

*Data*  
*Statistics*  
*Information*  
*Graphs*  
*Tables*  
*Charts*  
*Trends*

# Davidson County STD Surveillance Report Data for 2010

Metro Public Health  
Department of  
Nashville/Davidson  
County



## **Suggested Citation**

Chen Z, Thomas-Trudo SD. Sexually Transmitted Disease Surveillance Report 2010, Nashville, TN; Metro Nashville Public Health Department, 2012.

## **Acknowledgments**

Publication of this report would not have been possible without the contributions and support from Brad Beasley, director of the STD/HIV Prevention and Control Program at Metro Nashville Public Health Department, and Thomas J. Shavor, Epidemiology Director for the HIV/STD Program at the Tennessee Department of Health. We thank Karen Grimm, Metro Nashville Public Health Department, for her assistance in manuscript preparation.

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# Introduction

Sexually transmitted diseases (STDs) refer to a variety of clinical syndromes caused by pathogens that can be acquired and transmitted through sexual activity. STDs present enormous health and economic consequences.[1] There are known risk factors associated with the acquisition of STDs, including biological and behavioral factors, cultural influences, lack of information about transmission and contraction of STDs, difficulty accessing prevention services, lack of adult supervision (for adolescents) and number of sexual partners.[2]

Many STDs are asymptomatic. Adequate screening for STDs on a routine basis can help control and prevent the diseases. It is estimated that reported cases of STDs represent only 50 to 80% of all reportable STD infections in the United States, reflecting limited screening and low disease reporting.[3] Therefore, caution must be used when interpreting the data in this surveillance report, because such data represent reported cases only.

This surveillance report summarizes disease morbidity reported for chlamydia, gonorrhea, and syphilis for the calendar year 2010. It also identifies trends and patterns in sexually transmitted diseases, and provides a comprehensive update on reportable STDs in Davidson County, TN.

Data and information in the report are based on confirmed cases reported to the Nashville/Davidson County Public Health Department in 2010. All cases presented in this report were age 10 years or older at disease diagnosis. These data may differ slightly by collection date or geographical area. Therefore, please note that data, figures, and tables in the report may not exactly match other reports of state and local data.

Any comments and suggestions that would improve future publications are appreciated and should be sent to

Brad Beasley  
Director, STD/HIV Prevention and  
Control Program  
Metro Nashville Public Health Department  
311 23rd Avenue North  
Nashville, TN 37203  
615-340-5676  
[brad.beasley@nashville.gov](mailto:brad.beasley@nashville.gov)

# Part I. Sexually Transmitted Disease Morbidity 2010

Overall, there were 4,627 STD cases reported in Davidson County in 2010 (Table 1.1). Among them, chlamydia cases accounted for 75%, gonorrhea cases 21%, and syphilis 4% (Figure 1.1). Nearly 62% of STD cases were female.

Considering morbidity by racial and ethnic groups, non-Hispanic blacks had the highest number of cases, followed by non-Hispanic whites and Hispanics. The age group with the highest chlamydia morbidity in each racial and ethnic group was women aged 15–19 years, and men aged 20–24 years. The age group with the highest gonorrhea rate was older for Hispanics than for either non-Hispanic whites or non-Hispanic blacks. Among Hispanic women, the highest rate was in the 20–24 year old group; the highest rate for both non-Hispanic black and non-Hispanic white women was in the 15–19 year old group. Among Hispanic men, the 25–29 year old group had the highest rate, while the highest rate for both non-Hispanic black and non-Hispanic white men was in the 20–24 year old group.

Non-Hispanic black men had the highest primary and secondary syphilis morbidity, followed by non-Hispanic white men, non-Hispanic black women, and non-Hispanic white women. No Hispanic cases of primary and secondary syphilis were reported in 2010 in Davidson County. (Table 1.2, Table 1.3, and Figure 1.2–Figure 1.11)

Except for the 10–14 year age group, the overall STD cases decreased with increasing age. The highest morbidity was in the group aged 15–29 years. Youth 15–24 years old accounted for 65% of STD cases. The higher STD infection among youth should cause awareness

of the importance of prevention and intervention for this specific population.

Some studies indicated that the reasons for the disproportionate incidence of infection in youth include behavioral risk factors, biological susceptibility in young girls, and challenges in accessing health care. Psychosocial factors that influence STD acquisition among youth include inconsistent and improper condom use, multiple partners, complex romantic/sexual networks, and poor decision-making skills. Early initiation of sexual activity has also been shown to correlate with youth STDs. [4-9]

Prevention is the key to controlling the spread of STDs. STD prevention requires the active collaboration of individuals, families, and communities. Prevention should be based on education and counseling of the at-risk population, identification of symptomatic and asymptomatic individuals, and effective diagnosis and treatment of these patients and their partners.[1]

**Table 1.1. Chlamydia, Gonorrhea, and Syphilis—Reported Cases and Rates\*, Davidson County, TN, 2010**

	Chlamydia		Gonorrhea		Primary & Secondary Syphilis		Early Latent Syphilis		Latent & Late Latent Syphilis		Total	
	N	Rate**	N	Rate**	N	Rate**	N	Rate**	N	Rate**	N	Rate**
<b>Gender</b>												
Male	1060	402.9	548	208.3	49	18.6	44	16.7	56	21.3	1757	667.8
Female	2404	847.2	411	144.8	9	3.2	8	2.8	31	10.9	2863	1008.9
<b>Age Group***</b>												
10–14	25	71.1	8	22.7	0	0.0	0	0.0	0	0.0	33	93.8
15–19	1118	2825.2	200	505.4	2	5.1	1	2.5	3	7.6	1324	3345.8
20–24	1336	2473.2	332	614.6	11	20.4	6	11.1	8	14.8	1693	3134.1
25–29	544	883.7	205	333.0	12	19.5	8	13.0	16	26.0	785	1275.2
30–34	237	454.6	82	157.3	4	7.7	10	19.2	10	19.2	343	657.9
35–44	159	184.8	78	90.6	13	15.1	16	18.6	20	23.2	286	332.3
45–54	39	46.0	40	47.2	13	15.3	9	10.6	23	27.1	124	146.2
55–64	11	16.4	14	20.8	2	3.0	3	4.5	5	7.4	35	52.1
65+	0	0.0	1	1.5	1	1.5	0	0.0	2	3.0	4	6.0
<b>Race/Ethnicity***</b>												
Black, non-Hispanic	2268	1532.2	736	497.2	37	25.0	24	16.2	36	24.3	3101	2094.9
Hispanic	176	374.2	17	36.1	0	0.0	7	14.9	12	25.5	212	450.7
White, non-Hispanic	668	204.5	143	43.8	21	6.4	21	6.4	33	10.1	886	271.2

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to the results reported over time.

\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

\*\*\*Including cases unknown gender.

**Table 1.2. Chlamydia, Gonorrhea and Syphilis—Reported Female Cases and Rates\*  
By Race/Ethnicity and Age Group, Davidson County, TN, 2010**

Age group	Chlamydia		Gonorrhea		Primary & Secondary Syphilis		Early Latent Syphilis		Latent & Late Latent Syphilis		Total	
	N	Rate**	N	Rate**	N	Rate**	N	Rate**	N	Rate**	N	Rate**
<b>White, non-Hispanic</b>												
10-14	1	16.2	0	0.0	0	0.0	0	0.0	0	0.0	1	16.2
15-19	157	1824.5	27	313.8	0	0.0	0	0.0	2	23.2	186	2161.5
20-24	205	1294.8	17	107.4	0	0.0	0	0.0	0	0.0	222	1402.1
25-29	67	362.1	6	32.4	0	0.0	0	0.0	4	21.6	77	416.2
30-34	31	211.7	6	41.0	0	0.0	1	6.8	2	13.7	40	273.1
35-44	27	115.1	7	29.8	0	0.0	1	4.3	2	8.5	37	157.7
45-54	2	7.3	4	14.6	1	3.7	1	3.7	1	3.7	9	32.9
55-64	0	0.0	0	0.0	0	0.0	1	4.1	0	0.0	1	4.1
65+	0	0.0	0	0.0	0	0.0	0	0.0	1	3.3	1	3.3
Total	490	289.6	67	39.6	1	0.6	4	2.4	12	7.1	574	339.3
<b>Black, non-Hispanic</b>												
10-14	18	276.4	6	92.1	0	0.0	0	0.0	0	0.0	24	368.6
15-19	620	8162.2	94	1237.5	1	13.2	0	0.0	1	13.2	716	9426.0
20-24	569	6404.1	109	1226.8	0	0.0	0	0.0	2	22.5	680	7653.3
25-29	188	2357.7	44	551.8	2	25.1	1	12.5	4	50.2	239	2997.2
30-34	80	1173.4	16	234.7	0	0.0	0	0.0	2	29.3	98	1437.4
35-44	35	272.9	22	171.5	3	23.4	2	15.6	2	15.6	64	499.0
45-54	5	38.0	5	38.0	1	7.6	0	0.0	4	30.4	15	114.0
55-64	3	32.1	1	10.7	0	0.0	0	0.0	0	0.0	4	42.8
65+	0	0.0	0	0.0	1	13.0	0	0.0	1	13.0	2	25.9
Total	1518	1877.9	297	367.4	8	9.9	3	3.7	16	19.8	1842	2278.8
<b>Hispanic</b>												
10-14	2	108.5	0	0.0	0	0.0	0	0.0	0	0.0	2	108.5
15-19	33	1638.5	3	149.0	0	0.0	0	0.0	0	0.0	36	1787.5
20-24	39	1489.7	4	152.8	0	0.0	0	0.0	0	0.0	43	1642.5
25-29	31	951.8	2	61.4	0	0.0	0	0.0	0	0.0	33	1013.2
30-34	9	295.4	1	32.8	0	0.0	0	0.0	0	0.0	10	328.2
35-44	13	328.3	1	25.3	0	0.0	1	25.3	0	0.0	15	378.8
45-54	2	100.3	0	0.0	0	0.0	0	0.0	1	50.1	3	150.4
55-64	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
65+	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	129	622.2	11	53.1	0	0.0	1	4.8	1	4.8	142	684.9

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

**Table 1.3. Chlamydia, Gonorrhea and Syphilis—Reported Male Cases and Rates\*  
By Race/Ethnicity and Age Group, Davidson County, TN, 2010**

Age group	Chlamydia		Gonorrhea		Primary & Secondary Syphilis		Early Latent Syphilis		Latent & Late Latent Syphilis		Total	
	N	Rate**	N	Rate**	N	Rate**	N	Rate**	N	Rate**	N	Rate**
<b>White, non-Hispanic</b>												
10–14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15–19	20	228.8	9	103.0	0	0.0	0	0.0	0	0.0	29	331.8
20–24	74	532.4	18	129.5	1	7.2	1	7.2	2	14.4	96	690.6
25–29	43	246.6	22	126.1	2	11.5	3	17.2	2	11.5	72	412.8
30–34	18	119.7	10	66.5	3	20.0	3	20.0	3	20.0	37	246.1
35–44	17	67.7	8	31.8	7	27.9	6	23.9	3	11.9	41	163.2
45–54	5	19.1	8	30.5	6	22.9	3	11.4	10	38.1	32	122.0
55–64	1	4.4	1	4.4	1	4.4	1	4.4	1	4.4	5	22.1
65+	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	178	113.0	76	48.3	20	12.7	17	10.8	21	13.3	312	198.1
<b>Black, non-Hispanic</b>												
10–14	1	14.5	2	29.0	0	0.0	0	0.0	0	0.0	3	43.5
15–19	174	2372.8	52	709.1	1	13.6	0	0.0	0	0.0	227	3095.6
20–24	297	4203.2	166	2349.3	10	141.5	5	70.8	2	28.3	480	6793.1
25–29	148	2231.9	109	1643.8	8	120.6	4	60.3	4	60.3	273	4117.0
30–34	63	1108.4	43	756.5	1	17.6	4	70.4	0	0.0	111	1952.9
35–44	44	414.5	33	310.9	3	28.3	4	37.7	7	65.9	91	857.3
45–54	17	155.3	21	191.9	5	45.7	3	27.4	5	45.7	51	465.9
55–64	5	67.5	12	162.1	1	13.5	0	0.0	2	27.0	20	270.1
65+	0	0.0	1	21.7	0	0.0	0	0.0	0	0.0	1	21.7
Total	749	1114.7	439	653.4	29	43.2	20	29.8	20	29.8	1257	1870.8
<b>Hispanic</b>												
10–14	1	33.9	0	0.0	0	0.0	0	0.0	0	0.0	1	33.9
15–19	5	171.6	1	34.3	0	0.0	1	34.3	0	0.0	7	240.2
20–24	19	642.8	0	0.0	0	0.0	0	0.0	1	33.8	20	676.6
25–29	13	289.6	2	44.6	0	0.0	0	0.0	1	22.3	16	356.4
30–34	6	144.6	1	24.1	0	0.0	2	48.2	3	72.3	12	289.2
35–44	3	56.5	1	18.8	0	0.0	2	37.6	5	94.1	11	207.0
45–54	0	0.0	1	40.1	0	0.0	0	0.0	1	40.1	2	80.3
55–64	0	0.0	0	0.0	0	0.0	1	219.8	0	0.0	1	219.8
65+	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	47	178.7	6	22.8	0	0.0	6	22.8	11	41.8	70	266.1

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

Figure 1.1. Distribution of Reported Sexually Transmitted Diseases in Davidson County, TN, 2010

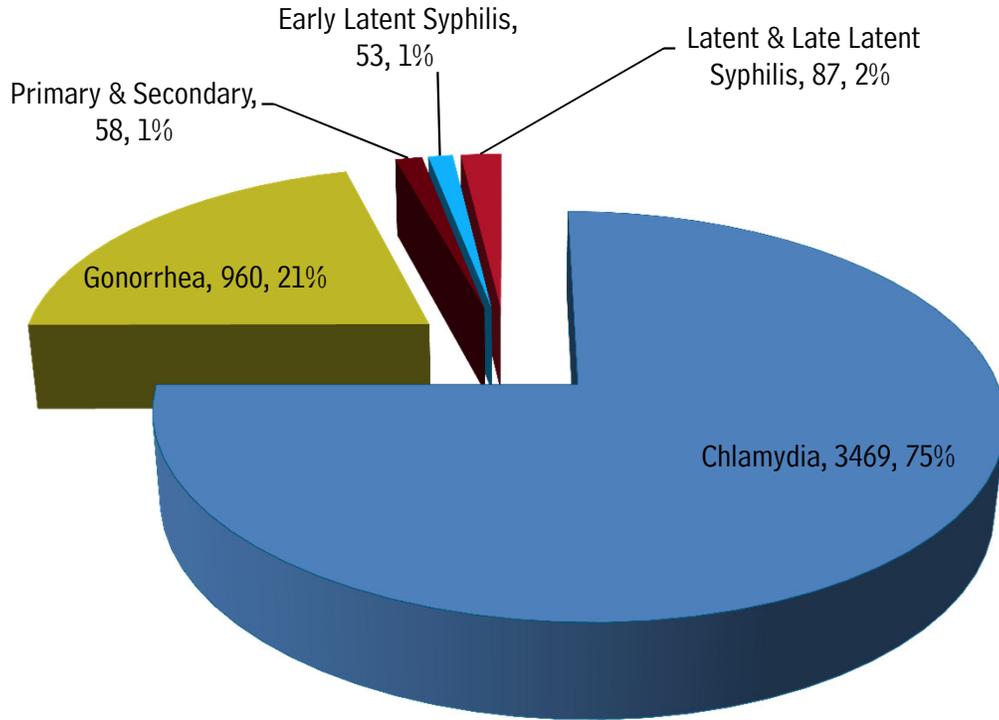


Figure 1.2. Chlamydia—Rates by Race/Ethnicity and Age Group among Women, Davidson County, TN, 2010

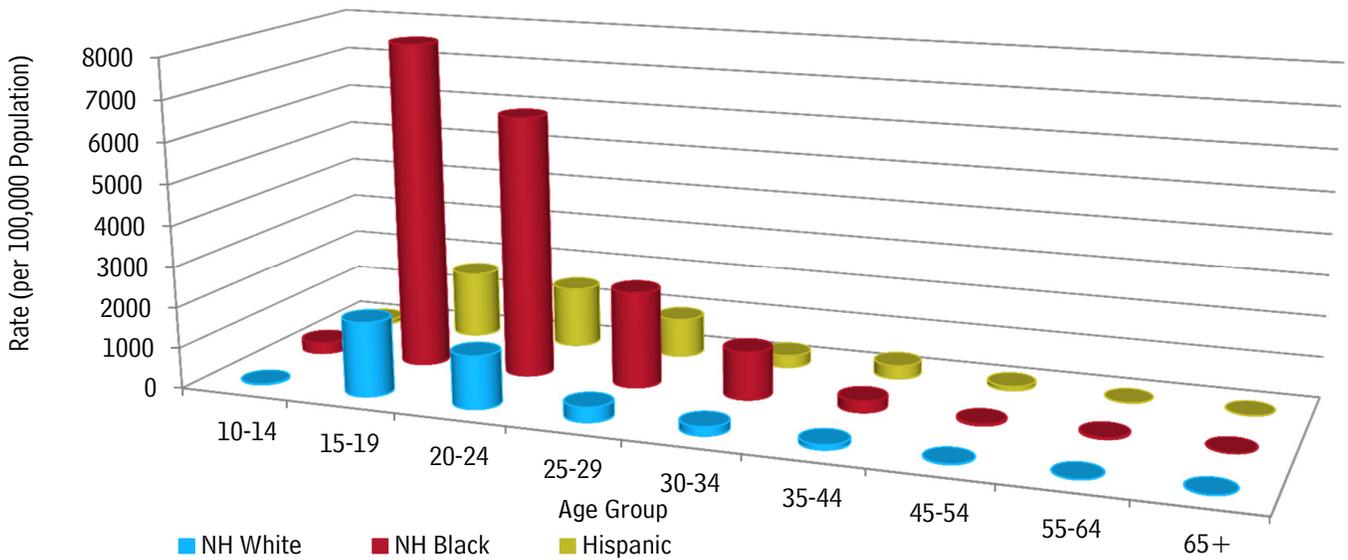


Figure 1.3. Gonorrhea—Rates by Race/Ethnicity and Age Group among Women, Davidson County, TN, 2010

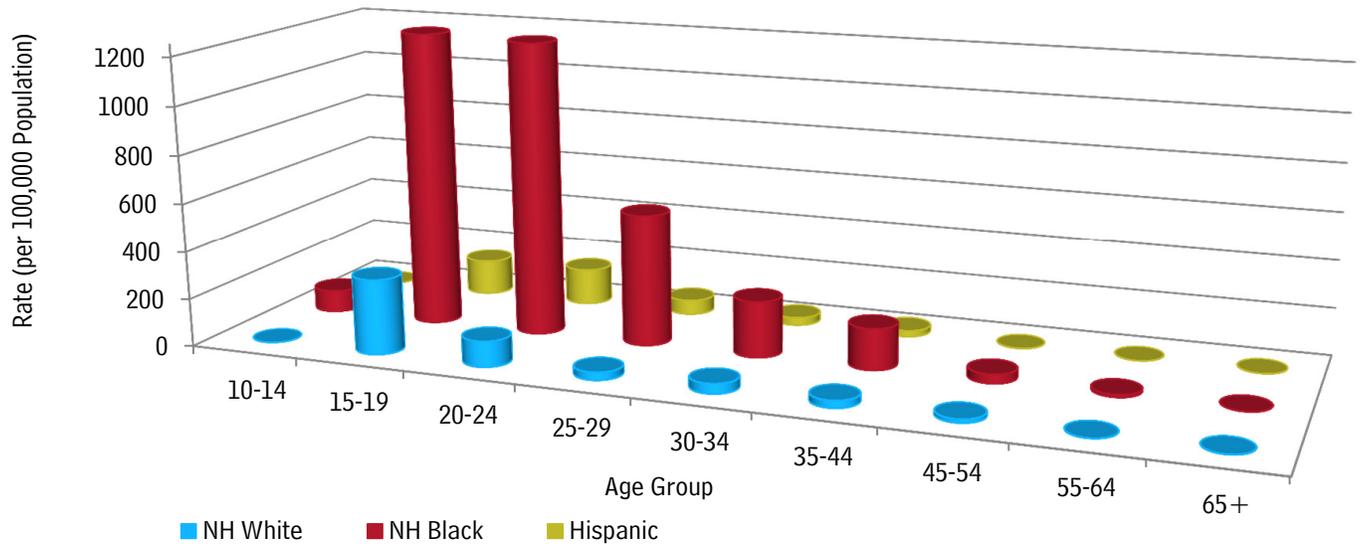


Figure 1.4. Primary & Secondary Syphilis—Rates by Race/Ethnicity and Age Group among Women, Davidson County, TN, 2010

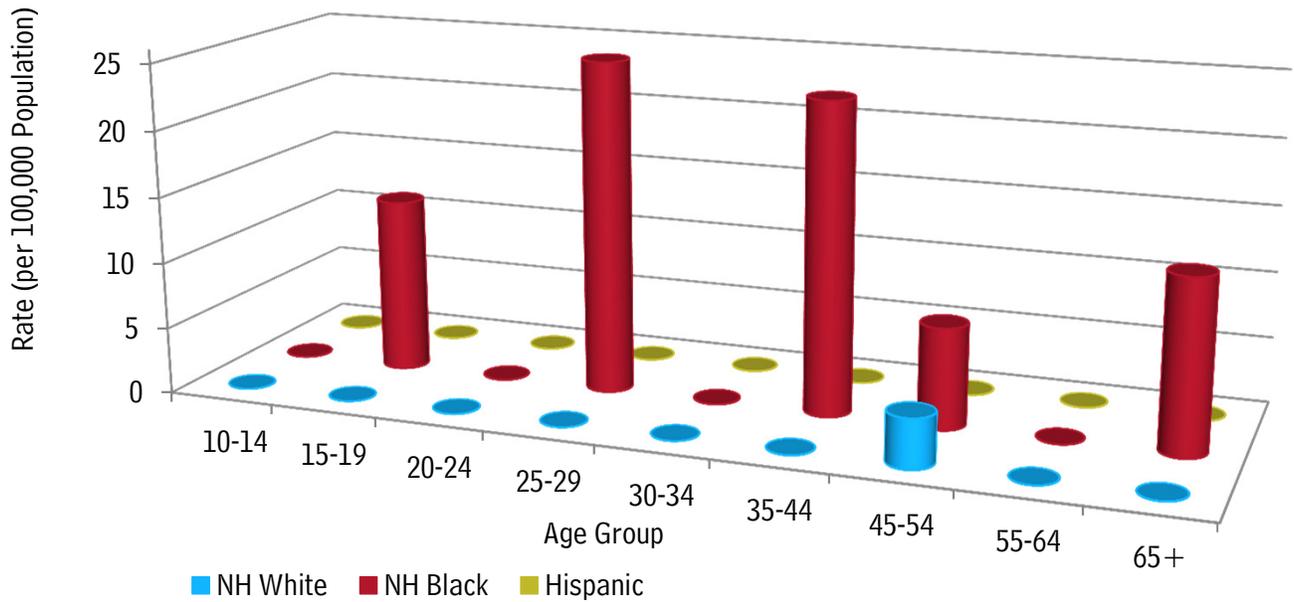


Figure 1.5. Early Syphilis—Rates by Race/Ethnicity and Age Group among Women, Davidson County, TN, 2010

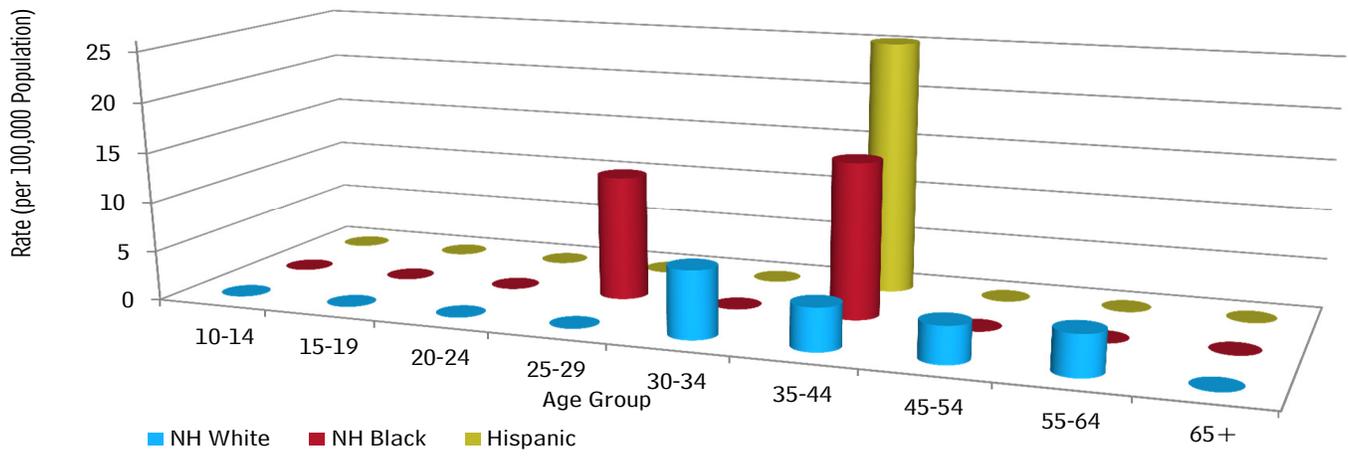


Figure 1.6. Latent & Late Latent Syphilis—Rates by Race/Ethnicity and Age Group among Women, Davidson County, TN, 2010

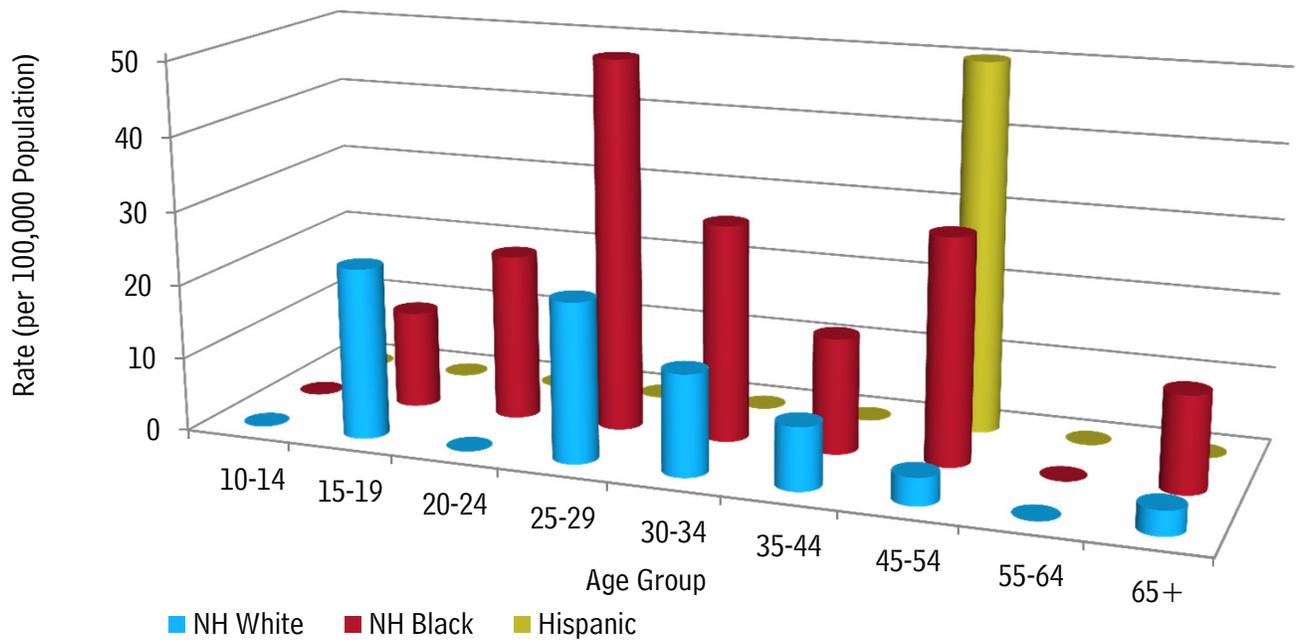


Figure 1.7. Chlamydia—Rates by Race/Ethnicity and Age Group among Men, Davidson County, TN, 2010

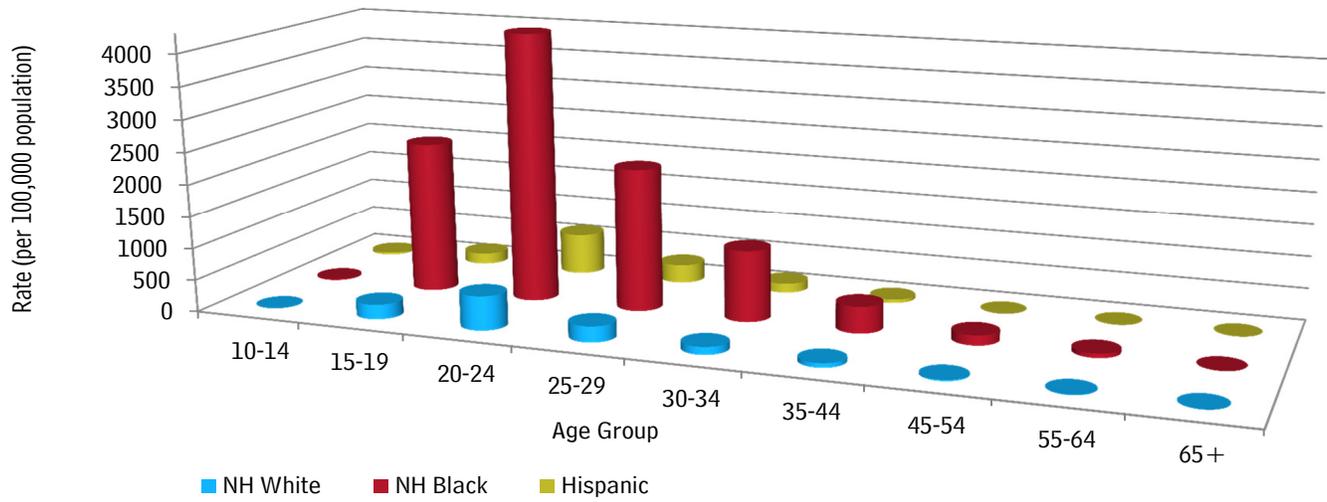


Figure 1.8. Chlamydia—Rates by Race/Ethnicity and Age Group among Men, Davidson County, TN, 2010

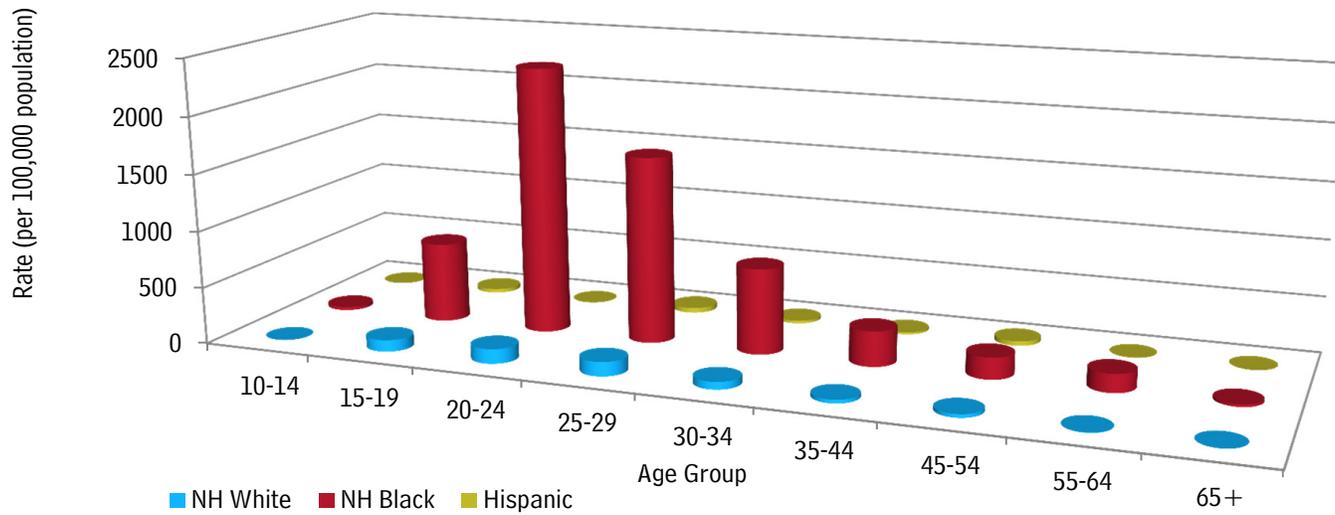


Figure 1.9. Primary & Secondary Syphilis—Rates by Race/Ethnicity and Age Group among Men, Davidson County, TN, 2010

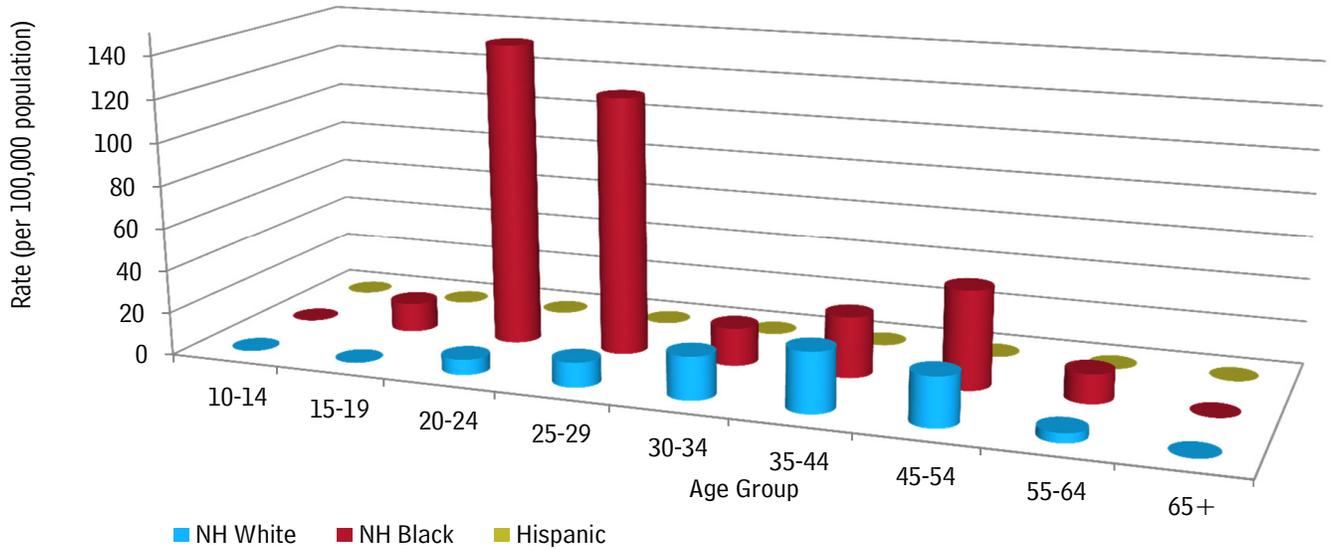


Figure 1.10. Early Syphilis—Rates by Race/Ethnicity and Age Group among Men, Davidson County, TN, 2010

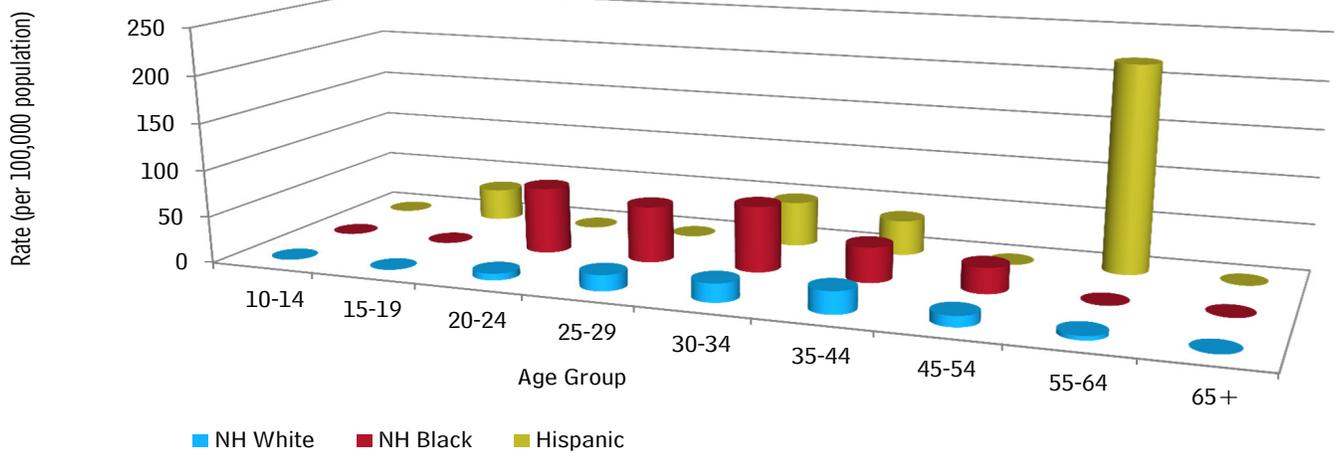
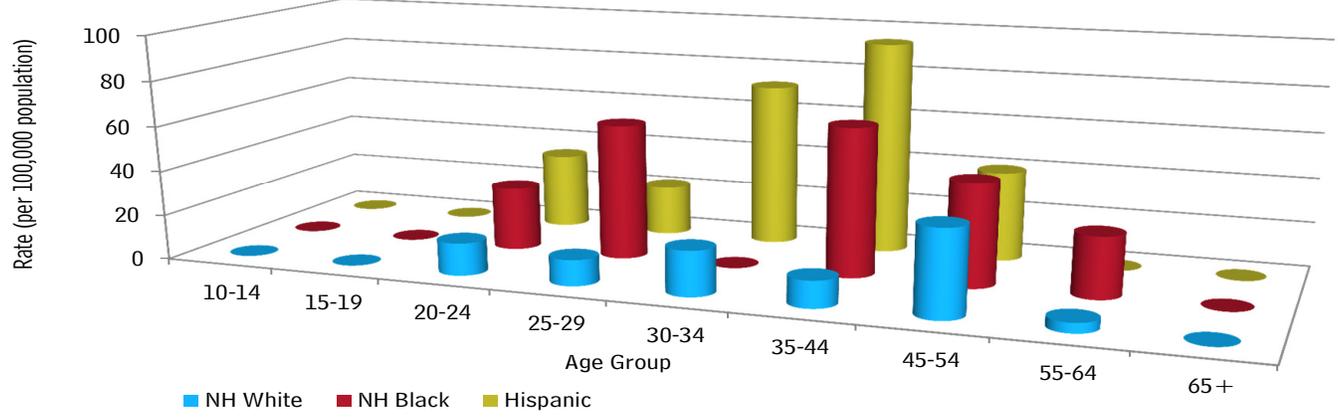


Figure 1.11. Latent & Late Latent Syphilis—Rates by Race/Ethnicity and Age Group among Men, Davidson County, TN, 2010



## Part II. Trend of Sexually Transmitted Disease Morbidity, 2006–2010

In the period from 2006 to 2010, STD morbidity in Davidson County was lowest in 2010 and highest in 2006. (Table 2.1, Figure 2.1). Chlamydia morbidity rose in 2008, then dropped in each consecutive year, but remained higher than in 2006. Gonorrhea morbidity decreased noticeably between 2006 and 2009, although the rate increased slightly in 2010. Overall syphilis morbidity in 2010 was lower than in 2009. Primary and secondary syphilis morbidity decreased each year after 2008. Early latent syphilis morbidity increased steadily from 2006 to 2009, and decreased in 2010.

The epidemiology of STDs shows that STD morbidity is influenced by many factors, such as sexual behavior, employment, education, incarceration rate, access to health intervention and care, and social support structure. There is rarely only one cause, but rather multiple factors simultaneously in play at the individual and population levels affecting transmission and morbidity.[10]

Like any other class of infectious diseases, STDs are prone to epidemiological changes and changes in their medical management. Changes in human behavior may lead to changes in the epidemiology. The trend of decreasing STD morbidity encourages us to continue to focus on preventing and controlling the spread of STDs.

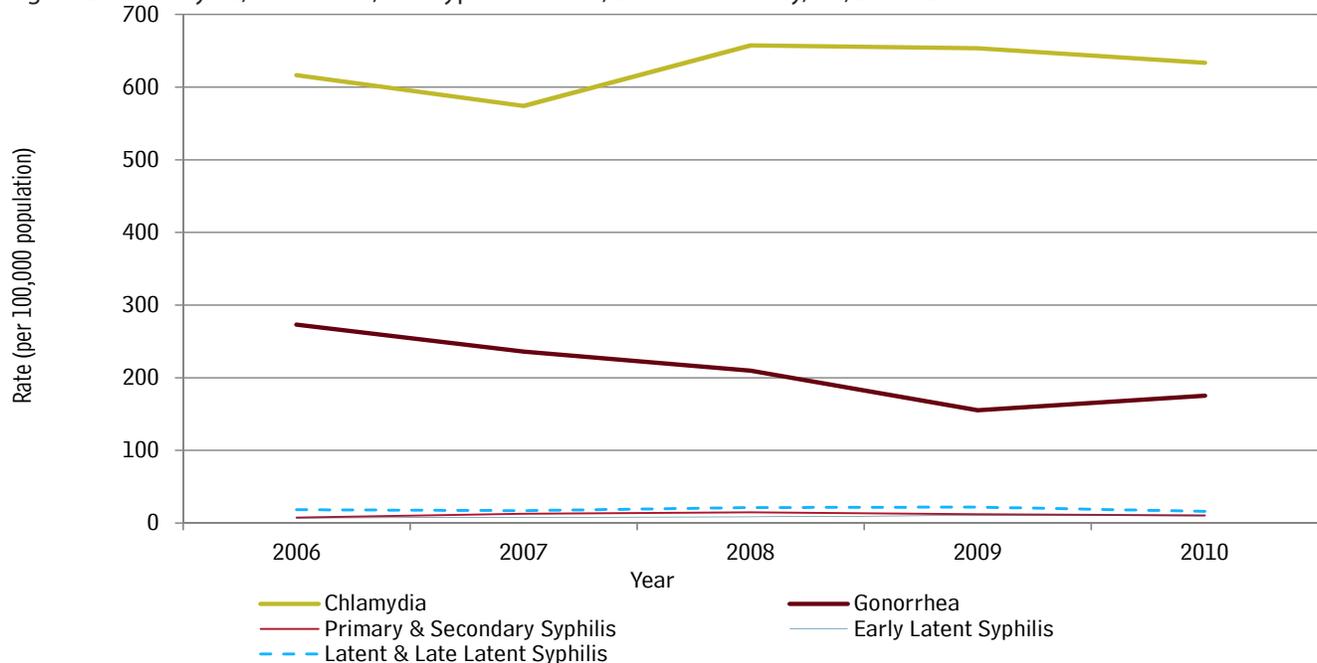
**Table 2.1. Chlamydia, Gonorrhea, and Syphilis—Reported Cases and Rates\*, Davidson County, TN, 2006–2010**

Disease	2006		2007		2008		2009		2010	
	N	Rate**								
Chlamydia	3068	616.5	3066	574.0	3520	657.5	3568	653.4	3469	633.3
Gonorrhea	1359	273.1	1261	236.1	1122	209.6	847	155.1	960	175.3
Primary & Secondary Syphilis	37	7.4	69	12.9	79	14.8	66	12.1	58	10.6
Early Latent Syphilis	35	7.0	42	7.9	46	8.6	58	10.6	53	9.7
Latent & Late Latent Syphilis	92	18.5	92	17.2	114	21.3	119	21.8	87	15.9
Total Incidents	4591	922.5	4530	848.1	4881	911.7	4658	853.0	4627	844.8

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to the results reported over time.

\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

Figure 2.1. Chlamydia, Gonorrhea, and Syphilis—Rates, Davidson County, TN, 2006–2010



## *Chlamydia*

Chlamydia infection is among the most prevalent of all STDs in the United States.[11] Chlamydia accounted for between 67% to 77% of STD cases in Davidson County between 2006 and 2010 (Table 2.1). Age at diagnosis of chlamydia decreased between 2006 and 2010. Overall, the peak age of morbidity fell in the 15–19 age group in 2009 and 2010. In contrast, the peak age of morbidity was in the 20–24 age group between 2006 and 2008 (Table 2.2, Figure 2.2). The rate of reported chlamydia infection among women was about two times the rate among men in each year (Table 2.3, Figure 2.3). Chlamydia rates increased among non-Hispanic black males and females since 2007. Chlamydia morbidity decreased in both Hispanic males and females since 2008. Non-Hispanic white groups had higher chlamydia rates in 2010 than in 2006 (Table 2.4, Figure 2.4).

Chlamydia infection is widespread, particularly among sexually active adults under 25 years of age, who are usually asymptomatic. The infection is a public health concern due to the potential for severe long-term consequences in women, including increased risk of ectopic pregnancy, tubal infertility and chronic pelvic pain. Moreover, pregnant women infected with chlamydia can pass the infection to their infants during delivery. As with other inflammatory STDs, chlamydia infection can facilitate the transmission of human immunodeficiency virus (HIV) infection. [12]

It has been suggested that screening programs can lead to as much as a 60% reduction in the morbidity of chronic pelvic pain. [1] In addition, because of the large burden of disease and risks associated with infection, CDC recommends that all sexually active women younger than age 26 receive an annual chlamydia screening. [1]

**Table 2.2. Chlamydia—Reported Cases and Rates\* by Age Group, Davidson County, TN, 2006–2010**

Age group**	2006		2007		2008		2009		2010	
	N	Rate***								
10–14	36	100.3	33	87.3	34	92	38	117.2	25	71.1
15–19	1014	2695.7	1022	2537.5	1133	2872.2	1105	2946.1	1118	2825.2
20–24	1157	3075.9	1107	2791.5	1309	3371.9	1361	2854.6	1336	2473.2
25–29	478	1180.0	493	1170.0	585	1437.4	602	966.3	544	883.7
30–34	204	446.2	221	451.5	238	500.1	244	436.2	237	454.6
35–44	137	149.8	153	154.3	171	172.8	167	185.0	159	184.8
45–54	31	36.4	31	33.8	45	47.6	38	44.3	39	46.0
55–64	10	16.9	5	7.5	3	4.3	11	16.6	11	16.4
65+	1	1.5	1	1.5	2	2.9	2	2.9	0	0.0

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\*Including cases reported as ‘Unknown’ gender.

\*\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

**Table 2.3. Chlamydia—Reported Cases and Rates\* by Gender and Age Group, Davidson County, TN, 2006–2010**

Age group	2006		2007		2008		2009		2010	
	N	Rate**								
<b>Male</b>										
10–14	0	0.0	3	15.8	1	5.2	1	6.1	2	10.8
15–19	233	1216.6	212	1068.1	220	1106.6	227	1191.4	218	1055.2
20–24	385	2040.4	361	1818.7	420	2179.6	416	1758.1	418	1657.6
25–29	171	820.5	204	942.1	231	1094.5	223	711.4	220	738.9
30–34	104	450.3	95	385.2	110	461.1	107	386.9	97	371.2
35–44	77	164.7	75	148.4	84	165.4	88	193.5	73	166.9
45–54	21	50.7	23	51.7	23	50.1	20	47.9	26	63.4
55–64	8	29.0	3	9.5	3	9.0	5	16.8	6	19.0
65+	1	4.0	1	3.8	2	7.5	0	0.0	0	0.0
Subtotal	1000	413.8	977	379.1	1094	420.8	1087	414.2	1060	402.9
<b>Female</b>										
10–14	36	208.9	30	156.8	33	187.3	37	225.3	22	135.7
15–19	781	4240.4	810	3969.0	913	4597.9	878	4690.4	898	4774.1
20–24	772	4060.6	746	3713.3	889	4550.3	945	3941.8	916	3138.3
25–29	307	1589.9	289	1394.3	354	1811.9	379	1214.8	324	1029.9
30–34	100	442.9	126	519.9	128	532.9	137	479.5	140	539.6
35–44	60	135.6	78	160.9	87	181.1	79	176.9	86	202.4
45–54	10	22.9	8	17.0	22	45.2	18	40.6	13	29.7
55–64	2	6.4	2	5.7	0	0.0	6	16.6	5	14.0
65+	0	0.0	0	0.0	0	0.0	2	4.9	0	0.0
Subtotal	2068	807.6	2089	756.5	2426	881.8	2481	870.4	2404	847.2

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

**Table 2.4. Chlamydia—Reported Cases and Rates\* by Gender and Race/Ethnicity, Davidson County, TN, 2006–2010**

Year	White, non-Hispanic		Black, non-Hispanic		Hispanic	
	N	Rate**	N	Rate**	N	Rate**
<b>Male</b>						
2006	137	91.2	609	983.1	64	339.0
2007	136	83.8	623	947.0	69	342.6
2008	150	92.2	660	1023.6	72	344.5
2009	231	141.7	723	1082.1	75	343.6
2010	178	113.0	749	1114.7	47	178.7
<b>Female</b>						
2006	332	205.4	835	1161.6	155	1223.7
2007	374	216.0	985	1260.6	164	1237.6
2008	346	198.9	1036	1341.5	211	1518.8
2009	636	358.3	1458	1866.0	204	1181.4
2010	490	289.6	1518	1894.3	129	622.2

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

Figure 2.2. Chlamydia—Rates by Age Group, Davidson County, TN, 2006–2010

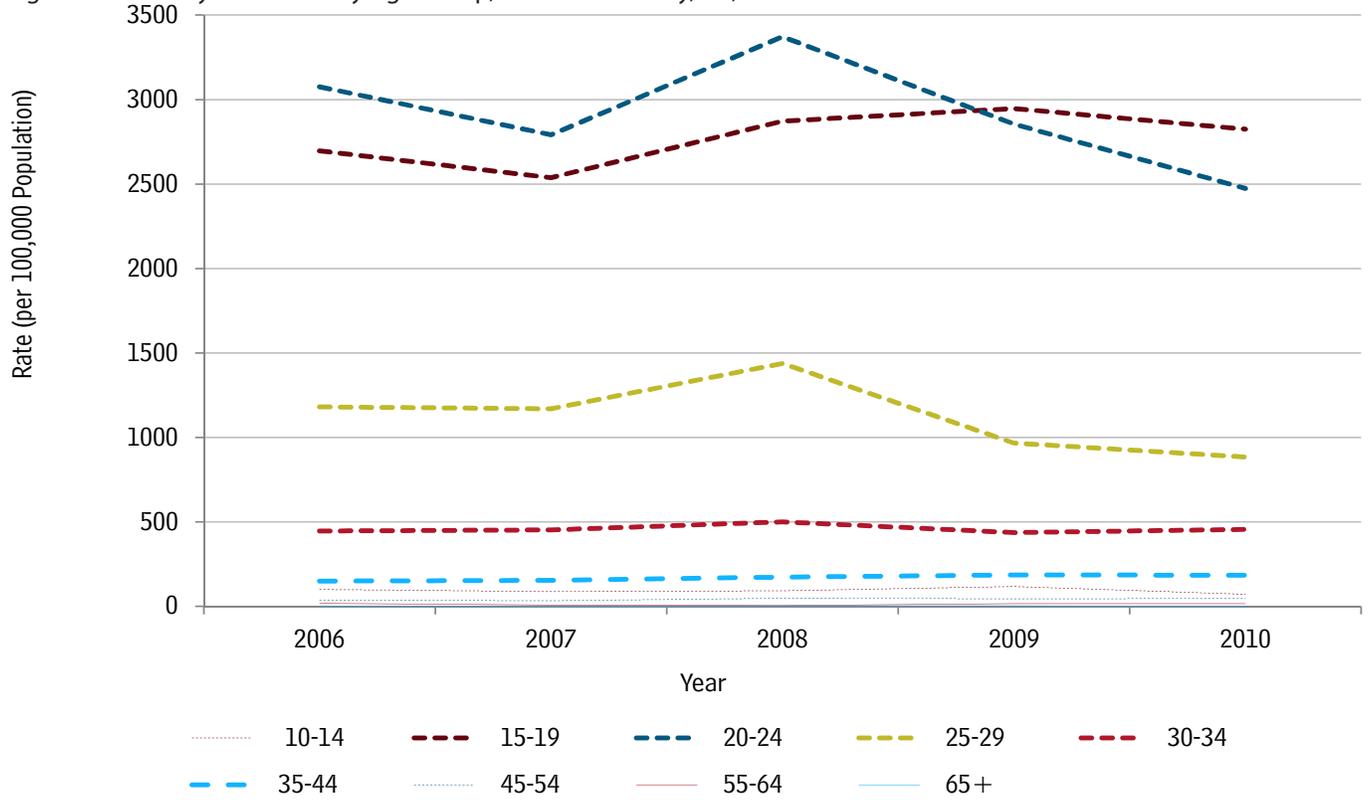


Figure 2.3. Chlamydia—Rates by Gender, Davidson County, TN, 2006–2010

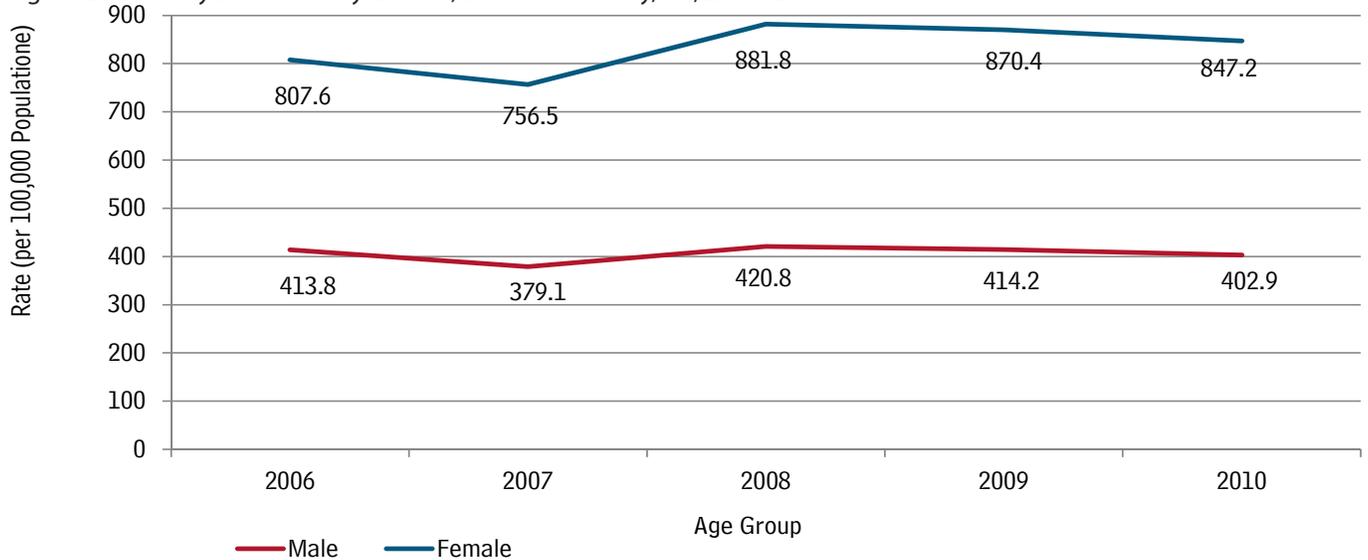
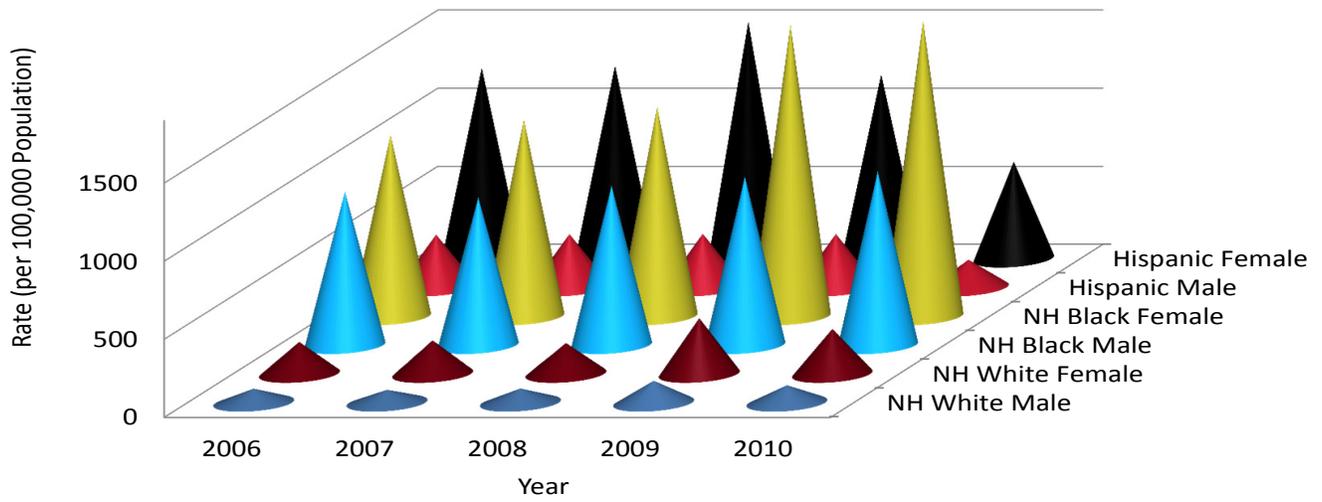


Figure 2.4. Chlamydia—Rates by Gender and Race/Ethnicity, Davidson County, TN, 2006–2010



## *Gonorrhea*

The overall morbidity rate of gonorrhea and the rate by gender in Davidson County have decreased each year between 2006 and 2009, but increased slightly in 2010 (Table 2.1, Table 2.6, Figure 2.6). Except in 2009, the highest gonorrhea rate was observed among those aged 20–24 years, followed by the group aged 15–19 years and 25–29 years (Table 2.5, Figure 2.5). Gonorrhea infection has been higher among males than females since 2006 (Table 2.6, Figure 2.6). The higher rate was predominantly contributed by non-Hispanic black males and females between 2006 and 2010 (Table 2.7, Figure 2.7).

Gonorrhea is the second most commonly reported notifiable disease in the United States. Like chlamydia infection, gonorrhea infection is a major cause of pelvic inflammatory disease (PID) in the United States. PID can lead to serious outcomes in women, such as tubal infertility, ectopic pregnancy, and chronic pelvic pain. In addition, epidemiologic and biologic studies provide strong evidence that gonorrhea infection facilitates the transmission of HIV infection.[12]

Although an individual's sexual behavior can increase the risk of acquiring gonorrhea, social determinants of health, such as poverty, may contribute to the burden of gonorrhea in a community.[13] Because of the emergence of multi-drug-resistant gonorrhoeae, preventing gonorrhea becomes a particularly significant challenge.[14]

**Table 2.5. Gonorrhea–Reported Cases and Rates\* by Age Group, Davidson County, TN, 2006–2010**

Age group**	2006		2007		2008		2009		2010	
	N	Rate***								
10–14	13	36.2	10	26.5	12	32.5	4	12.3	8	22.7
15–19	356	946.4	301	747.3	275	697.1	227	605.2	200	505.4
20–24	467	1241.5	404	1018.8	369	950.5	275	576.8	332	614.6
25–29	201	496.2	185	439.1	211	518.4	154	247.2	205	333.0
30–34	125	273.4	128	261.5	99	208.0	88	157.3	82	157.3
35–44	141	154.2	151	152.3	111	112.2	63	69.8	78	90.6
45–54	46	54.1	63	68.7	37	39.1	32	37.3	40	47.2
55–64	9	15.2	16	23.9	6	8.6	1	1.5	14	20.8
65+	1	1.5	3	4.4	2	2.9	3	4.4	1	1.5

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\*Including cases reported as 'Unknown' gender.

\*\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

**Table 2.6. Gonorrhea–Reported Cases and Rates\* by Gender and Age Group, Davidson County, TN, 2006–2010**

Age group	2006		2007		2008		2009		2010	
	N	Rate**								
<b>Male</b>										
10–14	2	10.6	1	5.3	2	10.4	0	0.0	2	10.8
15–19	147	767.6	122	614.6	97	487.9	76	398.9	65	314.6
20–24	247	1309.0	192	967.3	188	975.6	140	591.7	188	745.5
25–29	109	523.0	107	494.1	116	549.6	93	296.7	144	483.6
30–34	82	355.1	83	336.6	58	243.1	64	231.4	58	222.0
35–44	105	224.6	101	199.9	74	145.7	45	98.9	46	105.1
45–54	40	96.6	54	121.3	33	71.9	27	64.6	31	75.6
55–64	8	29.0	15	47.5	6	18.0	1	3.4	13	41.1
65+	1	4.0	3	11.5	2	7.5	2	7.3	1	3.8
Subtotal	741	306.7	678	263.1	576	221.6	448	170.7	548	208.3
<b>Female</b>										
10–14	11	63.8	9	47.0	10	56.8	4	24.4	6	37.0
15–19	209	1134.8	179	877.1	178	896.4	151	806.7	135	717.7
20–24	220	1157.2	212	1055.3	181	926.4	135	563.1	144	493.4
25–29	92	476.5	78	376.3	95	486.3	61	195.5	60	190.7
30–34	43	190.5	45	185.7	41	170.7	24	84.0	24	92.5
35–44	36	81.3	50	103.2	37	77.0	18	40.3	32	75.3
45–54	6	13.7	9	19.1	4	8.2	5	11.3	9	20.6
55–64	1	3.2	1	2.8	0	0.0	0	0.0	1	2.8
65+	0	0.0	0	0.0	0	0.0	1	2.4	0	0.0
Subtotal	618	241.3	583	211.1	546	198.5	399	140.0	411	144.8

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

**Table 2.7. Gonorrhea—Reported Cases and Rates\* by Gender and Race/Ethnicity, Davidson County, TN, 2006–2010**

Year	White, non-Hispanic		Black, non-Hispanic		Hispanic	
	N	Rate**	N	Rate**	N	Rate**
<b>Male</b>						
2006	96	63.9	447	721.6	14	74.2
2007	71	43.7	456	693.2	21	104.3
2008	43	26.4	387	600.2	17	81.3
2009	89	54.6	319	477.4	17	77.9
2010	76	48.3	439	653.4	6	22.8
<b>Female</b>						
2006	84	52.0	318	442.4	16	126.3
2007	92	53.1	329	421.1	16	120.7
2008	79	45.4	290	375.5	32	230.3
2009	82	46.2	262	335.3	18	104.2
2010	67	39.6	297	370.6	11	53.1

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

**Figure 2.5. Gonorrhea—Rates by Age Group, Davidson County, TN, 2006–2010**

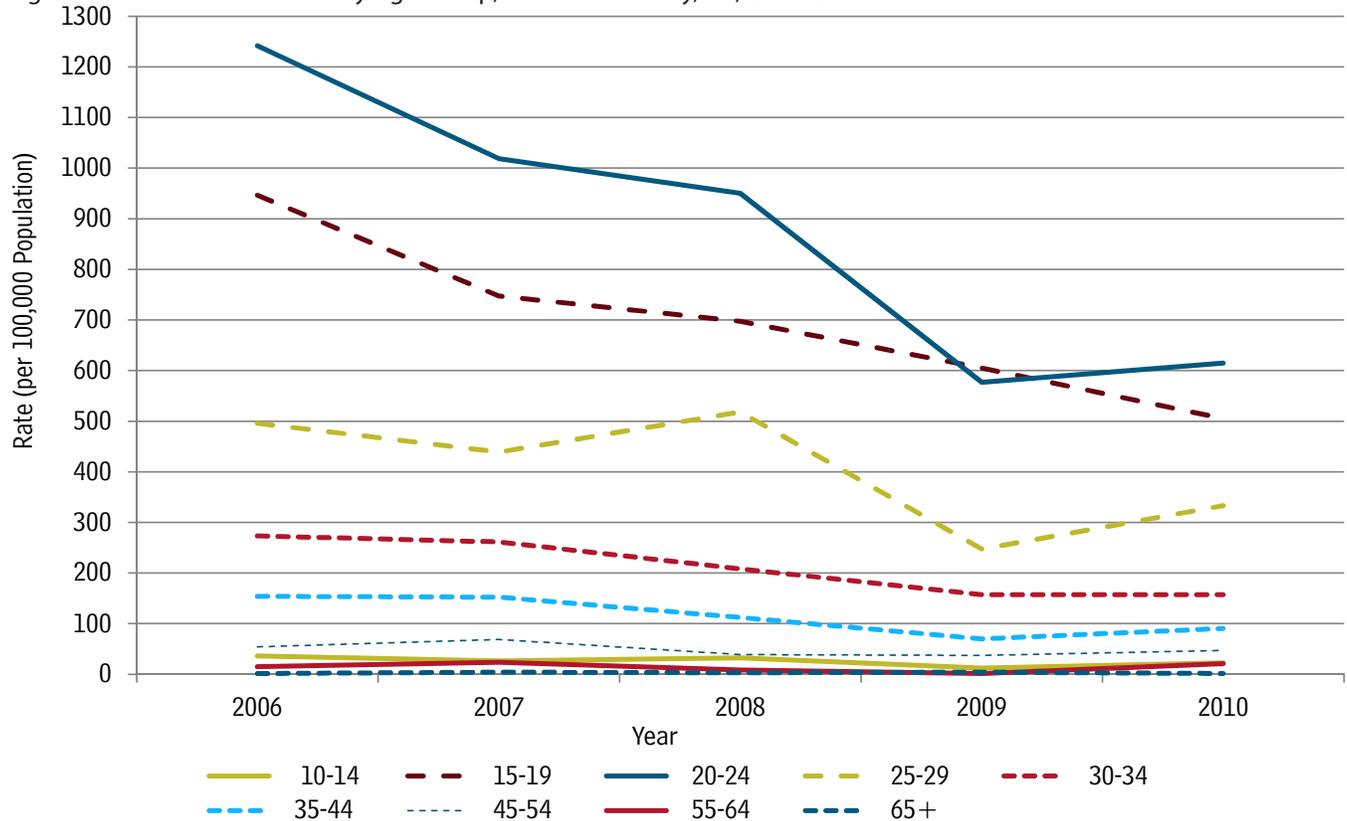


Figure 2.6. Gonorrhea—Rates by Gender and Age Group, Davidson County, TN, 2006–2010

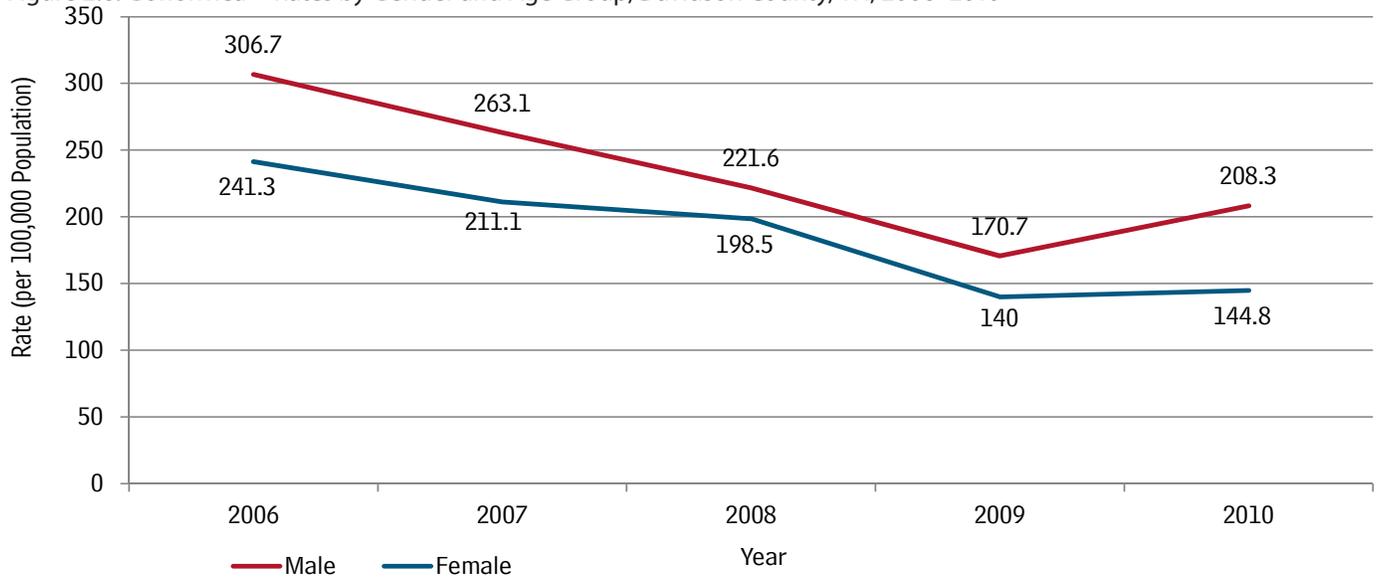
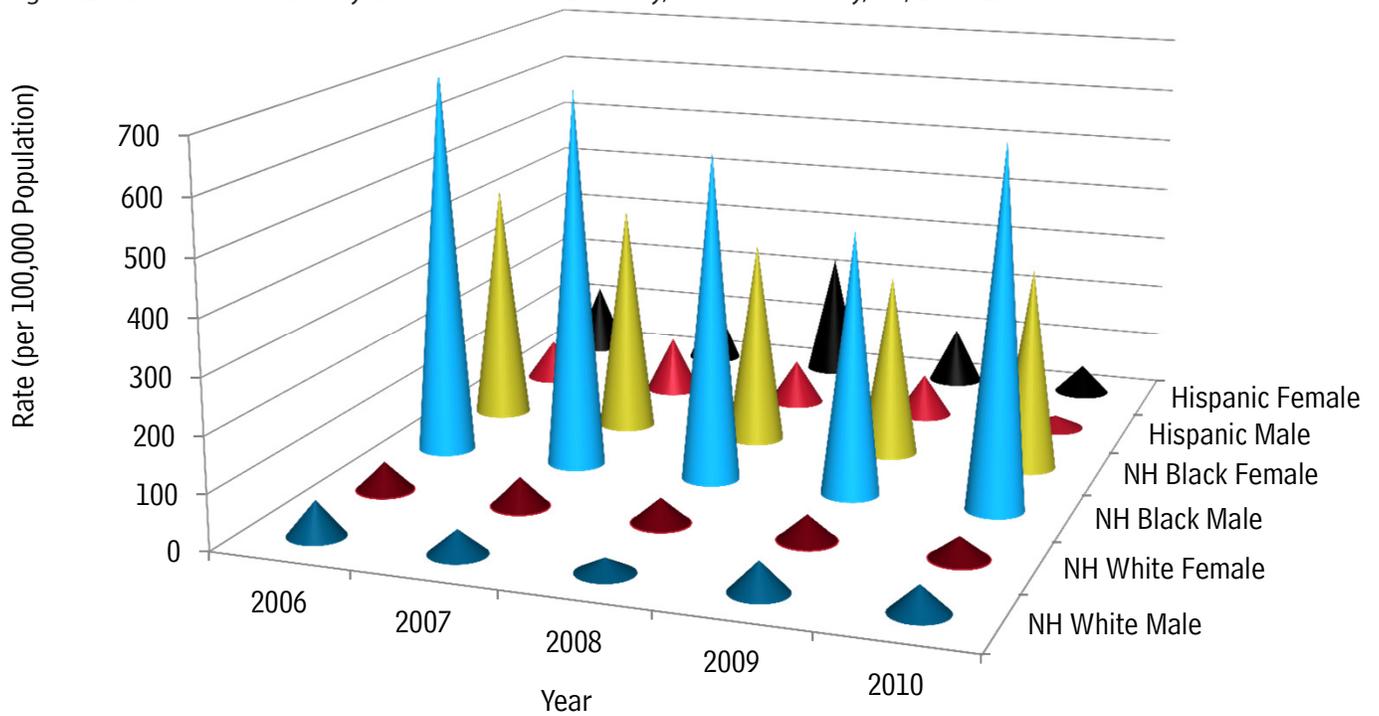


Figure 2.7. Gonorrhea—Rates by Gender and Race/Ethnicity, Davidson County, TN, 2006–2010



## Syphilis

Syphilis is a complex sexually transmitted disease, which can present in one of four different stages: primary, secondary, latent, and tertiary, [15] and may also occur congenitally. Both primary and secondary syphilis are highly contagious. We only report primary, secondary, and latent syphilis cases here. Latent syphilis cases were divided into two groups: early latent, and latent and late latent.

The overall rate of syphilis has decreased in Davidson County in 2010. The rate of primary and secondary syphilis increased annually from 2006 to 2008 before decreasing in 2009 (Table 2.1). A major shift of age of infection was observed since 2008, as the group with the highest rate changed from 25–34 to 20–24 years (Table 2.8, Figure 2.8). The rates were dramatically higher among men than women in any stage of syphilis from 2006 to 2010 (Table 2.9, Figure 2.9, Table 2.12, Figure 2.12, Table 2.15, Figure 2.15). The primary and secondary syphilis rate among non-Hispanic blacks was the highest of any ethnic or racial group (Table 2.10, Figure 2.10). The highest rate of early latent syphilis was among Hispanic females (Table 2.13, Figure 2.13). The latent and late latent syphilis rate was highest among Hispanic males in 2010 (Table 2.16, Figure 2.16). These higher rates should cause us to give more attention to monitoring this population.

Syphilis causes significant complications if untreated. Untreated early syphilis in pregnant women results in perinatal death in up to 40% of cases and, if acquired during the 4 years before pregnancy, can lead to infection of the fetus in 80% of cases.[16] Nowadays syphilis and HIV go hand in hand, as they affect similar demographic subgroups.[17] Both infections facilitate the acquisition of the other, and coinfection may aggravate the clinical course of both diseases.

**Table 2.8. Primary and Secondary Syphilis—Reported Cases and Rates\* by Age Group, Davidson County, TN, 2006–2010**

Age group**	2006		2007		2008		2009		2010	
	N	Rate***								
10–14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15–19	1	2.7	3	7.4	6	15.2	2	5.3	2	5.1
20–24	2	5.3	6	15.1	11	28.3	9	18.9	11	20.4
25–29	12	29.6	10	23.7	9	22.1	9	14.4	12	19.5
30–34	5	10.9	13	26.6	11	23.1	9	16.1	4	7.7
35–44	13	14.2	20	20.2	21	21.2	19	21.0	13	15.1
45–54	3	3.5	16	17.4	13	13.7	11	12.8	13	15.3
55–64	1	1.7	1	1.5	7	10.0	7	10.6	2	3.0
65+	0	0.0	0	0.0	1	1.5	0	0.0	1	1.5

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\*Including cases reported as 'Unknown' gender.

\*\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

**Table 2.9. Primary and Secondary Syphilis—Reported Cases and Rates\* by Gender and Age Group, Davidson County, TN, 2006–2010**

Age group	2006		2007		2008		2009		2010	
	N	Rate**								
<b>Male</b>										
10–14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15–19	1	5.2	1	5.0	5	25.1	1	5.2	1	4.8
20–24	2	10.6	4	20.2	9	46.7	7	29.6	11	43.6
25–29	10	48.0	8	36.9	9	42.6	6	19.1	10	33.6
30–34	5	21.7	11	44.6	8	33.5	8	28.9	4	15.3
35–44	12	25.7	17	33.6	17	33.5	13	28.6	10	22.9
45–54	3	7.2	16	35.9	10	21.8	5	12.0	11	26.8
55–64	0	0.0	1	3.2	7	21.0	6	20.1	2	6.3
65+	0	0.0	0	0.0	1	3.8	0	0.0	0	0.0
Subtotal	33	13.7	58	22.5	66	25.4	46	17.5	49	18.6
<b>Female</b>										
10–14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15–19	0	0.0	2	9.8	1	5.0	1	5.3	1	5.3
20–24	0	0.0	2	10.0	2	10.2	2	8.3	0	0.0
25–29	2	10.4	2	9.6	0	0.0	3	9.6	2	6.4
30–34	0	0.0	2	8.3	3	12.5	1	3.5	0	0.0
35–44	1	2.3	3	6.2	4	8.3	6	13.4	3	7.1
45–54	0	0.0	0	0.0	3	6.2	6	13.5	2	4.6
55–64	1	3.2	0	0.0	0	0.0	1	2.8	0	0.0
65+	0	0.0	0	0.0	0	0.0	0	0.0	1	2.5
Subtotal	4	1.6	11	4.0	13	4.7	20	7.0	9	3.2

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

**Table 2.10. Primary and Secondary Syphilis—Reported Cases and Rates\* by Gender and Race/Ethnicity, Davidson County, TN, 2006–2010**

Year		White, non-Hispanic		Black, non-Hispanic		Hispanic	
		N	Rate**	N	Rate**	N	Rate**
	<b>Male</b>						
2006		17	11.3	15	24.2	1	5.3
2007		17	10.5	26	39.5	5	24.8
2008		21	12.9	34	52.7	2	9.6
2009		19	11.7	21	31.4	4	18.3
2010		20	12.7	29	43.2	0	0.0
	<b>Female</b>						
2006		1	0.6	3	4.2	0	0.0
2007		2	1.2	7	9.0	0	0.0
2008		1	0.6	11	14.2	0	0.0
2009		3	1.7	14	17.9	2	11.6
2010		1	0.6	8	10.0	0	0.0

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

**Table 2.11. Early Latent Syphilis—Reported Cases and Rates\* by Age Group, Davidson County, TN, 2006–2010**

Age group**	2006		2007		2008		2009		2010	
	N	Rate***								
10–14	1	2.8	0	0.0	0	0.0	0	0.0	0	0.0
15–19	6	16.0	4	9.9	3	7.6	3	8.0	1	2.5
20–24	4	10.6	5	12.6	7	18.0	7	14.7	6	11.1
25–29	2	4.9	4	9.5	8	19.7	11	17.7	8	13.0
30–34	7	15.3	9	18.4	4	8.4	8	14.3	10	19.2
35–44	10	10.9	14	14.1	16	16.2	21	23.3	16	18.6
45–54	4	4.7	6	6.5	2	2.1	7	8.2	9	10.6
55–64	1	1.7	0	0.0	6	8.6	1	1.5	3	4.5
65+	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\*Including cases reported as 'Unknown' gender.

\*\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

**Table 2.12. Early Latent Syphilis—Reported Cases and Rates\* by Gender and Age Group, Davidson County, TN, 2006–2010**

Age group	2006		2007		2008		2009		2010	
	N	Rate**								
<b>Male</b>										
10–14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15–19	4	20.9	1	5.0	2	10.1	2	10.5	1	4.8
20–24	4	21.2	2	10.1	4	20.8	3	12.7	6	23.8
25–29	1	4.8	4	18.5	5	23.7	9	28.7	7	23.5
30–34	7	30.3	3	12.2	3	12.6	4	14.5	9	34.4
35–44	9	19.3	12	23.8	10	19.7	16	35.2	12	27.4
45–54	1	2.4	6	13.5	2	4.4	6	14.4	7	17.1
55–64	1	3.6	0	0.0	4	12.0	1	3.4	2	6.3
65+	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Subtotal	27	11.2	28	10.9	30	11.5	41	15.6	44	16.7
<b>Female</b>										
10–14	1	5.8	0	0.0	0	0.0	0	0.0	0	0.0
15–19	2	10.9	3	14.7	1	5.0	1	5.3	0	0.0
20–24	0	0.0	3	14.9	3	15.4	4	16.7	0	0.0
25–29	1	5.2	0	0.0	3	15.4	2	6.4	1	3.2
30–34	0	0.0	6	24.8	1	4.2	4	14.0	1	3.9
35–44	1	2.3	2	4.1	6	12.5	5	11.2	4	9.4
45–54	3	6.9	0	0.0	0	0.0	1	2.3	1	2.3
55–64	0	0.0	0	0.0	2	5.4	0	0.0	1	2.8
65+	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Subtotal	8	3.1	14	5.1	16	5.8	17	6.0	8	2.8

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

**Table 2.13. Early Latent Syphilis—Reported Cases and Rates\* by Gender and Race/Ethnicity, Davidson County, TN, 2006–2010**

Year	White, non-Hispanic		Black, non-Hispanic		Hispanic	
	N	Rate**	N	Rate**	N	Rate**
<b>Male</b>						
2006	7	4.7	19	30.7	0	0.0
2007	7	4.3	17	25.8	1	5.0
2008	11	6.8	17	26.4	0	0.0
2009	17	10.4	16	23.9	7	32.1
2010	17	10.8	20	29.8	6	22.8
<b>Female</b>						
2006	1	0.6	5	7.0	0	0.0
2007	5	2.9	7	9.0	0	0.0
2008	7	4.0	6	7.8	1	7.2
2009	8	4.5	8	10.2	1	5.8
2010	4	2.4	3	3.7	1	4.8

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\* Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

**Table 2.14. Latent and Late Latent Syphilis—Reported Cases and Rates\* by Age Group, Davidson County, TN, 2006–2010**

Age group**	2006		2007		2008		2009		2010	
	N	Rate***								
10–14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15–19	5	13.3	2	5.0	2	5.1	2	5.3	3	7.6
20–24	12	31.9	3	7.6	10	25.8	12	25.2	8	14.8
25–29	4	9.9	14	33.2	12	29.5	16	25.7	16	26.0
30–34	12	26.2	13	26.6	8	16.8	13	23.2	10	19.2
35–44	23	25.2	32	32.3	33	33.4	39	43.2	20	23.2
45–54	23	27.0	15	16.4	27	28.6	22	25.6	23	27.1
55–64	3	5.1	8	12.0	13	18.5	8	12.1	5	7.4
65+	10	15.4	5	7.4	9	13.2	7	10.3	2	3.0

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\*Including cases reported as 'Unknown' gender.

\*\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

**Table 2.15. Latent and Late Latent Syphilis—Reported Cases and Rates\* by Gender and Age Group, Davidson County, TN, 2006–2010**

Age group	2006		2007		2008		2009		2010	
	N	Rate**								
Male										
10–14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15–19	2	10.4	2	10.1	1	5.0	2	10.5	0	0.0
20–24	10	53.0	3	15.1	6	31.1	6	25.4	6	23.8
25–29	3	14.4	9	41.6	5	23.7	10	31.9	8	26.9
30–34	9	39.0	6	24.3	3	12.6	11	39.8	6	23.0
35–44	16	34.2	19	37.6	26	51.2	26	57.2	15	34.3
45–54	13	31.4	7	15.7	16	34.9	17	40.7	17	41.4
55–64	3	10.9	5	15.8	11	33.0	6	20.1	4	12.7
65+	5	19.9	3	11.5	3	11.3	2	7.3	0	0.0
Subtotal	61	25.2	54	21.0	71	27.3	80	30.5	56	21.3
Female										
10–14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15–19	3	16.3	0	0.0	1	5.0	0	0.0	3	15.9
20–24	2	10.5	0	0.0	4	20.5	6	25.0	2	6.9
25–29	1	5.2	5	24.1	7	35.8	6	19.2	8	25.4
30–34	3	13.3	7	28.9	5	20.8	2	7.0	4	15.4
35–44	7	15.8	13	26.8	7	14.6	13	29.1	5	11.8
45–54	10	22.9	8	17.0	11	22.6	5	11.3	6	13.7
55–64	0	0.0	3	8.5	2	5.4	2	5.5	1	2.8
65+	5	12.5	2	4.9	6	14.6	5	12.2	2	5.0
Subtotal	31	12.1	38	13.8	43	15.6	39	13.7	31	10.9

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

**Table 2.16. Latent and Late Latent Syphilis—Reported Cases and Rates\* by Gender and Race/Ethnicity, Davidson County, TN, 2006–2010**

Year	White, non-Hispanic		Black, non-Hispanic		Hispanic	
	N	Rate**	N	Rate**	N	Rate**
<b>Male</b>						
2006	20	13.3	33	53.3	3	15.9
2007	7	4.3	25	38.0	5	24.8
2008	27	16.6	30	46.5	6	28.7
2009	27	16.6	37	55.4	12	55.0
2010	21	13.3	20	29.8	11	41.8
<b>Female</b>						
2006	3	1.9	19	26.4	6	47.4
2007	17	9.8	15	19.2	0	0.0
2008	13	7.5	21	27.2	3	21.6
2009	13	7.3	24	30.7	1	5.8
2010	12	7.1	16	20.0	1	4.8

\*Report as of April 2012. The impact of report delay and/or update must be considered when comparing to results reported over time.

\*\*Per 100,000 population aged 10 years or greater. Population source: U.S. Census Bureau.

**Figure 2.8. Primary and Secondary Syphilis—Rates by Age Group, Davidson County, TN, 2006–2010**

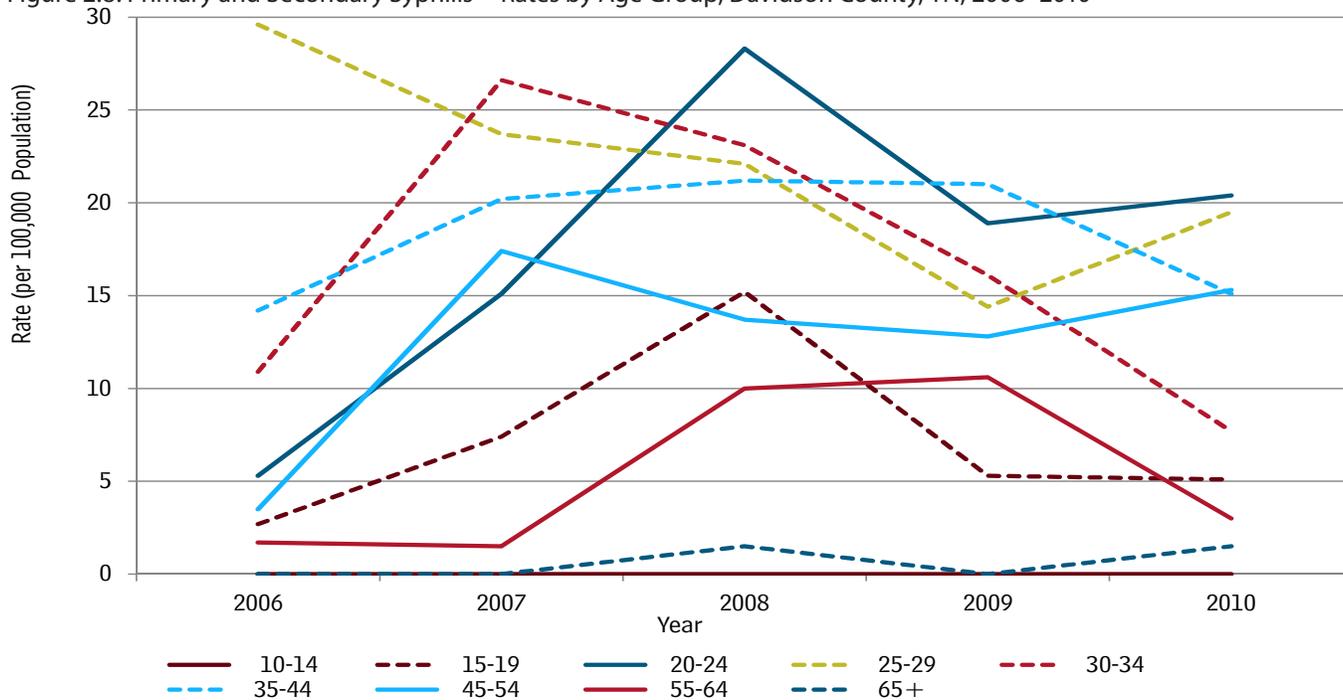


Figure 2.9. Primary and Secondary Syphilis—Rates by Gender and Age Group, Davidson County, TN, 2006–2010

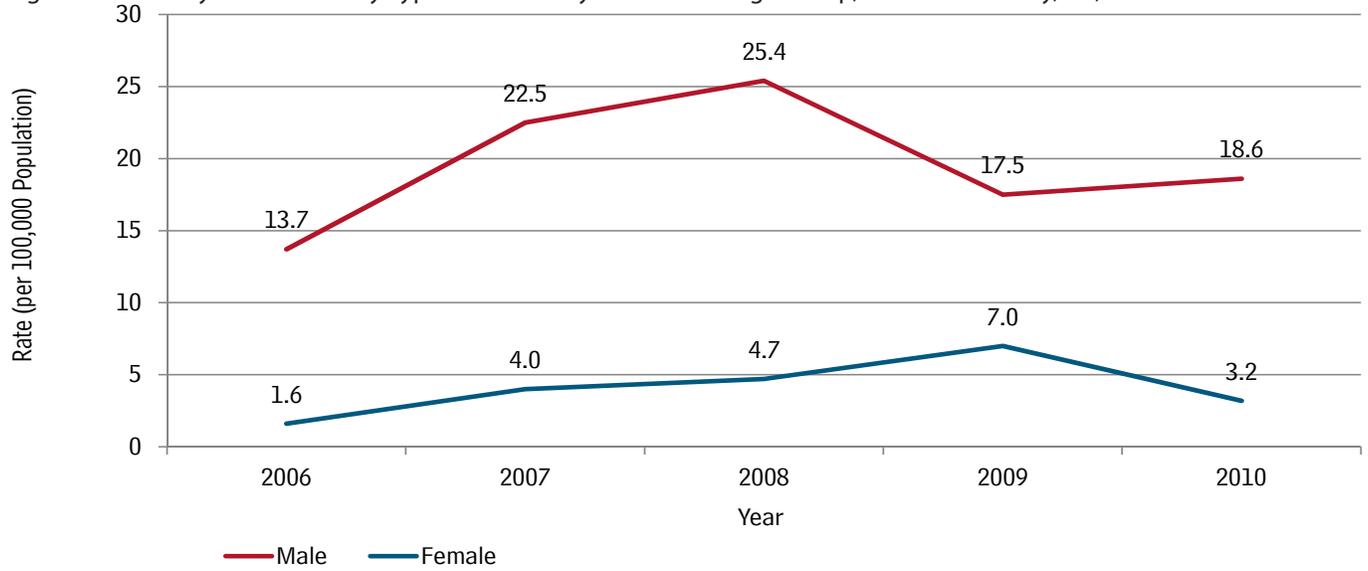


Figure 2.10. Primary and Secondary Syphilis—Rates by Gender and Race/Ethnicity, Davidson County, TN, 2006–2010

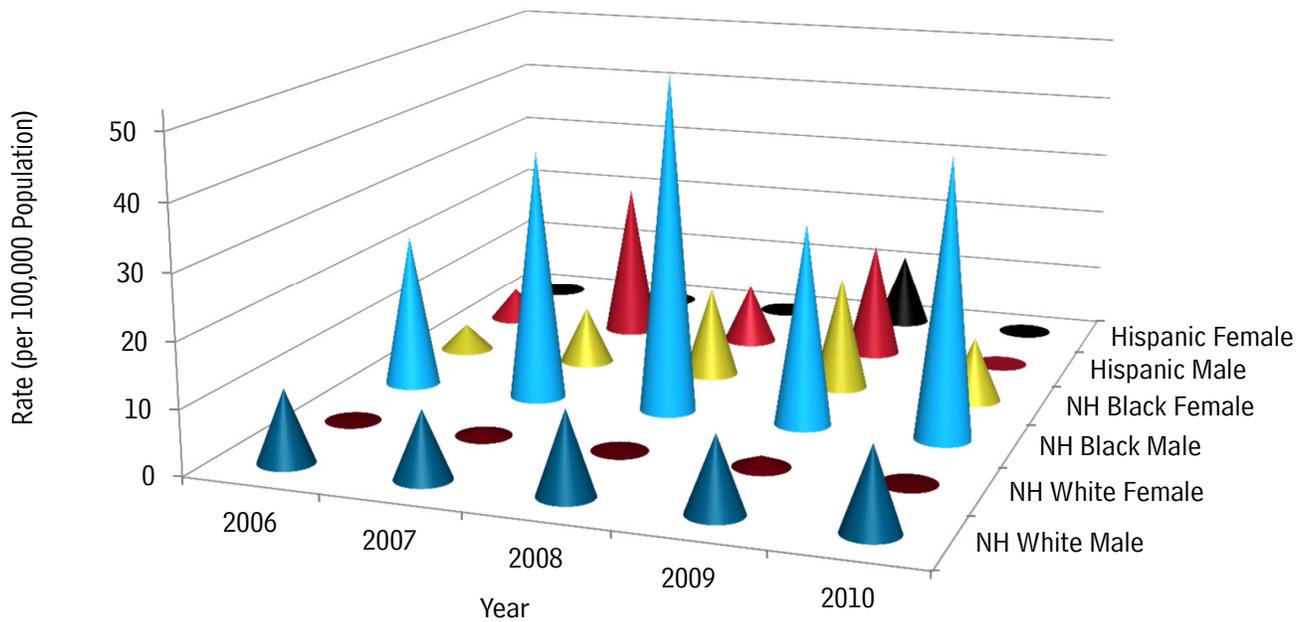


Figure 2.11. Early Latent Syphilis—Rates by Age Group, Davidson County, TN, 2006–2010

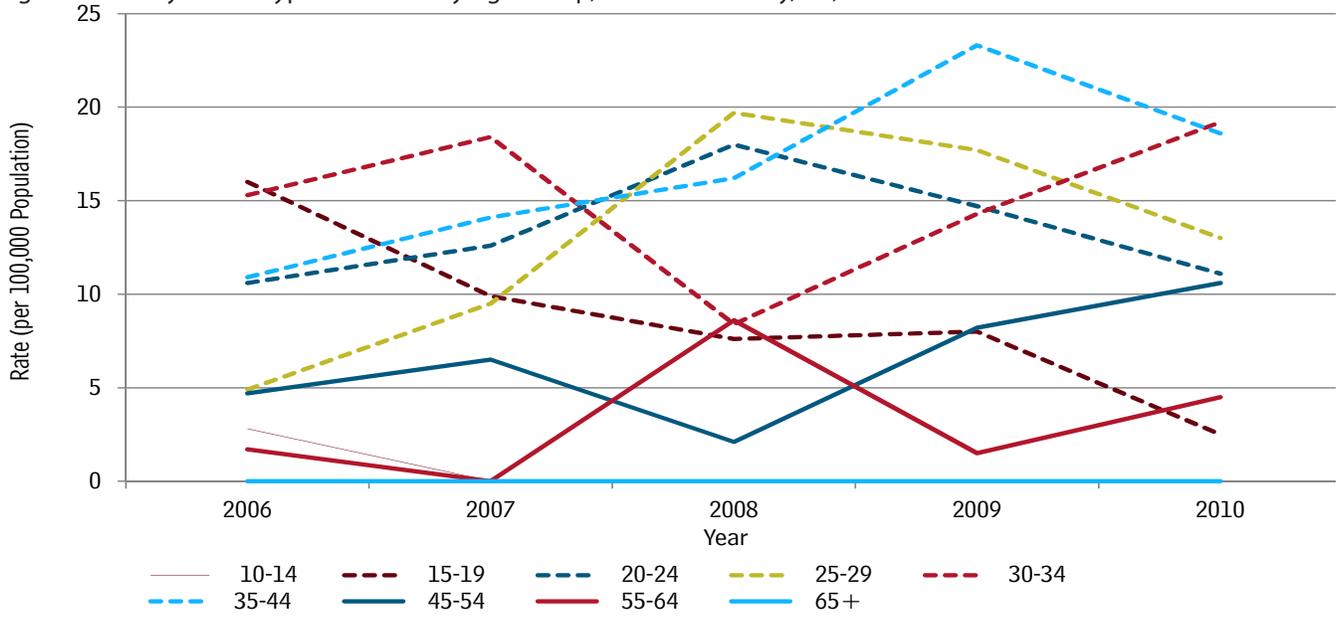


Figure 2.12. Early Latent Syphilis—Rates by Gender and Age Group, Davidson County, TN, 2006–2010

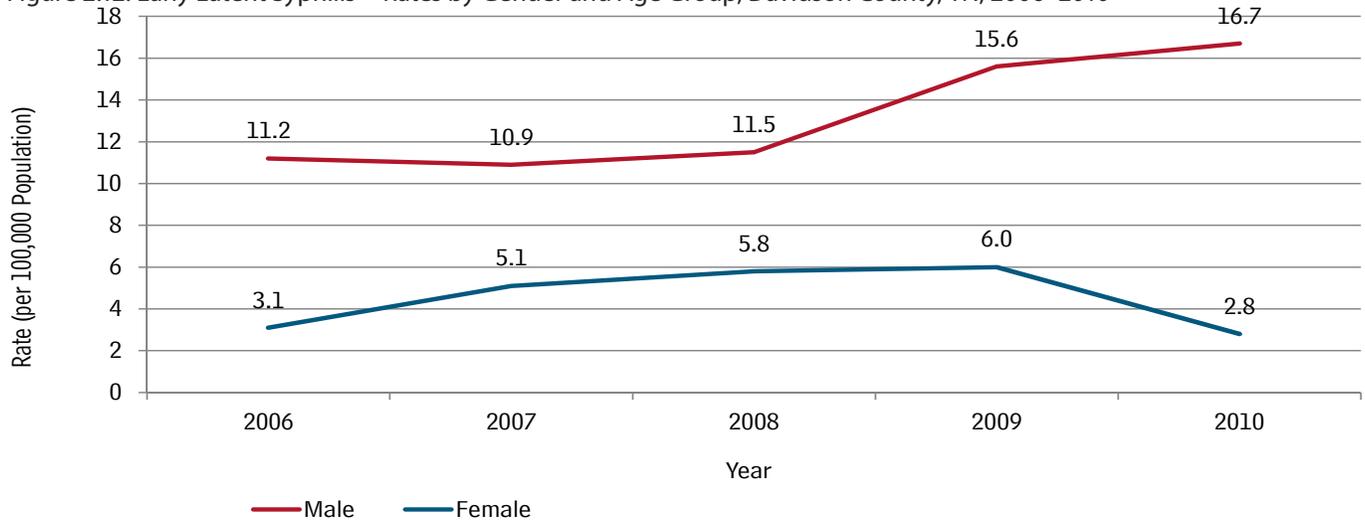


Figure 2.13. Early Latent Syphilis—Rates by Gender and Race/Ethnicity, Davidson County, TN, 2006–2010

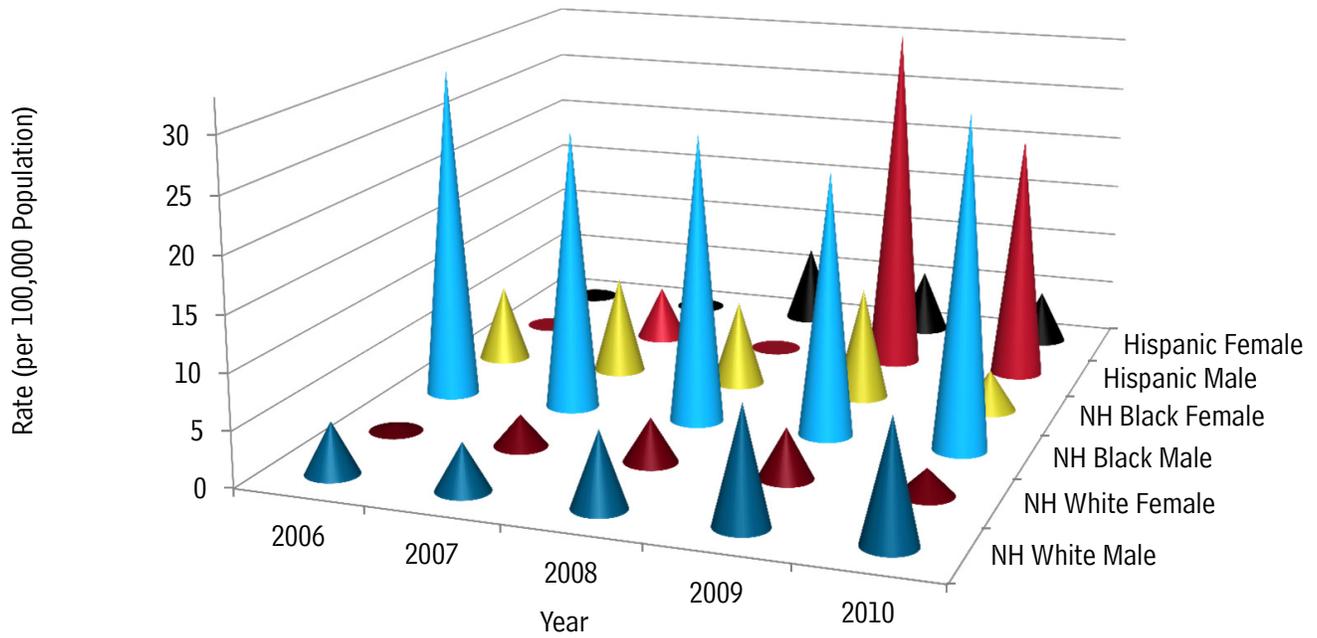


Figure 2.14. Latent and Late Latent Syphilis—Rates by Age Group, Davidson County, TN, 2006–2010

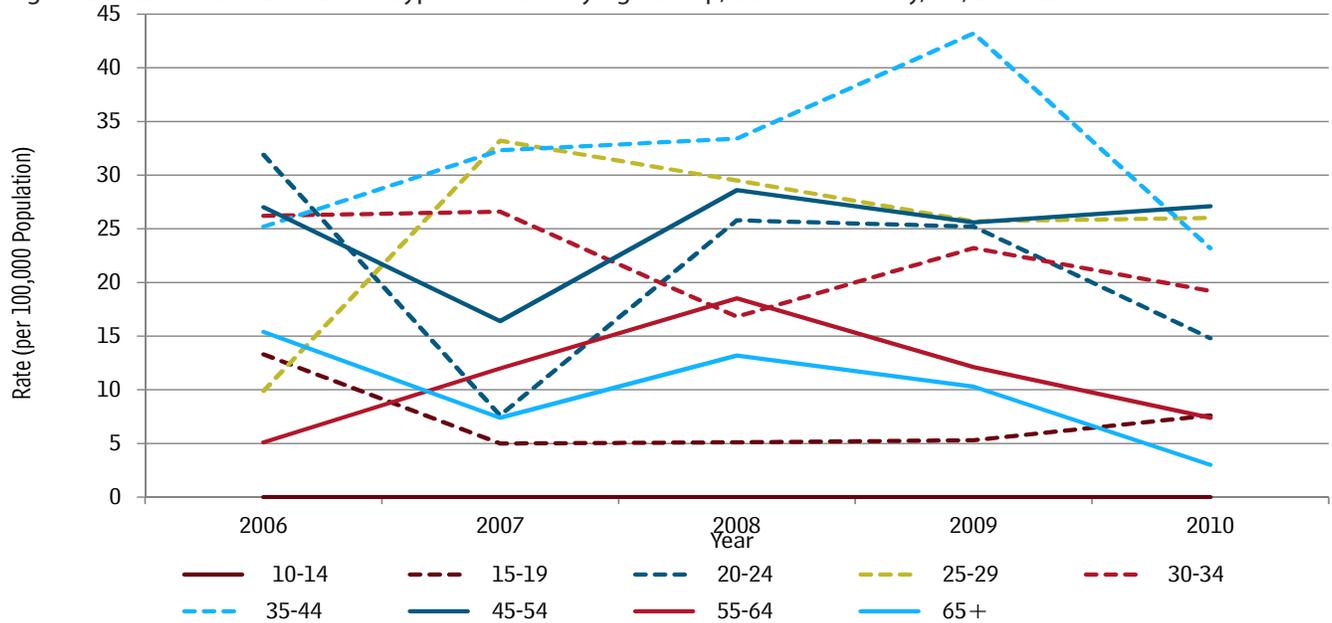


Figure 2.15 Latent and Late Latent Syphilis—Rates by Gender and Age Group, Davidson County, TN 2006–2010

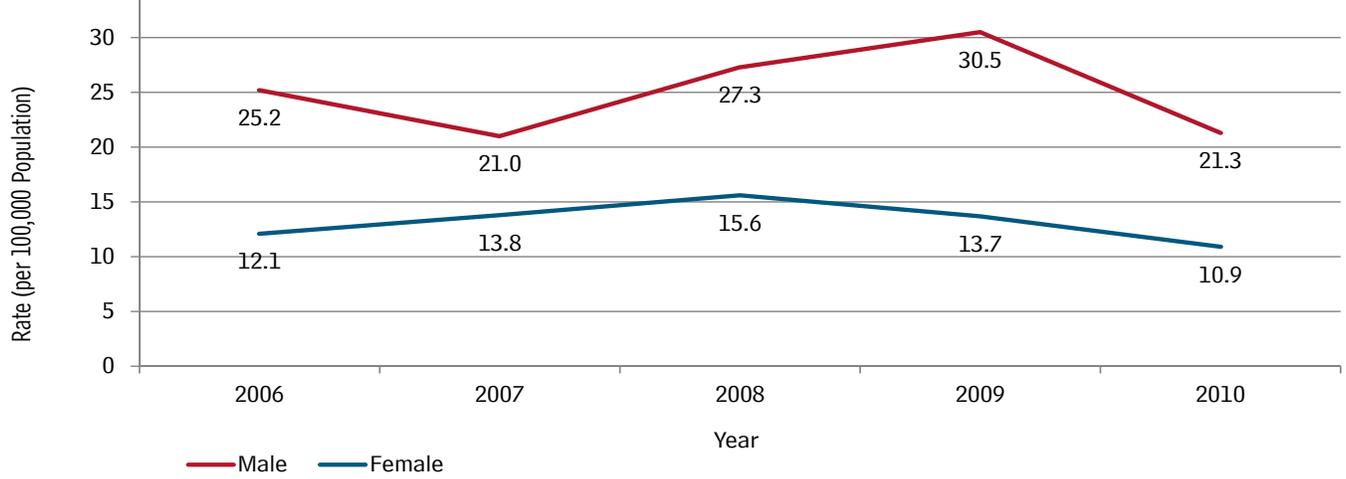
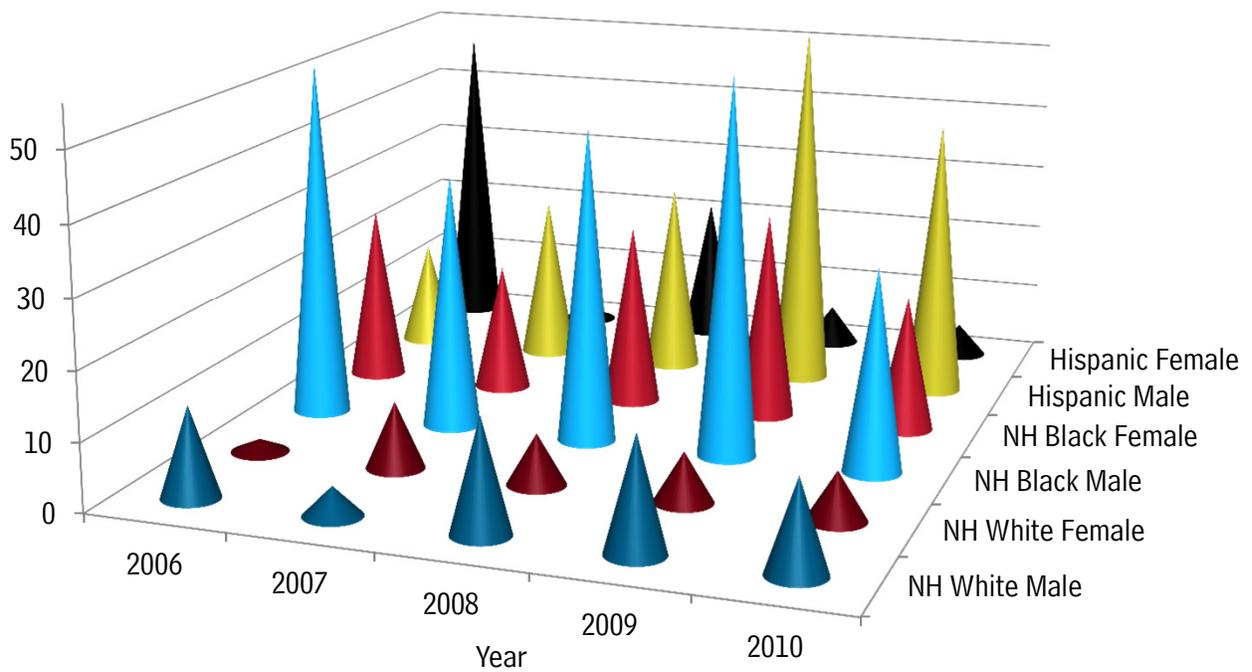


Figure 2.16. Latent and Late Latent Syphilis—Rates by Gender and Race/Ethnicity, Davidson County, TN, 2006–2010



# Part III. Sexually Transmitted Diseases

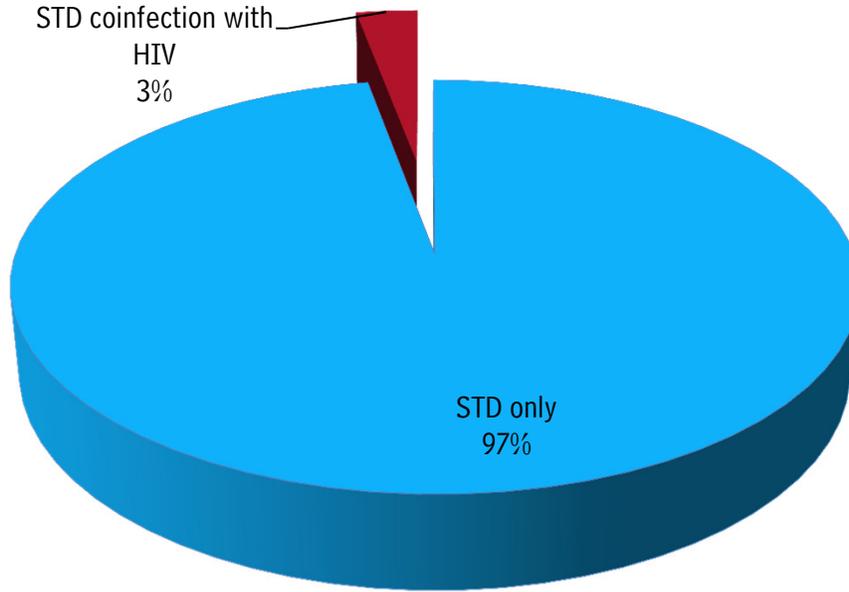
## Cases living with HIV 2010

Individuals who are infected with STDs are at least two to five times more likely than uninfected individuals to acquire HIV infection if they are exposed to the virus through sexual contact. In addition, if an HIV-infected individual is also infected with another STD, that person is more likely than other HIV-infected persons to transmit HIV through sexual contact . There is substantial biological evidence demonstrating that the presence of other STDs increases the likelihood of both transmitting and acquiring HIV.[18]

In 2010, 2.9% of STD patients in Davidson County were coinfectd with HIV (Figure 2.17). Among them, 13% of patients were diagnosed with both an STD and HIV at the same time, and 30% of patients were diagnosed with HIV within one year of being diagnosed with an STD (Figure 2.18).

STD trends can offer important insights into where the HIV epidemic may develop.[19] STD prevention, testing, and treatment can play a vital role in comprehensive programs to prevent sexual transmission of HIV. It is important that all persons who seek evaluation and treatment for STDs should be screened for HIV infection as well. Screening should be routine, regardless of whether the patient is known or suspected to have specific behavioral risks for HIV infection.

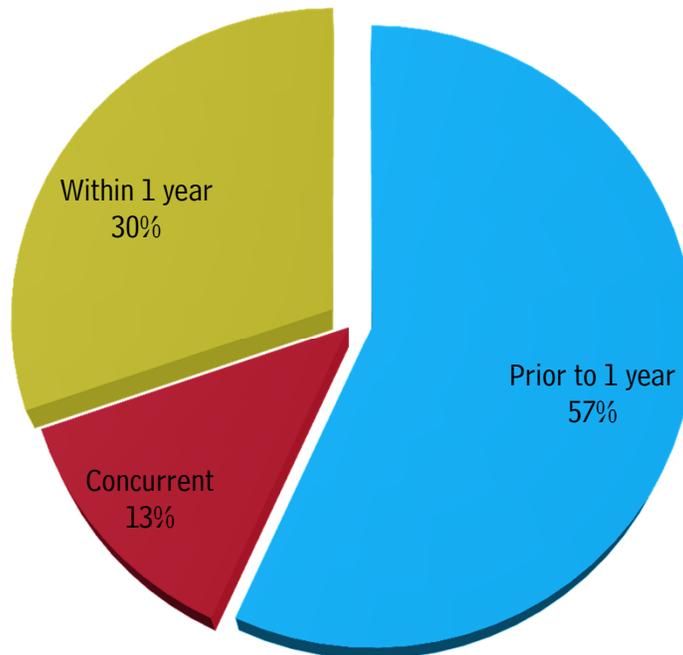
Figure 2.17. Coinfection—Percentage of Sexually Transmitted Disease (STD) Cases Living with HIV\* in Davidson County, TN, 2010\*\*



\* Human immunodeficiency virus.

\*\* Due to patient migration, reported coinfection may be less than that diagnosed.

Figure 2.18. Time of HIV\* Diagnosis among Coinfection of Sexually Transmitted Diseases Patients in Davidson County, TN, 2010



\* Human immunodeficiency virus.

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