133-	Acariasis	7.0	\$10,268.60	\$20,537.19	2	0	2
136-	Other & unspecified infectious & parasitic	5.8	\$7,533.18	\$776,456.17	59	47	6
139-	Late effects of other infectious/parasitic	37.0	\$54,522.90	\$54,522.90	1	1	0

Source: Tennessee Hospital Discharge Inpatient Data

For all the included diagnoses all cases are shown by the appropriate three-digit ICD-9-CM code. Certain diagnoses were selected for a more detailed breakdown. For these diagnoses information is presented for the fourth digit of the ICD-9-CM code. For example, 008- represents the three digit grouping of other intestinal diseases, but more detail is given for this disease grouping, e.g. 008.0 presents information on the subcategory of those diagnosed with E. Coli. When any three digit grouping is selected for a more detailed breakdown, all cases in that grouping are presented in the four-digit detailed breakdown.

A high TOTAL CHARGE is mostly reflective of disease categories with a large number of cases. But certain, generally less common, diseases had a long MEAN LENGTH OF STAY with its associated high MEDIAN CHARGE. For example 013- TB of meninges & CNS and 018- Miliary tuberculosis were high in both measures.

Infectious Diseases in Children Ages 1-17 was published by the Tennessee Department of Health Division of Health Statistics, Cordell Hull Building, Nashville, Tennessee, 37247-5262
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 Tennessee Department of Health. Authorization No. 343765, 425 copies, November 2005. This public document was promulgated at a cost of \$2.12 per copy.
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