

# INFECTIONOUS DISEASES

## IN CHILDREN

AGES 1—17

Tennessee Department of Health

February 2015

### 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 2009-2013. Basic demographic characteristics of the children are examined first, and then a detailed breakdown by disease code is examined.

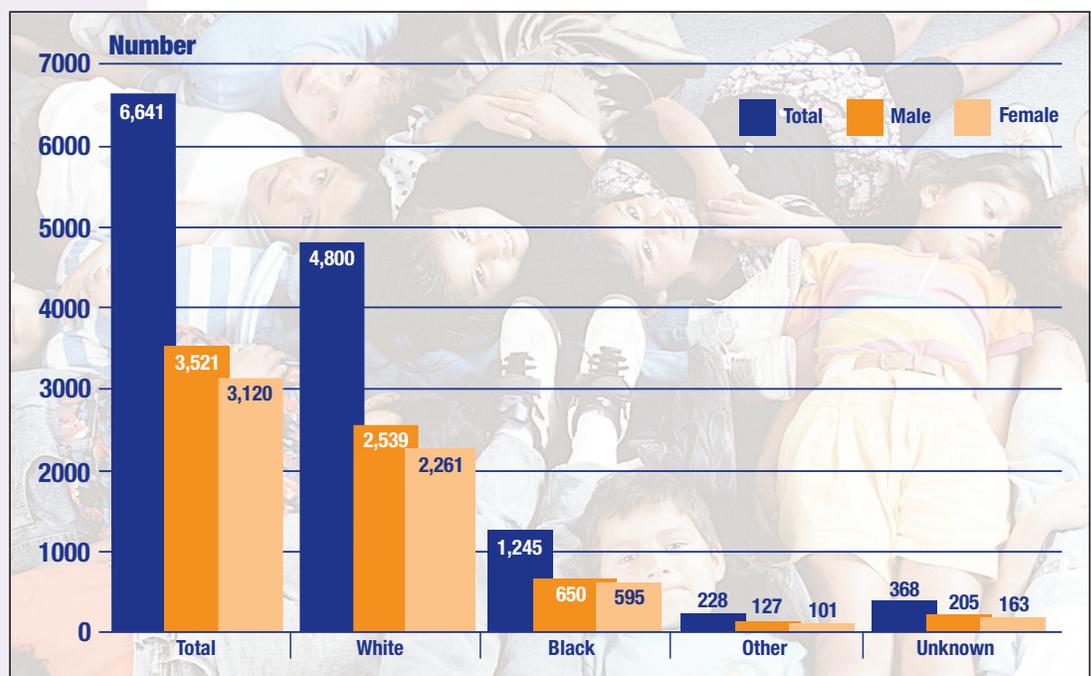


Due to the special health care needs of newborns, infants in the first year of life are excluded. By age 18, individuals are leaving home, entering the workforce, or going to college. Thus ages 1 through 17 seems the most appropriate age range to represent this childhood population.

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 6,641 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. Also hospitalizations where these codes (001-139) are present only as other diagnostic codes are not included.

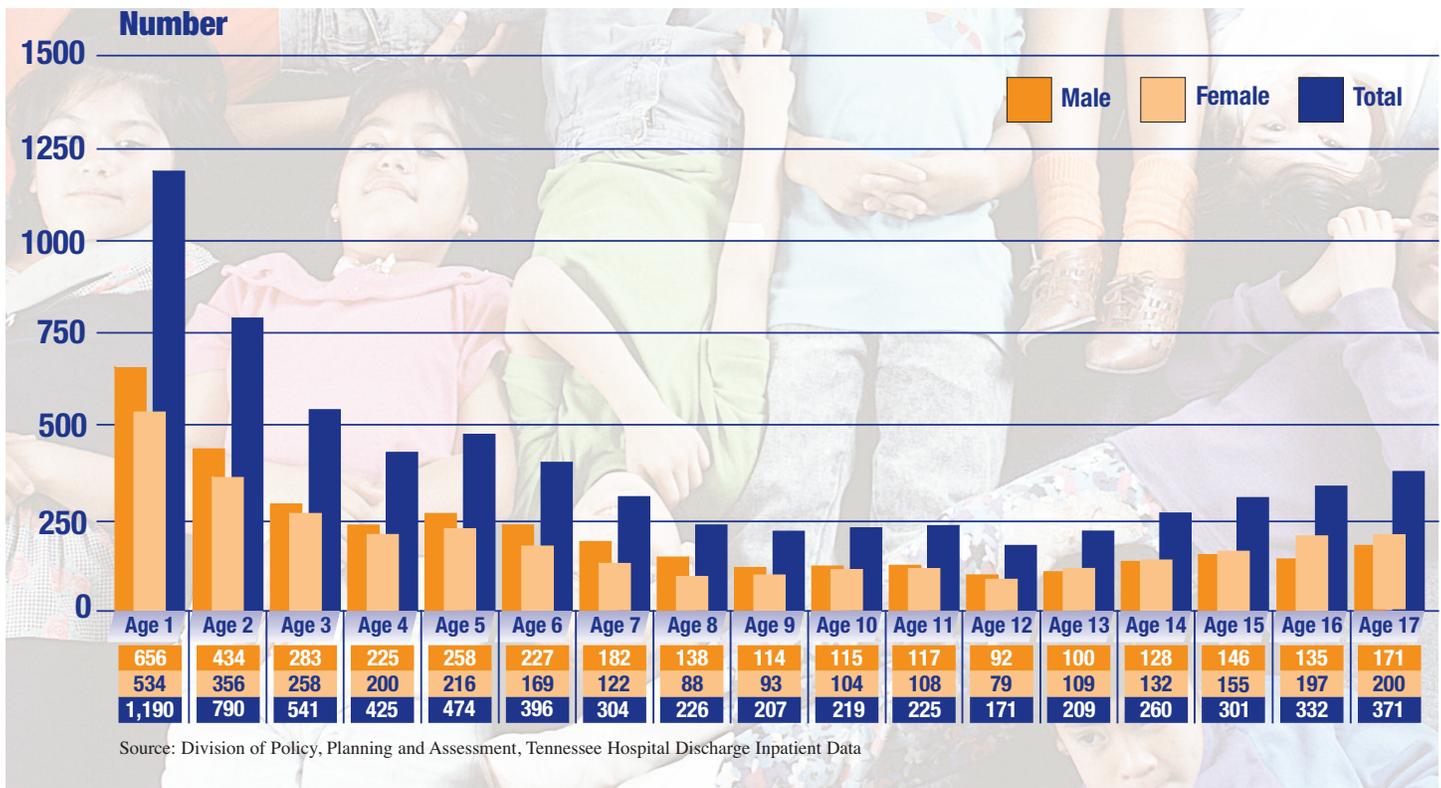
The first table is a frequency of race by gender. Slightly more males (53.0 percent) than females (47.0 percent) were hospitalized. Most of the children hospitalized were white (72.3 percent). Blacks were the second largest racial grouping (18.7 percent). These are the largest and second largest racial groups in the population, so this result would be expected.

### INFECTIONOUS DISEASES IN CHILDREN AGES 1-17 By RACE AND GENDER, 2009-2013



Source: Division of Policy, Planning and Assessment, Tennessee Hospital Discharge Inpatient Data

## INFECTIOUS DISEASES IN CHILDREN AGES 1-17 By AGE AND GENDER, 2009-2013



The younger male age groups were hospitalized far more often than the female and older age groups. The frequency of hospitalizations dropped to a low point at age 12, then rose slowly among the older children. At age 13, the female age groups increased over the male hospitalizations.

The largest total number of child hospitalizations were paid by TennCare; Tennessee's Medicaid waiver plan. This is true for all racial groups except the white population. For the white population group, the majority of hospitalizations were paid by "Other Insurance," i.e. by private insurance.



## INFECTIOUS DISEASES IN CHILDREN AGES 1-17 By RACE AND PAYER, 2009-2013

RACE	PAYER						Total Cases
	TennCare	Medicare	Self Pay	Other Insurance	Cover Kids/TN	Other/Unknown	
White	2,117	13	120	2,447	40	63	4,800
Black	873	4	29	328	5	6	1,245
Other	142	-	14	66	4	2	228
Unknown	231	2	18	114	-	3	368
<b>Total</b>	<b>3,363</b>	<b>19</b>	<b>181</b>	<b>2,955</b>	<b>49</b>	<b>74</b>	<b>6,641</b>

Source: Division of Policy, Planning and Assessment, Tennessee Hospital Discharge Inpatient Data

## INFECTIOUS DISEASES IN CHILDREN AGES 1-17 By YEAR AND PAYER, 2009-2013

YEAR	PAYER						Total Cases
	TennCare	Medicare	Self Pay	Other Insurance	Cover Kids/TN	Other/Unknown	
2009	750	2	46	668	10	21	1,497
2010	678	6	27	567	3	10	1,291
2011	633	2	29	551	10	14	1,239
2012	632	3	32	549	12	19	1,247
2013	670	6	47	620	14	10	1,367
<b>Total</b>	3,363	19	181	2,955	49	74	6,641

Source: Division of Policy, Planning and Assessment, Tennessee Hospital Discharge Inpatient Data

The table above shows a slight variation in the number of hospitalizations for the five-year period with a 9.6 percent increase for 2013 over the previous year. Infectious diseases are much more variable from year to year than are most other causes such as injuries or chronic diseases.



TOTAL 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. (Note that charge is the nominal charge. Most actual payments are lower.)

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, 2009-2013

PAYER	Mean Length of Stay	Median Charge	Total Charge	Total Cases
<b>Total</b>	4.1	\$9,335.66	\$163,997,714.33	6,641
<b>TennCare</b>	4.3	\$9,535.40	\$82,248,204.93	3,363
<b>Medicare</b>	5.4	\$12,979.80	\$498,130.43	19
<b>Self Pay</b>	3.5	\$8,590.00	\$3,559,324.71	181
<b>Other Insurance</b>	3.9	\$9,087.00	\$74,524,896.37	2,955
<b>Cover Kids/TN</b>	3.9	\$8,918.55	\$1,489,715.47	49
<b>Other/Unknown</b>	3.7	\$8,521.73	\$1,677,442.42	74

Source: Division of Policy, Planning and Assessment, Tennessee Hospital Discharge Inpatient Data

## INFECTIOUS DISEASES IN CHILDREN AGES 1-17

### By DIAGNOSIS, 2009-2013

DX	DIAGNOSIS	Mean Length of Stay	Median Charge	Total Charge	Cases	White	Black
	All infectious & parasitic	4.1	\$9,335.66	\$163,997,714.33	6,641	4,800	1,245
002-	Typhoid & paratyphoid	2.3	\$10,204.75	\$25,717.23	3	1	0
003-	Other salmonella	3.9	\$10,477.76	\$2,646,628.48	180	123	45
004-	Shigellosis	3.3	\$10,666.25	\$973,745.31	66	29	29
005-	Other food poisoning	3.0	\$9,560.51	\$92,251.66	9	9	0
007-	Other protozoal intestinal	4.2	\$13,838.81	\$491,745.16	26	20	4
008-	Other intestinal	3.0	\$6,819.75	\$24,963,663.55	2,305	1,820	271
008.0	E. coli	5.7	\$11,087.79	\$1,502,145.01	58	55	0
008.4	Other specified bacteria	4.8	\$10,851.11	\$8,479,913.12	402	320	58
008.5	Bacterial enteritis, unspecified	2.8	\$10,854.49	\$161,922.65	14	11	2
008.6	Enteritis due to specified virus	2.6	\$5,490.00	\$5,321,066.23	713	564	74
008.8	Other organism, NEC	2.4	\$6,829.43	\$9,498,616.54	1,118	870	137
009-	Ill-defined intestinal	3.0	\$8,917.20	\$1,480,234.59	103	80	16
010-	Primary tuberculosis infection	7.0	\$24,377.65	\$48,755.30	2	0	1
011-	Pulmonary tuberculosis	6.2	\$15,842.17	\$494,688.42	23	2	14
013-	TB of meninges & CNS	44.0	\$417,717.21	\$835,434.41	2	0	1
015-	TB of bones and joints	16.5	\$63,480.12	\$126,960.23	2	0	0
017-	Tuberculosis of other organs	14.0	\$72,583.83	\$72,583.83	1	0	1
018-	Miliary tuberculosis	14.0	\$72,407.15	\$72,407.15	1	0	1
021-	Tularemia	3.0	\$22,797.63	\$22,797.63	1	1	0
023-	Brucellosis	8.0	\$46,311.90	\$46,311.90	1	0	1
026-	Rat-bite fever	4.5	\$15,151.97	\$30,303.93	2	2	0
031-	Due to other mycobacteria	13.2	\$42,637.11	\$2,676,297.54	20	15	5
033-	Whooping cough	3.0	\$10,691.70	\$180,237.08	15	12	3
034-	Strep sore throat & scarlet fever	2.2	\$6,835.92	\$2,885,427.32	356	260	66
034.0	Streptococcal sore throat	2.1	\$6,600.10	\$2,658,220.51	334	242	62
034.1	Scarlet fever	2.6	\$9,358.01	\$227,206.81	22	18	4
035-	Erysipelas	2.8	\$7,672.48	\$181,942.94	15	10	2
036-	Meningococcal infection	8.9	\$26,981.92	\$992,097.82	18	11	3
036.0	Meningococcal meningitis	5.9	\$22,651.96	\$226,334.41	10	5	2
036.1	Meningococcal encephalitis	2.0	\$14,603.00	\$14,603.00	1	1	0
036.2	Meningococemia	15.8	\$132,921.00	\$738,708.17	6	4	1
036.9	Unspecified meningococcal	4.0	\$12,452.24	\$12,452.24	1	1	0
038-	Septicemia	9.7	\$34,400.16	\$71,927,280.63	767	538	158
038.0	Streptococcal septicemia	12.0	\$65,865.88	\$5,361,191.21	47	35	8
038.1	Staphylococcal septicemia	12.5	\$59,940.89	\$19,243,816.22	128	92	28
038.2	Pneumococcal septicemia	11.4	\$44,288.82	\$4,127,332.74	35	23	7
038.3	Due to anaerobes	13.6	\$89,433.77	\$748,714.04	8	6	2
038.4	Due to other gram-negative organisms	10.4	\$37,688.93	\$9,059,712.78	106	66	27
038.8	Other specified septicemias	9.8	\$39,245.54	\$2,692,133.48	30	22	3
038.9	Unspecified septicemia	8.2	\$21,868.48	\$30,694,380.16	413	294	83
039-	Actinomycotic infections	3.0	\$10,076.70	\$71,681.70	3	3	0
040-	Other bacterial	5.0	\$25,322.10	\$3,388,266.67	61	51	6
041-	Bacterial in conditions classified elsewhere & of unspecified site	3.6	\$8,428.80	\$488,141.59	30	19	6
042-	HIV	11.3	\$45,136.08	\$583,518.63	11	0	11
047-	Meningitis due to enterovirus	2.6	\$10,053.02	\$5,637,046.16	454	290	121
047.8	Other specified viral meningitis	2.3	\$11,158.34	\$1,109,897.16	81	49	24
047.9	Unspecified viral meningitis	2.6	\$9,681.30	\$4,527,149.00	373	241	97
048-	Other enterovirus of CNS	4.5	\$17,704.73	\$1,418,936.85	51	41	6
049-	Other non-arthropod-borne viral of CNS	6.8	\$25,317.10	\$2,711,525.71	59	43	9
052-	Chickenpox	4.6	\$13,751.77	\$743,790.54	36	31	3
053-	Herpes zoster	5.6	\$14,776.71	\$1,113,773.99	45	32	10
054-	Herpes simplex	3.8	\$9,732.55	\$3,669,577.32	258	152	80
055-	Measles	2.0	\$3,484.00	\$3,484.00	1	1	0

INFECTIOUS DISEASES IN CHILDREN AGES 1-17 By Diagnosis, 2009-2013 (CONT.)

		Mean Length of Stay	Median Charge	Total Charge	Cases	White	Black
057-	Other viral exanthemata	2.4	\$9,476.98	\$477,621.78	47	35	5
058-	Other human herpesvirus	3.0	\$12,017.91	\$24,035.82	2	1	0
059-	Other poxvirus infections	3.0	\$17,339.64	\$17,339.64	1	0	1
061-	Dengue	2.0	\$13,913.27	\$13,913.27	1	0	0
062-	Mosquito-borne viral encephalitis	6.4	\$26,563.20	\$553,778.30	19	18	0
064-	Viral encephalitis transmitted by other & unspecified arthropods	18.3	\$23,930.48	\$398,013.43	3	2	0
066-	Other arthropod-borne viral	2.5	\$9,564.16	\$608,642.04	49	39	8
070-	Viral hepatitis	5.0	\$12,042.50	\$1,077,579.18	37	27	8
072-	Mumps	3.0	\$13,212.08	\$26,424.15	2	2	0
074-	Due to coxsackie virus	2.7	\$6,583.00	\$561,940.33	51	33	13
075-	Infectious mononucleosis	2.9	\$8,302.65	\$4,347,335.82	362	256	85
077-	Other diseases of conjunctiva due to viruses & Chlamydiae	2.0	\$5,105.29	\$15,131.29	3	2	0
078-	Other due to viruses & chlamydiae	3.6	\$14,049.43	\$1,210,921.40	54	41	10
078.0	Molluscum contagiosum	1.3	\$4,250.00	\$15,472.05	3	3	0
078.3	Cat-scratch disease	4.3	\$11,111.09	\$525,410.35	19	17	2
078.5	Cytomegaloviral disease	4.6	\$17,891.93	\$464,792.86	16	7	8
078.8	Other specified diseases due to viruses & Chlamydiae	2.1	\$12,940.41	\$205,246.14	16	14	0
079-	Viral & chlamydial--unspecified site	2.7	\$9,034.15	\$8,460,308.89	695	515	124
079.0	Adenovirus	2.9	\$9,641.81	\$545,960.82	45	38	5
079.2	Coxsackie virus	3.0	\$8,303.87	\$66,557.92	7	5	1
079.3	Rhinovirus	3.1	\$13,526.94	\$196,439.98	10	6	3
079.4	Human papilloma virus	3.0	\$24,679.14	\$24,679.14	1	1	0
079.6	Respiratory syncytial virus	3.1	\$8,558.05	\$563,756.59	38	28	7
079.8	Other specified viral & chlamydial	2.9	\$12,226.20	\$829,121.18	55	35	13
079.9	Unspecified viral & chlamydial	2.6	\$8,674.19	\$6,233,793.26	539	402	95
082-	Tick-borne Rickettsioses	3.4	\$11,725.90	\$1,818,095.94	99	83	10
082.0	Spotted fevers	3.3	\$9,942.09	\$1,051,010.36	66	57	4
082.4	Ehrlichiosis	3.5	\$19,367.70	\$600,579.68	25	18	6
082.8	Other specified tick-borne	2.7	\$12,613.00	\$66,252.37	3	3	0
082.9	Unspecified tick-born	3.8	\$16,399.13	\$100,253.53	5	5	0
083-	Other rickettsioses	3.4	\$10,724.28	\$106,259.02	7	6	1
084-	Malaria	2.7	\$10,171.00	\$167,266.40	14	3	7
087-	Relapsing fever	4.0	\$8,102.94	\$8,102.94	1	1	0
088-	Other arthropod-borne	5.3	\$9,584.71	\$194,417.39	10	9	1
097-	Other and unspecified syphilis	1.0	\$9,528.60	\$9,528.60	1	0	1
098-	Gonococcal	2.8	\$14,150.06	\$56,417.05	4	1	3
099-	Other venereal	2.2	\$11,061.30	\$304,911.58	23	11	11
100-	Leptospirosis	2.5	\$8,327.79	\$16,655.58	2	2	0
110-	Dermatophytosis	1.5	\$8,164.75	\$53,049.04	6	2	4
111-	Dermatomycosis, other and unspecified	5.5	\$33,614.78	\$67,229.56	2	1	0
112-	Candidiasis	7.2	\$18,092.10	\$1,491,525.92	40	22	11
114-	Coccidioidomycosis	2.0	\$12,746.10	\$12,746.10	1	0	1
115-	Histoplasmosis	6.6	\$30,473.10	\$2,969,609.55	61	14	41
116-	Blastomycotic infection	3.5	\$16,695.76	\$33,391.52	2	1	1
117-	Other mycoses	8.6	\$71,561.15	\$3,101,115.88	29	23	3
122-	Echinococcosis	27.0	\$158,205.20	\$158,205.20	1	0	0
123-	Other cestode infection	6.0	\$46,166.00	\$46,166.00	1	0	0
127-	Other intestinal helminthiases	4.0	\$10,224.00	\$10,224.00	1	1	0
129-	Intestinal parasitism, unspecified	7.0	\$41,688.65	\$41,688.65	1	1	0
131-	Trichomoniasis	2.0	\$9,567.52	\$19,135.03	2	1	1
133-	Acariasis	2.7	\$4,623.30	\$33,732.80	3	2	1
135-	Sarcoidosis	19.5	\$38,938.75	\$378,003.96	4	2	2
136-	Other infectious & parasitic	7.8	\$34,719.01	\$3,990,851.01	72	47	19
139-	Late effects of other infectious/parasitic	6.0	\$19,145.00	\$19,145.00	1	0	0

Source: Division of Policy, Planning and Assessment, 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 was high in both measures.

*Infectious Diseases in Children Ages 1-17* was published by the Tennessee Department of Health, Division of Policy, Planning and Assessment Hospital Discharge Data System Andrew Johnson Tower, 2nd Floor Nashville, Tennessee, 37243 For additional information please call (615)741-1954



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