

# INFECTIONOUS DISEASES

## IN CHILDREN

AGES 1-17

Volume 1, Issue 2

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### 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.

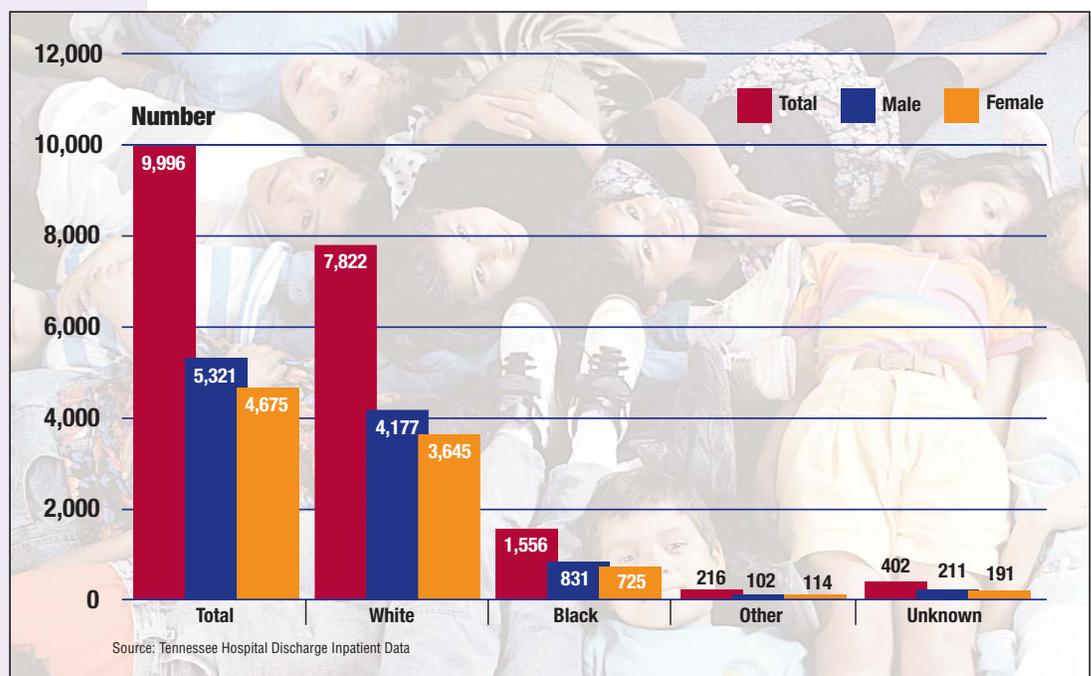
This newsletter looks at all children ages 1 through 17 hospitalized in Tennessee for infectious and parasitic diseases from 2000-2004. Basic demographic characteristics of the children are examined first, and then a detailed breakdown by disease code is examined.

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.

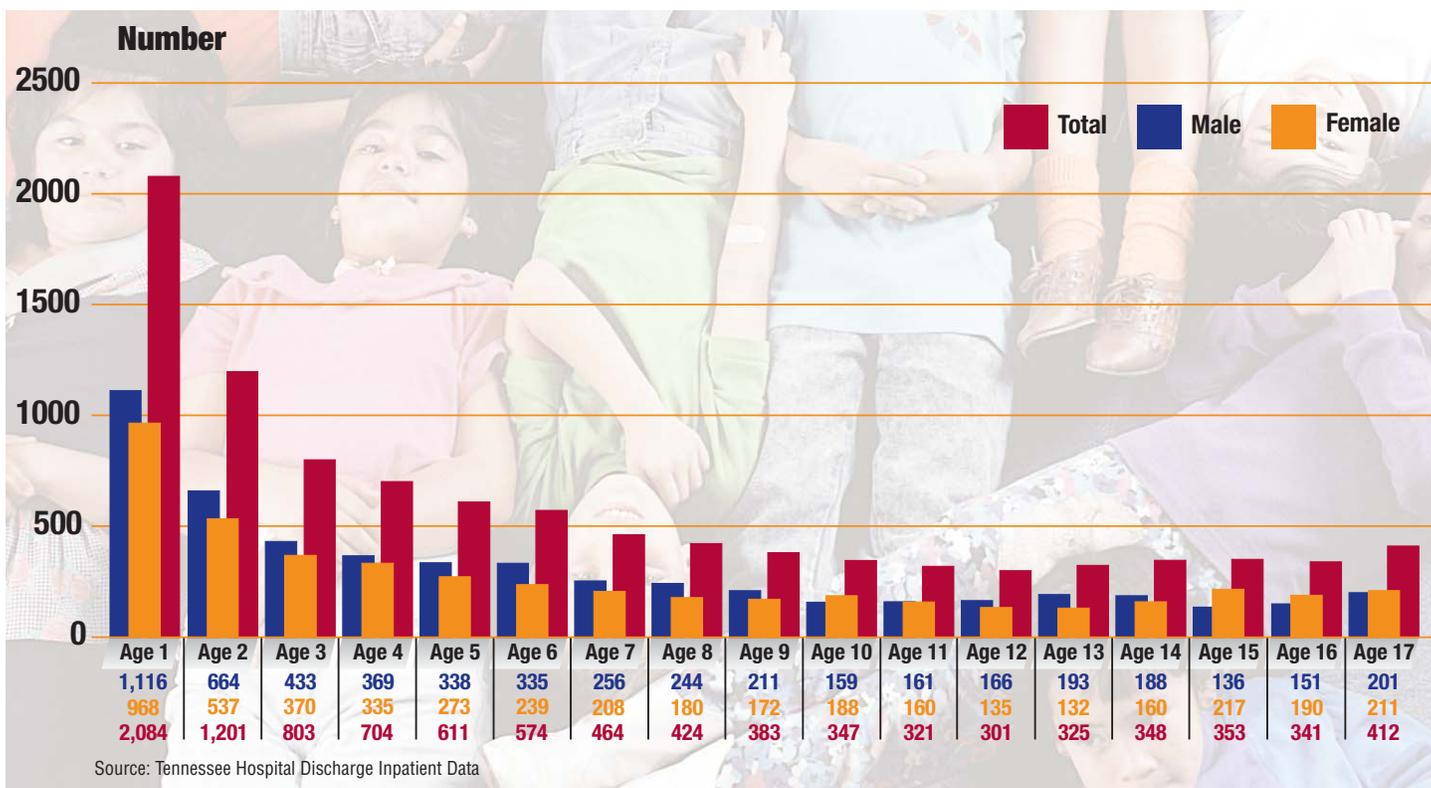
Only those children with a primary diagnosis of infectious or parasitic diseases were included in this report. This is represented by the ICD-9-CM code values of 001-139, where 9,996 children ages 1-17 were found with this primary diagnosis. Note: Certain diseases coded according to the organ or system 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 (53.2%) than females (46.8%) were hospitalized. Most of the children hospitalized were white (78.3%). Blacks were the second largest racial grouping (15.6%). 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, 2000-2004



## INFECTIOUS DISEASES IN CHILDREN AGES 1-17 By AGE AND GENDER, 2000-2004



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, 2000-2004

RACE	PAYER						Total Cases
	TennCare	Medicare	Self pay	Other Insurance	Free Care	Other/Unknown	
White	2,932	20	207	4,290	4	369	7,822
Black	892	8	38	486	3	129	1,556
Other	73	0	30	100	1	12	216
Unknown	103	0	6	255	12	26	402
<b>Total</b>	<b>4,000</b>	<b>28</b>	<b>281</b>	<b>5,131</b>	<b>20</b>	<b>536</b>	<b>9,996</b>

Source: Tennessee Hospital Discharge Inpatient Data

## INFECTIOUS DISEASES IN CHILDREN AGES 1-17 By YEAR AND PAYER, 2000-2004

YEAR	PAYER						Total Cases
	TennCare	Medicare	Self pay	Other insurance	Free care	Other/Unknown	
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
2003	913	6	61	1,117	1	133	2,231
2004	847	6	53	1,081	2	161	2,150
<b>Total</b>	4,000	28	281	5,131	20	536	9,996

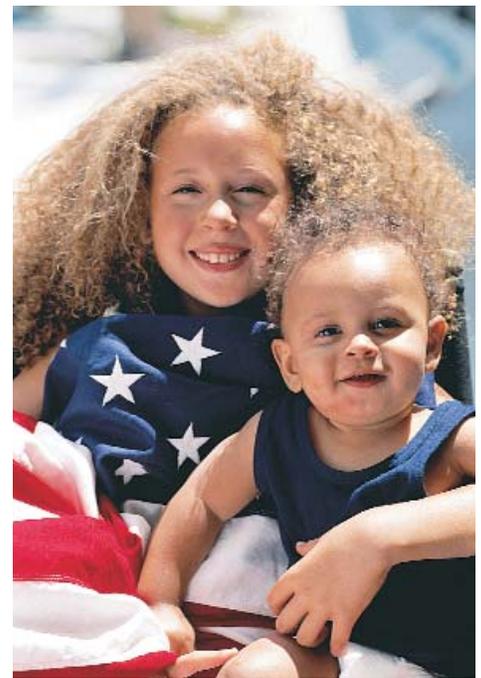
Source: Tennessee Hospital Discharge Inpatient Data

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, 2000-2004

PAYER	Mean Length of Stay	Median Charge	Total Charge	Total Cases
<b>Total</b>	3.1	\$3,530.44	\$83,665,779.29	9,996
<b>TennCare</b>	3.1	\$3,585.12	\$32,965,686.06	4,000
<b>Medicare</b>	4.5	\$5,060.48	\$387,125.28	28
<b>Self pay</b>	3.7	\$3,907.42	\$3,080,332.71	281
<b>Other insurance</b>	3.0	\$3,445.10	\$41,420,123.79	5,131
<b>Free Care</b>	1.8	\$3,088.85	\$66,275.89	20
<b>Other/Unknown</b>	3.5	\$3,795.33	\$5,746,235.56	536

Source: Tennessee Hospital Discharge Inpatient Data

## INFECTIOUS DISEASES IN CHILDREN AGES 1-17

### By DIAGNOSIS, 2000-2004

		MEAN LENGTH OF STAY	MEDIAN CHARGE	TOTAL CHARGE	CASES	WHITE	BLACK
DX	DIAGNOSIS						
	All infectious & parasitic	3.1	\$3,530.44	\$83,665,779.29	9,996	7,822	1,556
002-	Typhoid & paratyphoid	3.4	\$4,640.28	\$45,057.46	8	3	0
003-	Other salmonella	3.3	\$3,982.21	\$848,066.24	145	94	41
004-	Shigellosis	2.5	\$3,328.00	\$279,998.96	70	46	20
005-	Other food poisoning	1.3	\$2,265.57	\$72,634.17	21	15	4
006-	Amebiasis	3.0	\$8,703.00	\$8,703.00	1	1	0
007-	Other protozoal intestinal	3.3	\$2,956.48	\$110,808.19	23	19	2
008-	Other intestinal	2.3	\$2,659.90	\$13,282,338.43	3,551	2,994	350
008.0	E. coli	3.8	\$4,842.30	\$165,282.21	28	25	2
008.4	Other specified bacteria	4.6	\$5,642.04	\$2,645,650.76	192	160	24
008.5	Bacterial enteritis, unspecified	2.1	\$3,340.00	\$135,746.31	35	29	4
008.6	Enteritis due to specified virus	2.3	\$2,585.10	\$5,718,355.03	1,860	1,609	135
008.8	Other organism, NEC	1.9	\$2,481.00	\$4,617,304.12	1,436	1,171	185
009-	Ill-defined intestinal	2.3	\$3,383.70	\$671,149.92	136	113	14
010-	Primary tuberculosis infection	3.5	\$3,184.49	\$6,368.98	2	1	1
011-	Pulmonary tuberculosis	5.8	\$6,942.97	\$211,273.87	24	5	16
012-	Other respiratory TB	6.0	\$14,116.98	\$28,233.96	2	0	2
013-	TB of meninges & CNS	16.9	\$31,758.28	\$440,692.62	8	1	6
015-	TB of bones and joints	8.8	\$21,947.63	\$187,187.88	4	0	4
020-	Plague	1.0	\$897.40	\$897.40	1	1	0
021-	Tularemia	4.0	\$5,474.42	\$47,054.35	6	6	0
023-	Brucellosis	1.0	\$6,313.50	\$6,313.50	1	1	0
026-	Rat-bite fever	3.0	\$5,600.63	\$11,201.26	2	2	0
027-	Other zoonotic	2.0	\$1,861.48	\$1,861.48	1	1	0
031-	Due to other mycobacteria	7.0	\$20,921.65	\$41,843.30	2	1	0
033-	Whooping cough	4.0	\$4,682.87	\$71,691.99	11	10	1
034-	Strep sore throat & scarlet fever	1.9	\$2,940.65	\$2,182,778.76	606	510	66
034.0	Streptococcal sore throat	1.9	\$2,965.00	\$2,024,966.85	559	472	58
034.1	Scarlet fever	2.2	\$2,682.00	\$157,811.91	47	38	8
035-	Erysipelas	2.4	\$3,201.95	\$75,214.40	20	18	1
036-	Meningococcal infection	6.6	\$10,386.24	\$1,974,284.64	94	72	17
036.0	Meningococcal meningitis	7.1	\$11,134.96	\$890,830.64	52	38	10
036.1	Meningococcal encephalitis	1.0	\$5,253.43	\$5,253.43	1	1	0
036.2	Meningococemia	6.3	\$8,268.31	\$1,063,011.73	38	31	6
036.8	Other specified meningococcal	6.0	\$11,185.04	\$11,185.04	1	1	0
036.9	Unspecified meningococcal	2.0	\$2,001.90	\$4,003.80	2	1	1
038-	Septicemia	7.4	\$11,534.87	\$22,256,800.72	658	495	134
038.0	Streptococcal septicemia	10.6	\$19,191.55	\$3,927,151.13	79	61	16
038.1	Staphylococcal septicemia	10.7	\$15,242.58	\$5,262,904.02	76	53	19
038.2	Pneumococcal septicemia	4.3	\$6,080.57	\$797,816.61	70	51	13
038.3	Due to anaerobes	15.8	\$67,963.50	\$338,818.00	5	4	0
038.4	Due to other gram-negative organisms	8.7	\$19,584.30	\$4,079,290.06	123	89	27
038.8	Other specified septicemias	14.1	\$34,789.57	\$2,617,965.88	34	28	5
038.9	Unspecified septicemia	4.8	\$6,788.15	\$5,232,855.02	271	209	54
039-	Actinomycotic infections	8.0	\$35,878.04	\$35,878.04	1	1	0
040-	Other bacterial	6.7	\$10,634.33	\$1,879,720.28	54	39	9
041-	Bacterial--class elsewhere & unspecified site	3.7	\$7,281.91	\$267,248.15	28	22	5
042-	HIV	5.0	\$7,887.53	\$365,490.02	26	5	21
047-	Meningitis due to enterovirus	2.2	\$4,167.39	\$7,217,781.62	1,448	1,027	335
047.0	Coxsackie virus	3.0	\$5,067.21	\$5,067.21	1	1	0
047.8	Other specified viral meningitis	2.5	\$5,371.50	\$414,559.97	66	47	13
047.9	Unspecified viral meningitis	2.2	\$4,137.80	\$6,798,154.44	1,381	979	322
048-	Other enterovirus of CNS	4.3	\$10,771.34	\$652,955.19	52	44	6
049-	Other non-arthropod-borne viral of CNS	5.9	\$9,971.22	\$1,415,404.51	76	55	10
050-	Smallpox	3.0	\$8,183.00	\$8,183.00	1	1	0
052-	Chickenpox	4.5	\$6,147.15	\$1,569,027.56	113	83	21
053-	Herpes zoster	5.4	\$9,644.33	\$1,580,085.08	112	81	16
054-	Herpes simplex	4.1	\$3,821.60	\$2,748,306.97	239	164	55

## INFECTIOUS DISEASES IN CHILDREN AGES 1-17

### By DIAGNOSIS, 2000-2004

		MEAN LENGTH OF STAY	MEDIAN CHARGE	TOTAL CHARGE	CASES	WHITE	BLACK
055-	Measles	4.0	\$4,399.28	\$4,399.28	1	1	0
057-	Other viral exanthemata	2.2	\$2,786.35	\$189,868.28	46	42	2
061-	Dengue	3.5	\$3,605.85	\$7,211.69	2	1	0
062-	Mosquito-borne viral encephalitis	8.3	\$20,047.63	\$376,458.87	15	11	0
063-	Tick-borne viral encephalitis	3.0	\$4,681.55	\$4,681.55	1	1	0
066-	Other arthropod-borne viral	2.1	\$3,857.40	\$37,904.32	8	6	0
070-	Viral hepatitis	3.1	\$6,270.60	\$451,293.70	47	36	8
071-	Rabies	5.0	\$79,374.22	\$79,374.22	1	1	0
072-	Mumps	2.0	\$5,581.40	\$13,960.06	3	1	1
074-	Due to coxsackie virus	2.1	\$2,648.00	\$200,063.97	67	50	9
075-	Infectious mononucleosis	2.6	\$3,459.67	\$2,807,022.08	533	436	63
077-	Of conjunctiva due to viruses & Chlamydiae	2.8	\$3,527.00	\$13,855.84	4	1	3
078-	Other due to viruses & chlamydiae	5.5	\$6,443.55	\$2,799,845.23	113	81	18
078.1	Viral warts	1.4	\$5,257.01	\$32,410.40	5	3	2
078.3	Cat-scratch disease	3.6	\$6,483.73	\$638,253.21	62	52	5
078.4	Foot and mouth disease	2.3	\$5,303.15	\$20,660.46	4	2	2
078.5	Cytomegaloviral disease	14.7	\$16,507.81	\$2,036,471.27	23	12	6
078.8	Other spec dis due to viruses & Chlamydiae	2.3	\$2,659.05	\$72,049.89	19	12	3
079-	Viral & chlamydial--unspecified site	2.2	\$3,115.03	\$4,962,938.23	1,176	933	187
079.0	Adenovirus	7.4	\$6,880.05	\$376,176.32	14	12	2
079.1	ECHO virus	2.0	\$4,060.17	\$4,060.17	1	1	0
079.2	Coxsackie virus	2.5	\$2,653.13	\$20,150.92	6	5	1
079.4	Human papilloma virus	1.0	\$2,654.54	\$2,654.54	1	1	0
079.5	Retrovirus	2.5	\$2,294.75	\$4,589.50	2	1	1
079.6	Respiratory syncytial virus	2.2	\$2,513.00	\$135,365.57	39	35	2
079.8	Other specified viral & chlamydial	2.4	\$2,500.40	\$134,507.95	35	26	6
079.9	Unspecified viral & chlamydial	2.1	\$3,139.76	\$4,285,433.26	1,078	852	175
082-	Tick-borne Rickettsioses	3.7	\$5,284.08	\$1,177,289.57	114	98	10
082.0	Spotted fevers	3.8	\$5,107.93	\$932,110.16	84	72	7
082.4	Ehrlichiosis	3.5	\$6,636.19	\$208,579.77	24	20	3
082.8	Other specified tick-borne	2.7	\$7,009.83	\$21,616.73	3	3	0
082.9	Unspecified tick-born	2.7	\$5,025.96	\$14,982.91	3	3	0
083-	Other rickettsioses	2.8	\$4,599.14	\$43,531.78	9	8	0
084-	Malaria	3.1	\$3,123.71	\$43,410.85	11	1	9
085-	Leishmaniasis	3.0	\$7,008.71	\$7,008.71	1	0	0
087-	Relapsing fever	4.0	\$6,768.50	\$13,537.00	2	2	0
088-	Other arthropod-borne	12.7	\$2,704.40	\$250,459.22	3	2	1
094-	Neurosyphilis	16.0	\$25,780.73	\$51,561.45	2	1	1
098-	Gonococcal	3.4	\$6,045.85	\$268,825.77	31	3	27
099-	Other venereal	2.4	\$5,360.81	\$104,298.10	18	5	13
100-	Leptospirosis	5.5	\$10,569.23	\$42,852.66	4	4	0
101-	Vincent's angina	8.5	\$6,368.70	\$12,737.40	2	1	1
110-	Dermatophytosis	2.6	\$3,073.21	\$15,037.72	5	1	4
112-	Candidiasis	11.1	\$16,414.47	\$2,923,194.60	58	50	5
115-	Histoplasmosis	5.3	\$14,720.17	\$599,603.21	27	17	7
116-	Blastomycotic infection	4.0	\$11,604.60	\$23,209.20	2	1	1
117-	Other mycoses	17.9	\$44,552.68	\$4,137,937.57	52	34	10
118-	Opportunistic mycoses	18.0	\$77,377.67	\$77,377.67	1	1	0
122-	Echinococcosis	4.5	\$14,170.77	\$28,341.53	2	0	0
123-	Other cestode infection	3.3	\$6,563.16	\$57,689.91	6	3	1
127-	Other intestinal helminthiases	3.0	\$8,980.18	\$33,075.30	4	3	0
129-	Intestinal parasitism, unspecified	4.5	\$7,316.92	\$14,633.84	2	2	0
131-	Trichomoniasis	2.0	\$4,837.96	\$19,157.61	4	0	4
133-	Acariasis	6.3	\$10,456.89	\$31,045.71	3	1	2
135-	Sarcoidosis	5.0	\$17,544.20	\$17,544.20	1	1	0
136-	Other infectious & parasitic	5.2	\$9,080.48	\$1,121,005.49	68	51	12

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 was high in both measures.

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Tennessee Department of Health  
 Policy, Planning and Assessment  
 Division of Health Statistics  
 425 5th Avenue No. 4th Floor  
 Nashville, Tennessee 37247-5262