



Forsyth County, North Carolina 2014 HIV/STD Surveillance Report



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Technical Notes*

Readers should be aware that HIV infection, syphilis, gonorrhea, and chlamydia data are all presented by date of diagnosis rather than date of report (as seen in the quarterly reports and previous documents). Please see the individual surveillance disease notes below for more information.

North Carolina law requires that diagnoses of certain communicable diseases, including sexually transmitted diseases (STDs), be reported to local health departments that in turn report the information to the state. The HIV/STD Surveillance Unit (HSSU) is the designated recipient for STD morbidity reports at the state level. From these reports, the HSSU is responsible for aggregating these reports and providing county, regional, and statewide information about STDs to others, including the Centers for Disease Control and Prevention (CDC). The HSSU is part of the Communicable Disease Branch within the North Carolina Division of Public Health.

About the content of this report

The Forsyth County 2014 HIV/STD Surveillance Report includes summary tables of surveillance reports and other information for HIV infection, AIDS, chlamydia, gonorrhea, and syphilis for Forsyth County cases that were reported from January 1, 2014 through December 31, 2014. Information about all North Carolina counties for the time period can be found in the North Carolina 2014 STD Surveillance Report <http://epi.publichealth.nc.gov/cd/stds/figures/std14rpt.pdf>. In some instances, total numbers of reports may not agree between separate cross-tabulations due to missing values for some variables.

This report is intended to be used as a reference document for program managers, health planners, researchers, and others who are concerned with the public health implications of these diseases. The information presented is meant to be brief and provide limited data. This report and other annual publications are available at <http://www.forsyth.cc/PublicHealth/publications.aspx>.

Rates are expressed as cases per 100,000 population. Rate denominators were calculated using the available bridged race population estimates for 2014 from the National Center for Health Statistics. More information about bridged race categories is available at the website http://www.cdc.gov/nchs/nvss/bridged_race.htm.

Rates that are based on small numbers of cases (generally fewer than 20) should be viewed with caution and are considered unreliable because these rates have large standard errors and can vary widely with small changes in case numbers. For a more complete discussion of rates based on small numbers, please see the North Carolina Center for Health Statistics' publication, Statistical Primer No.12 "Problems with Rates Based on Small Numbers" by Paul Buescher. This publication is available at the website, http://www.schs.state.nc.us/SCHS/PDF/primer12_2.pdf

HIV INFECTION SURVEILLANCE DATA

HIV Infection Case Definition

In 2014, the CDC revised the existing surveillance case definitions for human immunodeficiency virus (HIV) infection. There are now five stages of HIV infection (0, 1, 2, 3 and unknown). A person's age is no longer part of the stage of infection criteria.¹ HIV infection case reports represent people who have a confirmed diagnosis of HIV, regardless of the stage of infection. HIV infection Stage 3 represents the traditional definition of acquired immunodeficiency syndrome (AIDS) based on ever having had a CD4+ T-lymphocyte cell count (CD4) of less than 200 or documentation of an AIDS-defining condition, not based on a person's symptoms. A CD4 percentage of less than 14 is only used to classify a person as Stage 3 when a CD4 cell count is not available.¹ In this document, the use of the term AIDS refers to HIV infection Stage 3. AIDS cases are defined as people who have ever been classified as AIDS prior to or in 2014.

HIV cases are counted by the date of diagnosis for the initial HIV diagnosis, whereas AIDS cases are counted by the date of AIDS diagnosis. Most AIDS case reports represent people who were diagnosed with HIV infection in earlier years. However, in North Carolina, about one-fourth to one-third of the new HIV diagnoses are in people who are initially diagnosed with HIV infection and AIDS at, or very near, the same time (concurrent). Therefore, HIV infection reports and AIDS case reports should be considered separately. The two categories should never be combined to estimate an infected population, as the broad category of HIV infection includes AIDS cases.

The HIV infection case totals and rates discussed in this document are restricted to adults and adolescents for comparability across states and with national data reported by the CDC. All county totals and references to ever diagnosed cases, people diagnosed and living, and people newly diagnosed with HIV infection include people under 13 years of age.

County of residence

Geographically, cases are counted by the patient's county of residence at diagnosis. Patients who are residents of a long-term facility such as prisons or other institutions are counted by the address of the facility. Therefore, case counts for counties with large institutions may be higher than otherwise expected. People with HIV infection in prison play different roles in the epidemic from other residents in the county. In this report, people diagnosed in long-term prison settings are excluded from county and regional case totals and rates. These cases are, however, included in state totals.

SYPHILIS SURVEILLANCE DATA

Syphilis cases are reported by stage of infection, which is determined through a combination of laboratory testing and patient interviews. Primary and secondary syphilis have very specific symptoms, so misclassification of these stages is highly unlikely. Primary, secondary, and early latent syphilis are considered "early syphilis." Misclassification between these three stages can occur, but all stages of syphilis are considered a priority for public health action. Because North Carolina performs patient interviews, partner notification, and contact tracing on all early syphilis cases, the quality of the early latent case data is good. Screening programs are more likely to detect asymptomatic cases, which may result in more complete reporting of cases in the screened populations (pregnant women, jail inmates, and others). However, thorough contact tracing further aids in case detection and reduces these biases. During the fourth quarter of 2012, the HSSU converted syphilis surveillance data from the Sexually Transmitted Disease Management Information System (STD*MIS) data system to NC EDSS. Reports are summarized by the date of diagnosis by the HSSU. Please note that in HIV/STD Surveillance reports prior to 2013 and Quarterly reports, syphilis cases are summarized by date of report, so there are slight differences in the case numbers when comparing this report with other reports.

GONORRHEA SURVEILLANCE DATA

Gonorrhea case reports represent people who have a laboratory-confirmed gonorrhea infection. Gonorrhea is often symptomatic in males and slightly less so in females. Many cases are detected when patients seek medical care. Others are detected through routine testing even if no symptoms are present. Gonorrhea can cause serious complications for females, and a number of screening programs exist targeting this population. Screening programs focused on female patients are predominately conducted at public clinics and health departments which can cause the reported cases to be biased toward those attending public clinics. Males are less likely to be diagnosed by routine screening, however, they are more likely to have symptoms that would bring them to the STD clinic. Therefore, gender bias in gonorrhea reporting is not considered to be large. Reports are summarized by the date of diagnosis. Please note that in HIV/STD Surveillance reports prior to 2013 and Quarterly reports, gonorrhea cases are summarized by date of report, so there are slight differences in the case numbers when comparing this report with other reports.

CHLAMYDIA SURVEILLANCE DATA

Chlamydia case reports represent people who have a laboratory-confirmed chlamydial infection. Note that chlamydial infection is often asymptomatic in both males and females, and most cases are detected through screening; therefore, changes in the number of reported cases may be due to changes in screening practices rather than changes in true disease incidence. Because the disease can cause serious complications in females, such as pelvic inflammatory disease and infertility, a number of screening programs are in place to detect chlamydia infection in young women. No comparable screening programs exist for young men. For this reason, chlamydia case reports are always highly biased with respect to gender.

The North Carolina STD Surveillance data system underwent extensive changes in 2008 as North Carolina implemented the North Carolina Electronic Disease Surveillance System (NC EDSS). Reports are summarized by the date of diagnosis. Please note that in HIV/STD Surveillance reports prior to 2013 and Quarterly reports, chlamydia cases are summarized by date of report, so there are slight differences in the case numbers when comparing this report with previous reports.

FOR MORE INFORMATION

For a more detailed discussion of the content, strengths, and weaknesses of STD and HIV surveillance data, please see Appendix B of the most recent HIV/STD Epidemiologic Profile (<http://epi.publichealth.nc.gov/cd/stds/epiprofile.html>). Recent trend information can also be found on the web site <http://epi.publichealth.nc.gov/cd/stds/figures.html>.

Highlights

Chlamydia

- The reported number of chlamydia cases in Forsyth County in 2014 was 2,420, with a rate of 662.5 per 100,000 population (Table 1).
- Sixty-nine percent of the cases were females.
- Among chlamydia reports in 2014, the age groups with highest percent were 20-29 year olds (59%), followed by 13-19 year olds (26%) (Table 1).

Gonorrhea

- The reported number of gonorrhea cases in Forsyth County in 2014 was 935 with a rate of 256.0 per 100,000 population (Table 2).
- Among gonorrhea reports in 2014, the age groups with highest percent were 20-29 year olds (62%), followed by 13-19 year olds (18%) and by 30-39 year olds(14%) (Table 2)
- In 2014, Non-Hispanic African American represented 54 percent of total cases (Table 2).

Early Syphilis

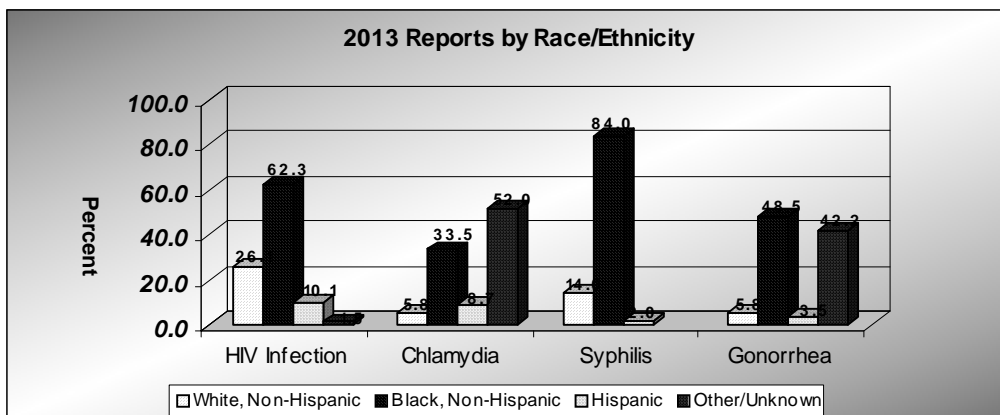
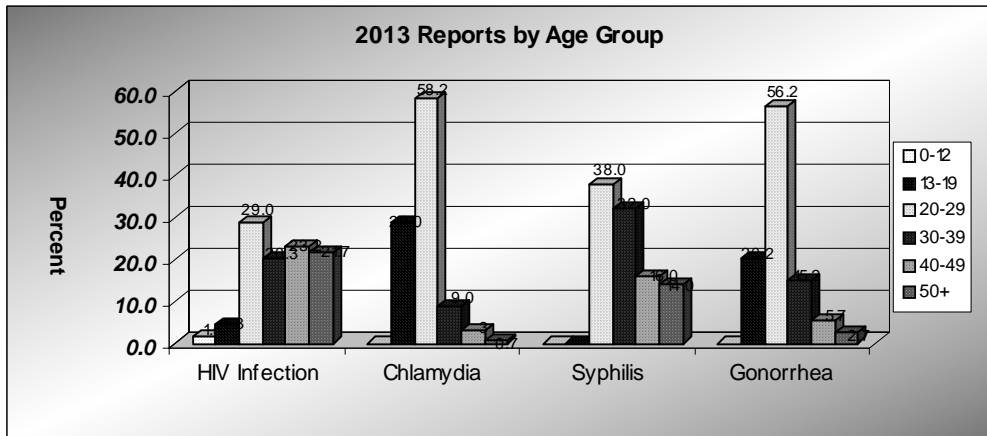
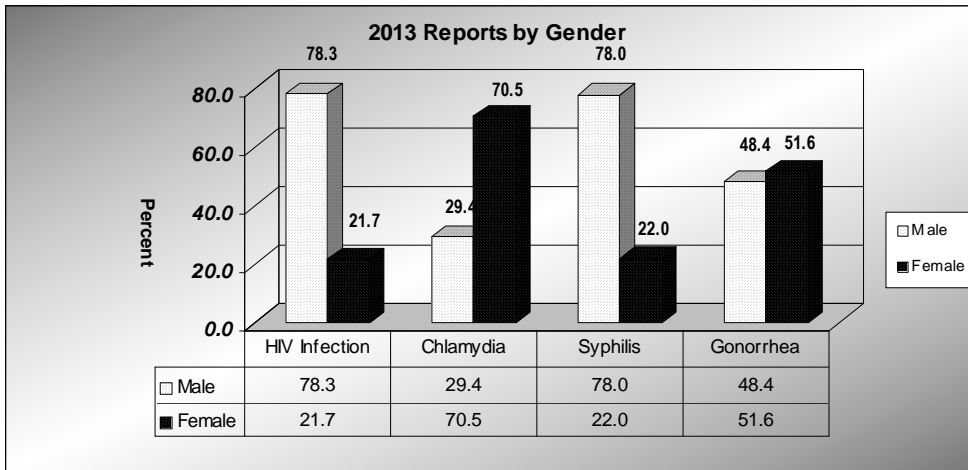
- The number of early syphilis cases diagnosed in Forsyth County in 2014 was 50, with a rate of 13.7 per 100,000 population. In 2013, 51 early syphilis cases were diagnosed, with a rate of 14.1 per 100,000 population (Table 8).
- Eighty-six percent of the cases were males
- Non-Hispanic African American represented 66 percent of total early syphilis cases in 2014 (Table 3).
- The top four counties with the most early syphilis diagnoses in 2014 were Mecklenburg (269), Wake (177), Guilford (87), and Durham(73) (Table 8).

HIV Infection

- As of December 31, 2014, the estimated number of living HIV infection cases diagnosed and reported in Forsyth County was 1,414 : <http://epi.publichealth.nc.gov/cd/stds/figures/std14rpt.pdf>
- For 2014, 50 new diagnoses of HIV infection were reported, at a rate of 13.8 per 100,000 population (Table 4).
- Most counties have a declining rate of AIDS (HIV infection Stage 3)
- Among the HIV infection cases diagnosed in 2014, Non-Hispanic African Americans represented 70 percent of all cases
- For the newly diagnosed HIV infection cases in 2014, the prevalent mode of transmission was among men who have sex with men (MSM) at 48 percent of total cases followed by Unknown Risk at 42 percent.

Summary of 2013 Reports for Forsyth County

Below are graphs of 2013 Sexually-transmitted diseases (STD) Reports by sex, age group, and race/ethnicity. These graphs can be used as a reference when viewing the current year data.



Chlamydia

Chlamydia is the most commonly reported bacterial STD. Approximately 50% of men and 75% of women who have Chlamydia experience no symptoms. Untreated infections can lead to serious consequences for reproductive and overall health. In women these infections often result in pelvic inflammatory disease (PID), which can cause infertility, ectopic pregnancy, and chronic pelvic pain. In addition, pregnant women infected with Chlamydia can infect their babies during delivery. Recent research data have shown that women infected with Chlamydia have a 3- to 5-fold increased risk of acquiring HIV if exposed.

In 2014, a total of 49,904 cases of Chlamydia were reported in North Carolina. **Forsyth County reported 2,420 cases of Chlamydia. The rate of infection was 662.5 cases per 100,000 population, which ranked fourth among the state's five urban counties. This was a 1.0% decrease from 668.8 cases per 100,000 population in 2013.** Durham, Guilford, Mecklenburg and Wake counties ranked first, second, third, and fifth, respectively, in highest rate of infection among the urban counties. Mecklenburg County reported the highest number of cases, totaling 6,938. Durham County reported the fewest cases, totaling 2,159.

Table1: 2014 Chlamydia Reports in Forsyth County

	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Total	
Sex	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%
Male	248	30.5	185	31.3	135	29.0	179	32.6	747	30.9
Female	566	69.5	406	68.7	331	71.0	370	67.4	1,673	69.1
Total	814	100.0	591	100.0	466	100.0	549	100.0	2,420	100.0
Age Group	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%
0-12 yr	0	0.0	0	0.0	**	**	**	**	**	**
13-19 yr	208	25.6	151	25.5	124	26.6	145	26.4	628	26.0
20-29 yr	486	59.7	364	61.6	260	55.8	319	58.1	1,429	59.0
30-39 yr	90	11.1	58	9.8	61	13.1	66	12.0	275	11.4
40-49 yr	23	2.8	**	**	15	3.2	**	**	64	2.6
50+ yr	7	0.9	**	**	**	**	6	1.1	22	0.9
Total	814	100.0	591	100.0	466	100.0	549	100.0	2,420	100.0
Race/Ethnicity	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%
Black/African	315	38.7	193	32.7	160	34.3	160	29.1	828	34.2
Hispanic/Latino	99	12.2	63	10.7	42	9.0	52	9.5	256	10.6
White/Caucasian*	58	7.1	26	4.4	30	6.4	37	6.7	151	6.2
Multiple Race & Unknown	342	42.0	309	52.2	234	50.2	300	54.6	1,185	49.0
Total	814	100.0	591	100.0	466	100.0	549	100.0	2,420	100.0

* Non-Hispanic

** Cell counts and percentages have been suppressed to avoid identification of cells that have counts less than five.

Gonorrhea

Gonorrhea is a STD caused by *Neisseria gonorrhoeae*. It is the second most common bacterial STD in the US, after Chlamydia. About 30% to 60% of people who have gonorrhea do not experience symptoms. If left untreated, gonorrhea can cause pelvic inflammatory disease, tubal infertility, ectopic pregnancy, and chronic pelvic pain. Studies also indicate that gonococcal infections facilitate HIV transmission. The reporting of gonorrhea cases is likely biased towards reporting of infections in racial and ethnic minorities that attend public STD clinics.

In 2014, 14,952 cases of gonorrhea were reported in North Carolina. **Forsyth County reported 935 cases of gonorrhea. The rate of infection was 256.0 cases per 100,000 population, which ranked first among the five urban counties in North Carolina. This was a 23% increase from 207.7 cases per 100,000 populations in 2013.** Durham, Guilford, Mecklenburg and Wake counties ranked second, third, fourth, and fifth, respectively, in highest rate of infection among the urban counties. Mecklenburg County reported the most cases, totaling 2,391 cases, and Durham County reported the least cases, totaling 752 cases.

Table2: 2014 Gonorrhea Reports in Forsyth County

	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Total	
Sex	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%
Male	117	45.2	106	44.4	89	46.6	121	49.2	433	46.3
Female	142	54.8	133	55.6	102	53.4	125	50.8	502	53.7
Total	259	100.0	239	100.0	191	100.0	246	100.0	935	100.0
Age Group	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%
0-12yr	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
13-19 yr	52	20.1	39	16.3	40	20.9	41	16.7	172	18.4
20-29 yr	167	64.5	160	66.9	107	56.0	146	59.3	580	62.0
30-39 yr	30	11.6	31	13.0	27	14.1	39	15.9	127	13.6
40-49 yr	**	**	**	**	11	5.8	14	5.7	37	4.0
50+ yr	**	**	**	**	6	3.1	6	2.4	19	2.0
Total	259	100.0	239	100.0	191	100.0	246	100.0	935	100.0
Race/Ethnicity	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%
Black/African American*	143	55.2	112	46.9	109	57.1	138	56.1	502	53.7
Hispanic/Latino	**	**	8	3.3	8	4.2	**	**	26	2.8
White/Caucasian*	**	**	19	7.9	14	7.3	**	**	57	6.1
Multiple Race & Unknown	96	37.0	100	41.8	60	31.4	94	38.2	350	37.5
Total	259	100.0	239	100.0	191	100.0	246	100.0	935	100.0

* Non-Hispanic

** Cell counts and percentages have been suppressed to avoid identification of cells that have counts less than five.

Source: Fox KK, Whittington W, Levine WC, Moran JS, Zaidi AA, Nakashima AN. Gonorrhea in the United States, 1981- 1996: demographic and geographic trends, Sex Transm Dis 1998; 25(7): 386-393

Syphilis

Syphilis is a bacterial STD caused by *Treponema pallidum*. It has often been called the great imitator because many symptoms are indistinguishable from those of other diseases. Depending on the stage of the infection, many people experience no symptoms at all. Untreated syphilis that progresses to later stages can lead to organ damage and death. In addition, open sores caused by syphilis make contracting and passing HIV infection easier. There is a 2- to 5-fold greater risk of HIV infection when a person is already infected with syphilis.

In 2014, 1,113 cases of early syphilis (primary, secondary & early latent syphilis) were reported in North Carolina. **Forsyth County reported 50 cases of early syphilis. The rate of infection was 13.7 cases per 100,000 population, which ranked fifth among the five urban counties in North Carolina. This was a 3% decrease from 14.1 cases per 100,000 populations in 2013.** Mecklenburg, Durham, Wake and Guilford counties ranked first, second, third and fourth respectively, in highest rate of infection among the urban counties. Mecklenburg County reported the highest number of cases totaling 269. Forsyth County reported the fewest cases, totaling 50.

	Total	
Sex	Cases	%
Male	43	86.0
Female	7	14.0
Total	50	100.0
Age Group	Cases	%
0-12yr	0	0.0
13-19 yr	**	**
20-29 yr	16	32.0
30-39 yr	17	34.0
40-49 yr	**	**
50+yr	10	20.0
Total	50	100.0
Race/Ethnicity	Cases	%
Black/African American*	33	66.0
Hispanic/Latino	**	**
White/Caucasian*	10	20.0
Multiple Race & Unknown	**	**
Total	50	100.0

* Non-Hispanic

** Cell counts and percentages have been suppressed to avoid identification of cells that have counts less than five.

HIV Disease

Infection with human immunodeficiency virus (HIV) generally causes progressive damage to the immune and organ systems, including the central nervous system, and leads to a more severe life-threatening clinical condition called AIDS (acquired immunodeficiency syndrome). For more information about how HIV cases are counted and reported, see Technical Notes (pages 3-4).

In 2014, a total of 1,351 diagnoses of HIV infection were reported in North Carolina. **Forsyth County reported 50 cases of HIV infection. The rate of infection was 13.8 per 100,000 population, which ranked fifth among the state's urban counties. This is a 23% decrease from 18.0 cases per 100,000 population in 2013.** Mecklenburg, Durham, Guilford and Wake counties ranked first, second, third, and fourth, respectively, in highest rate of infection among the urban counties. Mecklenburg County reported the highest number of cases, totaling 340. Forsyth County reported the fewest cases, totaling 50.

	Total	
Sex	Cases	%
Male	35	70.0
Female	15	30.0
Total	50	100.0
Age Group	Cases	%
0-12yr	0	0.0
13-19 yr	0	0.0
20-29 yr	23	46.0
30-39 yr	9	18.0
40-49 yr	8	16.0
50+yr	10	20.0
Total	50	100.0
Race/Ethnicity	Cases	%
Black/African American*	35	70.0
Hispanic/Latino	**	**
White/Caucasian*	7	14.0
Multiple Race & Unknown	**	**
Total	50	100.0
Mode of Exposure	Cases	%
Heterosexual-all	**	**
Intravenous Drug Use (IDU)	**	**
Men who had sex with men (MSM)	24	48.0
MSM/IDU	**	**
Unknown Risk	21	42.0
Total	50	100.0

* Non-Hispanic

** Cell counts and percentages have been suppressed to avoid identification of cells that have counts less than five.

Trend for Newly Diagnosed Chlamydia, Gonorrhea & Syphilis** Incidences for the Five Urban Counties & North Carolina, 2010-2014

County of Residence	Year of Report					
		2010	2011	2012	2013	2014
Durham	Cases	1,632	2,070	1,860	2,185	2,159
	Rate*	608.0	749.2	658.9	758.0	733.2
Forsyth	Cases	2,483	2,598	2,802	2,418	2,420
	Rate*	706.6	732.9	782.8	668.8	662.5
Guilford	Cases	3,213	4,038	3,802	3,879	3,563
	Rate*	656.2	815.7	759.0	765.2	695.7
Mecklenburg	Cases	5,587	6,012	5,986	6,243	6,938
	Rate*	605.2	636.0	617.9	629.0	685.2
Wake	Cases	4,189	4,576	4,615	4,255	4,556
	Rate*	462.0	492.4	484.5	436.4	456.2
North Carolina (all counties)	Cases	44,579	49,578	49,478	49,220	49,904
	Rate*	466.3	513.7	507.6	499.8	501.9

County of Residence	Year of Report					
		2010	2011	2012	2013	2014
Durham	Cases	732	767	640	798	752
	Rate*	272.7	277.6	226.7	27.8	255.4
Forsyth	Cases	794	778	721	751	935
	Rate*	226.0	219.5	201.4	207.7	256.0
Guilford	Cases	1,206	1,654	1,371	1,382	1,272
	Rate*	246.3	334.1	273.7	272.6	248.4
Mecklenburg	Cases	1,814	1,743	1,783	1,857	2,391
	Rate*	196.5	184.4	184.0	187.1	236.1
Wake	Cases	1,147	1,265	1,336	1,215	1,265
	Rate*	126.5	136.1	140.2	124.6	126.7
North Carolina (all counties)	Cases	14,917	15,360	13,740	14,114	14,952
	Rate*	156.0	159.1	140.9	143.3	150.4

County of Residence	Year of Report					
		2010	2011	2012	2013	2014
Durham	Cases	23	26	24	46	73
	Rate*	8.6	9.4	8.5	16.0	24.8
Forsyth	Cases	88	36	42	51	50
	Rate*	25.1	10.2	11.7	14.1	13.7
Guilford	Cases	81	102	58	51	87
	Rate*	16.6	20.6	11.6	10.1	17.0
Mecklenburg	Cases	169	175	127	149	269
	Rate*	18.3	18.5	13.1	15.0	26.6
Wake	Cases	77	70	82	110	177
	Rate*	8.5	7.5	8.6	11.3	17.7
North Carolina (all counties)	Cases	706	706	564	688	1,113
	Rate*	7.4	7.4	5.8	7.0	11.2

*per 100,000 Population ** Includes Primary, Secondary, and Early Latent Syphilis

Trend for Newly Diagnosed HIV Infection and AIDS Incidences for the Five Urban Counties and North Carolina, 2010-2014

County of Residence	Year of Report					
		2010	2011	2012	2013	2014
Durham	Cases	86	68	67	70	66
	Rate*	32.0	24.6	23.7	24.3	22.9
Forsyth	Cases	60	78	53	65	50
	Rate*	17.1	22.0	14.8	18.0	13.8
Guilford	Cases	111	128	95	117	103
	Rate*	22.7	25.9	19.0	23.1	20.3
Mecklenburg	Cases	306	321	255	261	340
	Rate*	33.1	34.0	26.3	26.3	34.3
Wake	Cases	169	137	137	174	157
	Rate*	18.6	14.7	14.4	17.9	16.1
North Carolina	Cases	1,455	1,474	1,269	1,330	1,351
	Rate*	15.2	15.3	13.0	13.5	13.6

County of Residence	Year of Report					
		2010	2011	2012	2013	2014
Durham	Cases	36	23	25	17	47
	Rate*	13.4	8.3	8.9	5.9	16.3
Forsyth	Cases	26	40	26	33	13
	Rate*	7.4	11.3	7.3	9.1	3.6
Guilford	Cases	49	52	37	43	25
	Rate*	10.0	10.5	7.4	8.5	4.9
Mecklenburg	Cases	128	133	211	250	166
	Rate*	13.9	14.1	21.8	25.2	16.7
Wake	Cases	83	77	70	77	61
	Rate*	9.2	8.3	7.3	7.9	6.3
North Carolina (all counties)	Cases	799	818	782	862	706
	Rate*	8.4	8.5	8.0	8.8	7.2

* Per 100,000 population.

