Special Report

Syphilis Morbidity 2009

nc department of health and human services

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North Carolina Syphilis Morbidity 2009

In 2009, North Carolina experienced a significant outbreak of new syphilis cases. Nine hundred thirty seven (937) new cases of early syphilis were reported. This was an 84 percent increase in cases over the 509 cases reported in 2008. Increases in morbidity were noted for almost all demographic groups as well as among persons already infected with HIV. Persons with ulcerative sexually transmitted diseases, like syphilis, are more likely to transmit HIV if they are positive, or to become infected with HIV if a sex partner is HIV positive. Thus, there is serious concern that there may be subsequent increases in HIV morbidity in the state. Below is a summary of some of the key epidemiologic trends for syphilis morbidity in the state with supporting data tables beginning on page 5.

Background

Syphilis is a complex disease with a natural history encompassing a number of different stages that have different implications for continued spread of the disease. Patients in the primary or secondary stages are the most likely to have noticeable symptoms and may present for examination and subsequent treatment. They are also of the greatest concern for sexual transmission because they are the most infectious. Cases in the asymptomatic early latent stage, which occurs later, may also be infectious to their sexual partners, although less so than primary or secondary cases. In addition, females can pass the infection to their infants (congenital syphilis) well past the early latent stage. Latent syphilis cases are generally found through screening or partner notification, since the patient does not have symptoms. Screening may bias latent syphilis case reporting toward groups that receive it (pregnant women, jail inmates, others).

North Carolina law states that all cases of syphilis must be reported to the local health department within 24 hours. Each individual with a reactive syphilis test must be investigated thoroughly to determine (a) if the person is genuinely infected and, if so, (b) if the infection is new or failed treatment of an old infection, and, if new, (c) the stage of the disease. This investigation, conducted by local or regional health department personnel, can take days or weeks, and in some cases the patient is treated for a probable infection before the investigation is complete. Contact tracing and partner notification are also initiated for probable syphilis cases and oftentimes partner interviews provide valuable information that aids in the accurate staging of the infection.

Primary, secondary and early latent stages all occur within the first year of infection and represent stages when syphilis can be transmitted to sexual partners. Hence, they are often grouped together when discussing infectious syphilis and called ‘early syphilis’ or PSEL. Throughout this report references to syphilis should be interpreted as “early syphilis” unless otherwise noted.

In 2000, early syphilis reports totaled approximately 1,100; the rate of infection was 11.9 cases per 100,000 people and cases were evenly distributed between males and females. Considerable resources were directed at reducing syphilis morbidity in the state at that time. One such activity was the Syphilis Elimination Effort (SEE). The SEE included concentrated efforts in six counties

(Mecklenburg, Wake, Durham, Guilford, Forsyth, and Robeson) with the highest rates of syphilis infection. Likely result of concerted public health efforts, the rate of early syphilis infection dropped to its lowest point in 2003 with a rate of 4.3 per 100,000. Cuts to SEE funding and resources dedicated to syphilis elimination began in 2004 and increased incrementally each year. By the end of the decade resurgence of syphilis in the state became obvious and of legitimate public health concern.

Geographies

In 2009, 937 new cases of early syphilis were reported equaling a rate of 10.2 cases per 100,000 people. The increase in syphilis in 2009 occurred throughout the state and included many counties that follow interstate highways 40 and 85 and several eastern counties. Forsyth, Mecklenburg, Wake, Guilford, Wayne and Durham counties each contributed at least 40 or more new early syphilis cases to the overall morbidity of the state. All of these counties except Durham had substantially more cases in 2009 compared to 2008; Forsyth County experienced a dramatic, over four fold, increase in syphilis cases. Other counties that experienced notable increases between 2008 and 2009 included Gaston, Edgecombe and Pitt counties. Other counties had more cases in 2009 compared to 2008, but none had large numbers of cases.

Gender

Early syphilis rates among males began to rise substantially in 2004 and continued to rise through 2006. Although the number of male reports decreased slightly from 2007 to 2008, as a proportion of all reports, males continue to contribute an increasingly larger share. This is indicative of increasing transmission among men who have sex with men (MSM). In 2009, male cases represented 77 percent of all early syphilis reports and the male-to-female ratio (based on rate) was 3.6. The rate of male early syphilis cases in 2009 was 16.0 per 100,000 males, an 84 percent increase from 2008 (8.7 per 100,000 males). In 2009, three counties had particularly high male-to-female case ratios including Durham County with 9.0 male cases for every female case, Wake County with 8.6 male cases per female case, and Mecklenburg County with 6.2. Female early syphilis cases declined to 2.4 cases per 100,000 females in 2008 which was the lowest observed rate observed since 2000. However, the early syphilis rate for females increased to 4.5 cases per 100,000 in 2009 which represented an 84 percent increase from 2008. As of January 31, 2010, ten infants were known born in 2009 to mothers who had active or inadequately treated cases of syphilis. Because of the delay in reporting and confirming congenital syphilis diagnoses, this number should be considered preliminary. The number of congenital syphilis cases reported each year remains unacceptably high.

Age

Previously in North Carolina syphilis affected an older population than those affected by gonorrhea and chlamydia, especially among men. Since 2005, there has been a general shift to higher syphilis rates among younger age groups for both men and women. Although high rates for gonorrhea and chlamydia are still found among younger people, the difference as compared to syphilis has become much less pronounced. In 2005, the age group with the highest early syphilis rate for men was 40 to 44 year olds (17.9/100,000) followed by 25 to 29 year olds (17.4/100,000) and 30 to 34 year olds (16.4/100,000). In 2005, the age group with the highest early syphilis rate for women was 20 to 24 year olds (8.1/100,000) followed by 35 to 39 year

olds (7.9/100,00) and 40 to 44 year olds (6.5/100,000). In 2009, the age groups with the highest syphilis rate were 20 to 24 year olds for both men (44.8/100,000) and women (20.7/100,000). The age groups with the second highest rates for syphilis for both men and women were 25 to 29 year olds followed by 30 to 34 year olds.

Race/ethnicity

Syphilis disproportionately affects minority communities, but increases in early syphilis rates were observed for almost all racial/ethnic groups in 2009. Syphilis rates for blacks (or African Americans) and Hispanics are many times higher than for whites. Syphilis reporting is generally very good in N.C., so it is unlikely that this disparity is due to reporting or testing bias. Racial and ethnic disparities in syphilis rates are likely the result of a complex combination of poor access to health care, poverty, racism, in addition to dynamics of sexual networks.

To assess trends, it is important to observe the changes in relative proportions (or rates) for the groups over time; differences between genders should be described separately. For males, the 2009 early syphilis rate for whites (non Hispanic) was 4.9 per 100,000, for blacks (non Hispanic) the rate was 57.5 per 100,000 or 9.6 times that for whites and for Hispanics or Latinos the rate was 6.5 per 100,000 or 1.3 times that for whites. For females, the 2009 early syphilis rate for whites (non Hispanic) was 1.7 per 100,000, for blacks the rate was 13.6 per 100,000 or 8 times that for whites, and for Hispanics or Latinas the rate was 4.3 per 100,000 or about 3 times that for whites.

In 2005, whites represented about 40 percent of syphilis reports for males, blacks about 51 percent, and Hispanics about 8 percent. Since that time, the proportions of blacks among male reports has increased each year. In 2009, black males represented 74 percent for reports for males, while reports for white males decreased to 21 percent and, reports for Hispanics decreased to 3 percent. While the absolute numbers of reports have increased for all ethnic male groups in 2009, the increases have been substantial for black males with consistent increases in proportion over time. For females, trends are less clear. Among 2005 female syphilis cases, the proportion of whites was about 25 percent, the proportion of blacks was about 67 percent and the proportion of Hispanics was about 3 percent. The proportions of black and white female syphilis cases reported have varied over the past five years and in 2009 mimicked the proportions observed in 2005. The proportion of syphilis cases for Hispanics females however, increased to about 7 percent of female reports in 2009.

HIV and syphilis comorbidity

Syphilis cases that are also infected with HIV (comorbid) have increased as a proportion of syphilis cases in recent years. In order for a syphilis case to be considered comorbid, the HIV diagnosis must have occurred before the syphilis diagnosis or within 6 months after the syphilis diagnosis. In 1999, the proportion of early syphilis cases with HIV was around 4.3 percent. In 2009, 36 percent of early syphilis cases also had HIV. The increase in comorbidity among male syphilis cases has been especially dramatic. In 2003, the proportion of male early syphilis cases with HIV was about 18.2 percent and for female cases about 7.0 percent. By 2009, the proportion of male syphilis cases with HIV had increased steadily to 44.5 percent. For females the trend since 2003 is less clear and the proportion of female cases with HIV fluctuated from a

low of 4.1 percent to a high of 10.9 percent in 2007. Although the proportional change in female syphilis cases with HIV from 2008 to 2009 was small, it did represent a notable increase in cases from 9 in 2008 to 15 in 2009. The race/ethnicity of male syphilis cases with HIV has changed over the past few years. In 2003, blacks represented 77 percent of comorbid male cases and whites represented 19 percent. This changed dramatically in 2005 when the proportion of white cases among comorbid males increased to 54 percent. Since that time the proportion of comorbid cases represented by black males has returned to levels observed earlier. In 2009, 72 percent of comorbid male cases were black and 22 percent were white. The male cases with both syphilis and HIV are overwhelming associated with MSM risk. In 2009, almost 89 percent of male syphilis cases with HIV had MSM or MSM/IDU as the listed hierarchical risk for HIV morbidity.

Primary and secondary syphilis

As mentioned previously, primary and secondary syphilis represent earlier, more infectious stages of infection but do not include the entirety of infectious syphilis. Because public health reporting in North Carolina encompasses all infectious (or potentially infectious) stages and reporting of "early latent" syphilis in the state is considered robust, using "early syphilis" as the grouping for describing the disease epidemiology is preferable. However, some national data descriptions of syphilis are limited to the "primary and secondary" category so providing some state level descriptions of syphilis by this category are useful. Readers should keep in mind however, that because the staging of the disease represents when the diagnosis and reporting of syphilis occurred and this reporting may be subject to reporting issues, more variability of trends over time may be observed.

In 2009, 580 cases of primary and secondary (PS) syphilis were reported which represented a 102 percent increase from 2008 when 287 cases were reported. The rate of PS syphilis in 2009 was 6.3 per 100,000 people. The rate ratio of male-to-female cases was 4.5 in 2009 and males represented 81 percent of PS syphilis cases reported. The male-to-female rate ratio has varied over the past five years with a low of 3.9 in 2006 and a high of 6.0 in 2008. The disparities observed for PS syphilis among racial/ethnic groups and the trend among age groups mimic those observed for early syphilis. The PS syphilis rate for black males (36.8/100,000) in 2009 was about 12 times higher than that for white males (3.3/100/000). The PS syphilis rate for black females (7.1/100,000) in 2009 was 8 times that for white females (0.8/100,000). The age groups with the highest PS syphilis rates in 2009 were 20 to 24 years olds, followed by 25 to 29 year olds and then 30 to 34 year olds for both male and females.

N.C. Early Syphilis Cases by County in Rank Order, 2005-2009						
Rank	**County**	**2005**	**2006**	**2007**	**2008**	**2009**
1	FORSYTH	16	34	31	46	195
2	MECKLENBURG	142	188	141	91	174
3	WAKE	65	60	39	37	115
4	GUILFORD	68	74	45	50	68
5	WAYNE	5	15	17	28	59
6	DURHAM	15	33	47	39	40
7	GASTON	6	12	10	5	20
8	CUMBERLAND	18	26	18	19	18
9	EDGECOMBE	0	7	11	13	17
10	BUNCOMBE	6	7	5	17	16
11	PITT	2	5	7	12	15
12	NEW HANOVER	8	12	35	22	14
13	NASH	3	16	15	16	9
14	ORANGE	0	5	8	3	9
15	CABARRUS	5	5	5	4	8
16	ALAMANCE	4	6	7	6	7
17	UNION	4	3	0	2	7
18	WILSON	5	5	3	5	6
19	CRAVEN	0	2	12	4	6
20	LEE	3	4	0	1	6
21	RANDOLPH	11	4	2	2	5
22	ROWAN	4	1	5	0	5
23	DAVIDSON	2	2	3	0	5
24	BLADEN	3	3	1	0	5
25	HENDERSON	0	0	0	0	5
26	JOHNSTON	9	12	10	5	4
27	LENOIR	5	1	5	3	4
28	BURKE	3	0	2	3	4
29	VANCE	4	3	0	2	4
30	CATAWBA	2	2	2	1	4
31	GRANVILLE	2	0	1	1	4
32	BEAUFORT	0	1	0	0	4
33	ROBESON	20	4	15	5	3
34	MOORE	1	1	3	5	3
35	CLEVELAND	5	2	6	4	3
36	FRANKLIN	1	0	4	3	3
37	ONSLOW	0	3	3	2	3
38	IREDELL	1	3	1	1	3

Continued

N.C. Early Syphilis Cases by County in Rank Order, 2005-2009 (Cont.)						
Rank	**County**	**2005**	**2006**	**2007**	**2008**	**2009**
39	GREENE	1	0	3	0	3
40	HARNETT	1	1	2	0	3
41	RUTHERFORD	1	0	1	0	3
42	WARREN	1	0	0	0	3
43	MADISON	0	0	0	0	3
44	BRUNSWICK	2	4	5	6	2
45	DUPLIN	0	1	2	3	2
46	STOKES	3	0	0	3	2
47	HALIFAX	3	2	4	2	2
48	SAMPSON	2	1	3	2	2
49	JACKSON	0	0	0	2	2
50	HAYWOOD	1	0	1	1	2
51	LINCOLN	0	0	1	1	2
52	YADKIN	2	0	2	0	2
53	WASHINGTON	1	0	2	0	2
54	CHATHAM	4	1	1	0	2
55	PENDER	0	0	1	5	1
56	ROCKINGHAM	2	3	5	4	1
57	MARTIN	0	2	1	2	1
58	SURRY	1	3	0	2	1
59	NORTHAMPTON	0	3	0	2	1
60	HOKE	0	1	0	2	1
61	COLUMBUS	3	1	2	1	1
62	MCDOWELL	2	0	1	1	1
62	SCOTLAND	2	0	1	1	1
64	RICHMOND	0	0	0	1	1
65	TRANSYLVANIA	0	0	1	0	1
66	PERSON	0	4	0	0	1
67	HERTFORD	0	1	0	0	1
67	HYDE	0	1	0	0	1
67	PASQUOTANK	0	1	0	0	1
70	MACON	1	0	0	0	1
71	CAMDEN	0	0	0	0	1
71	CURRITUCK	0	0	0	0	1
71	DARE	0	0	0	0	1
71	POLK	0	0	0	0	1
72	DAVIE	1	1	1	3	0
73	ANSON	0	1	0	2	0

Continued

N.C. Early Syphilis Cases by County in Rank Order, 2005-2009 (Cont.)						
Rank	**County**	**2005**	**2006**	**2007**	**2008**	**2009**
74	STANLY	1	3	3	1	0
75	CHEROKEE	1	0	0	1	0
75	WILKES	1	0	0	1	0
80	CALDWELL	0	0	0	1	0
80	GATES	0	0	0	1	0
82	CARTERET	0	0	4	0	0
83	JONES	1	0	1	0	0
84	CHOWAN	0	0	1	0	0
85	PERQUIMANS	0	2	0	0	0
85	WATAUGA	0	2	0	0	0
87	MONTGOMERY	1	1	0	0	0
88	BERTIE	0	1	0	0	0
89	ALEXANDER	2	0	0	0	0
90	ALLEGHANY	0	0	0	0	0
90	ASHE	0	0	0	0	0
90	AVERY	0	0	0	0	0
90	CASWELL	0	0	0	0	0
90	CLAY	0	0	0	0	0
90	GRAHAM	0	0	0	0	0
90	MITCHELL	0	0	0	0	0
90	PAMLICO	0	0	0	0	0
90	SWAIN	0	0	0	0	0
90	TYRRELL	0	0	0	0	0
90	YANCEY	0	0	0	0	0
	UNKNOWN	0	0	1	1	0
	NC TOTAL	489	602	569	509	937

North Carolina Early Syphilis (Primary, Secondary, Early Latent) Cases by Gender, 2000-2005																		
Gender	**2000**	**2000**	**2000**	**2001**	**2001**	**2001**	**2002**	**2002**	**2002**	**2003**	**2003**	**2003**	**2004**	**2004**	**2004**	**2005**	**2005**	**2005**
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
Male	551	50%	13.9	503	53%	12.5	342	56%	8.4	236	60%	5.7	306	68%	7.3	343	70%	8.1
Female	550	50%	13.4	438	47%	10.5	274	44%	6.5	160	40%	3.7	147	32%	3.4	146	30%	3.3
Total	1,101	100%	13.6	941	100%	11.5	616	100%	7.4	396	100%	4.7	453	100%	5.3	489	100%	5.6

* Cases per 100,000

North Carolina Early Syphilis (Primary, Secondary, Early Latent) Cases by Gender, 2006-2009												
Gender	**2006**	**2006**	**2006**	**2007**	**2007**	**2007**	**2008**	**2008**	**2008**	**2009**	**2009**	**2009**
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
Male	430	71%	9.9	422	74%	9.5	395	78%	8.7	723	77%	16.0
Female	172	29%	3.8	147	26%	3.2	114	22%	2.4	214	23%	4.5
Total	602	100%	6.8	569	100%	6.3	509	100%	5.5	937	100%	10.2

* Cases per 100,000

North Carolina Early Syphilis (Primary, Secondary, Early Latent) Cases by Gender and Race/Ethnicity, 2005-2009																
Race/Ethnicity		2005	2005	2005	2006	2006	2006	2007	2007	2007	2008	2008	2008	2009	2009	2009
		Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*
Male	White**	136	40%	4.7	125	29%	4.2	97	23%	3.2	95	24%	3.1	149	21%	4.9
	Black**	175	51%	19.9	281	65%	31.3	298	71%	32.6	279	71%	29.9	537	74%	57.5
	Am.In/AN**	0	0%	0.0	0	0%	0.0	2	0%	3.8	0	0%	0.0	6	1%	11.4
	Asian,PI**	2	1%	2.6	1	0%	1.2	1	0%	1.1	2	1%	2.2	4	1%	4.3
	Hispanic	28	8%	8.9	22	5%	6.6	23	5%	6.4	18	5%	4.7	25	3%	6.5
	Unknown	2	1%	---	1	0%	---	1	0%	---	1	0%	---	2	0%	---
	Total	343	100%	8.1	430	100%	9.9	422	100%	9.5	395	100%	8.7	723	100%	16.0
Female	White**	36	25%	1.2	25	15%	0.8	28	19%	0.9	22	19%	0.7	54	25%	1.7
	Black**	98	67%	9.8	129	75%	12.7	104	71%	10.0	82	72%	7.8	144	67%	13.6
	Am.In/AN**	4	3%	7.5	1	1%	1.8	2	1%	3.6	0	0%	0.0	1	0%	1.8
	Asian,PI**	2	1%	2.4	0	0%	0.0	1	1%	1.1	0	0%	0.0	1	0%	1.0
	Hispanic	5	3%	2.1	17	10%	6.7	12	8%	4.3	8	7%	2.7	14	7%	4.7
	Unknown	1	1%	---	0	0%	---	0	0%	---	2	2%	---	0	0%	---
	Total	146	100%	3.3	172	100%	3.8	147	100%	3.2	114	100%	2.4	214	100%	4.5
Total	White**	172	35%	2.9	150	25%	2.5	125	22%	2.0	117	23%	1.9	203	22%	3.2
	Black**	273	56%	14.6	410	68%	21.5	402	71%	20.6	361	71%	18.1	681	73%	34.2
	Am.In/AN**	4	1%	3.8	1	0%	0.9	4	1%	3.7	0	0%	0.0	7	1%	6.5
	Asian,PI**	4	1%	2.5	1	0%	0.6	2	0%	1.1	2	0%	1.1	5	1%	2.7
	Hispanic	33	7%	6.0	39	6%	6.6	35	6%	5.5	26	5%	3.8	39	4%	5.7
	Unknown	3	1%	---	1	0%	---	1	0%	---	3	1%	---	2	0%	---
	Total	489	100%	5.6	602	100%	6.8	569	100%	6.3	509	100%	5.5	937	100%	10.2

**not Hispanic * Cases per 100,000

N.C. Early Syphilis (Primary, Secondary, Early Latent) Cases by Gender and Age, 2005-2009																	
Age		2005	2005	2005	2006	2006	2006	2007	2007	2007	2008	2008	2008	2009	2009	2009
		Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*
Male	10-14	0	0%	0.0	0	0%	0.0	0	0%	0.0	0	0%	0.0	0	0%	0.0
	15-19	13	4%	4.3	20	5%	6.4	25	6%	7.8	30	8%	9.3	43	6%	13.3
	20-24	48	14%	15.5	68	16%	21.1	66	16%	20.6	77	19%	23.2	149	21%	44.8
	25-29	51	15%	17.4	70	16%	23.3	76	18%	25.2	60	15%	19.3	135	19%	43.5
	30-34	51	15%	16.4	58	13%	18.9	49	12%	16.1	29	7%	9.5	86	12%	28.1
	35-39	47	14%	14.8	72	17%	22.1	58	14%	17.4	60	15%	17.7	85	12%	25.1
	40-44	59	17%	17.9	63	15%	19.1	61	14%	18.5	58	15%	17.6	83	11%	25.2
	45-49	38	11%	12.0	43	10%	13.3	37	9%	11.2	37	9%	11.1	77	11%	23.0
	50-64	33	10%	4.5	31	7%	4.1	43	10%	5.5	41	10%	5.1	61	8%	7.5
	65+	2	1%	0.5	5	1%	1.1	7	2%	1.5	3	1%	0.6	4	1%	0.8
	Total	343	100%	8.1	430	100%	9.9	422	100%	9.5	395	100%	8.7	723	100%	16.0
Female	10-14	0	0%	0.0	0	0%	0.0	0	0%	0.0	1	1%	0.3	0	0%	0.0
	15-19	16	11%	5.6	20	12%	6.8	8	5%	2.6	14	12%	4.6	22	10%	7.2
	20-24	23	16%	8.1	31	18%	10.9	30	20%	10.4	21	18%	7.1	61	29%	20.7
	25-29	18	12%	6.1	15	9%	5.0	22	15%	7.2	13	11%	4.2	44	21%	14.2
	30-34	16	11%	5.2	24	14%	7.9	19	13%	6.2	17	15%	5.5	27	13%	8.7
	35-39	25	17%	7.9	25	15%	7.7	24	16%	7.2	13	11%	3.8	28	13%	8.3
	40-44	22	15%	6.5	25	15%	7.4	20	14%	5.9	12	11%	3.6	13	6%	3.9
	45-49	14	10%	4.2	19	11%	5.6	18	12%	5.2	13	11%	3.7	11	5%	3.1
	50-64	11	8%	1.4	13	8%	1.6	6	4%	0.7	9	8%	1.0	7	3%	0.8
	65+	1	1%	0.2	0	0%	0.0	0	0%	0.0	0	0%	0.0	1	0%	0.2
	Total	146	100%	3.3	172	100%	3.8	147	100%	3.2	114	100%	2.4	214	100%	4.5

Continued

N.C. Early Syphilis (Primary, Secondary, Early Latent) Cases by Gender and Age, 2005-2009 (Cont.)																
Age		2005	2005	2005	2006	2006	2006	2007	2007	2007	2008	2008	2008	2009	2009	2009
		Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*
Total	10-14	0	0%	0.0	0	0%	0.0	0	0%	0.0	1	0%	0.2	0	0%	0.0
	15-19	29	6%	4.9	40	7%	6.6	33	6%	5.3	44	9%	7.0	65	7%	10.3
	20-24	71	15%	12.0	99	16%	16.3	96	17%	15.7	98	19%	15.6	210	22%	33.5
	25-29	69	14%	11.8	85	14%	14.1	98	17%	16.1	73	14%	11.8	179	19%	28.9
	30-34	67	14%	10.8	82	14%	13.4	68	12%	11.2	46	9%	7.5	113	12%	18.4
	35-39	72	15%	11.4	97	16%	14.9	82	14%	12.3	73	14%	10.8	113	12%	16.7
	40-44	81	17%	12.1	88	15%	13.2	81	14%	12.1	70	14%	10.5	96	10%	14.4
	45-49	52	11%	8.0	62	10%	9.4	55	10%	8.2	50	10%	7.3	88	9%	12.9
	50-64	44	9%	2.9	44	7%	2.8	49	9%	3.0	50	10%	2.9	68	7%	4.0
	65+	3	1%	0.3	5	1%	0.5	7	1%	0.6	3	1%	0.3	5	1%	0.4
	Total	489	100%	5.6	602	100%	6.8	569	100%	6.3	509	100%	5.5	937	100%	10.2

*Cases per 100,000

North Carolina Congenital Syphilis Reports by Race/Ethnicity, 2005-2009 (reported as of 1/31/2010)									
Race/Ethnicity	2005		2006		2007		2008		2009	
	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct
White, non Hispanic	3	23%	2	29%	1	11%	2	18%	---	---
Black, non Hispanic	7	54%	1	14%	4	44%	4	36%	8	80%
Other	3	23%	4	57%	4	44%	5	45%	2	20%
Total	13	100%	7	100%	9	100%	11	100%	10	100%

North Carolina PSEL Syphilis and PSEL Syphilis Cases with HIV infection* (Comorbid) 2003-2006												
Gender	2003			2004			2005			2006		
	Cases with HIV	PSEL Syphilis (total)	Pct. Co-morbid	Cases with HIV	PSEL Syphilis (total)	Pct. Co-morbid	Cases with HIV	PSEL Syphilis (total)	Pct. Co-morbid	Cases with HIV	PSEL Syphilis (total)	Pct. Co-morbid
Male	43	236	18.2%	72	306	23.5%	101	343	29.4%	152	430	35.3%
Female	10	160	6.25%	6	147	4.1%	6	146	4.1%	9	172	5.2%
Total	53	396	13.4%	78	453	17.2%	107	489	21.9%	161	602	26.7%

*HIV diagnosis before or within 6 months of syphilis diagnosis.

North Carolina PSEL Syphilis and PSEL Syphilis Cases with HIV infection* (Comorbid) 2007-2009									
Gender	2007			2008			2009**		
	Cases with HIV	PSEL Syphilis (total)	Pct. Co- morbid	Cases with HIV	PSEL Syphilis (total)	Pct. Co- morbid	Cases with HIV	PSEL Syphilis (total)	Pct. Co- morbid
Male	159	422	37.7%	162	395	41.0%	323	723	44.7%
Female	16	147	10.9%	9	114	7.9%	15	214	7.0%
Total	175	569	30.8%	171	509	33.6%	338	937	36.1%

*HIV diagnosis before or within 6 months of syphilis diagnosis. ** As of 1/31/2010.

North Carolina PSEL Syphilis Cases with HIV infection** (Comorbid) 2003-2009															
Race/Ethnicity		2003		2004		2005		2006		2007		2008		2009	
		Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct
Female	White*	1	10%	---	---	1	17%	1	11%	3	19%	---	---	2	13%
	Black*	9	90%	6	100%	4	67%	8	89%	11	69%	9	100%	12	80%
	Others*	---	---	---	---	1	17%	---	---	1	6%	---	---	1	7%
	Hispanic	---	---	---	---	---	---	---	---	1	6%	---	---	---	---
	Total	10	100%	6	100%	6	100%	9	100%	16	100%	9	100%	15	100%
Male	White*	8	19%	21	29%	55	54%	51	34%	36	23%	37	23%	71	22%
	Black*	33	77%	47	65%	42	42%	90	59%	116	73%	117	72%	233	72%
	Others*	1	2%	2	3%	---	---	1	1%	---	---	3	2%	7	2%
	Hispanic	1	2%	2	3%	4	4%	10	7%	7	4%	5	3%	12	4%
	Total	43	100%	72	100%	101	100%	152	100%	159	100%	162	100%	323	100%
Total	White*	9	17%	21	27%	56	52%	52	32%	39	22%	37	22%	73	22%
	Black*	42	79%	53	68%	46	43%	98	61%	127	73%	126	74%	245	72%
	Others*	1	2%	2	3%	1	1%	1	1%	1	1%	3	2%	8	2%
	Hispanic	1	2%	2	3%	4	4%	10	6%	8	5%	5	3%	12	4%
	Total	53	100%	78	100%	107	100%	161	100%	175	100%	171	100%	338	100%

* not Hispanic **HIV diagnosis before or within 6 months of syphilis diagnosis.

North Carolina PSEL Syphilis Cases with HIV infection* (Comorbid) 2003-2009															
Transmission Mode**		2003		2004		2005		2006		2007		2008		2009	
		Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct
Female	IDU	3	30%	1	17%	2	33%	2	22%	3	19%	1	11%	---	---
	Heterosexual	4	40%	4	67%	4	67%	7	78%	9	56%	4	44%	11	73%
	NIR/NRR	3	30%	1	17%	---	---	---	---	4	25%	4	44%	4	27%
	TOTAL	10	100%	6	100%	6	100%	9	100%	16	100%	9	100%	15	100%
Male	MSM	30	70%	55	76%	88	87%	126	83%	134	84%	136	84%	283	88%
	IDU	3	7%	2	3%	---	---	---	---	3	2%	1	1%	---	---
	MSM/IDU	2	5%	3	4%	2	2%	3	2%	2	1%	3	2%	4	1%
	Heterosexual	6	14%	6	8%	7	7%	13	9%	12	8%	10	6%	14	4%
	NIR/NRR	2	5%	6	8%	4	4%	10	7%	8	5%	12	7%	22	7%
	TOTAL	43	100%	72	100%	101	100%	152	100%	159	100%	162	100%	323	100%
Total	MSM	30	57%	55	71%	88	82%	126	78%	134	77%	136	80%	283	84%
	IDU	6	11%	3	4%	2	2%	2	1%	6	3%	2	1%	---	---
	MSM/IDU	2	4%	3	4%	2	2%	3	2%	2	1%	3	2%	4	1%
	Heterosexual	10	19%	10	13%	11	10%	20	12%	21	12%	14	8%	25	7%
	NIR/NRR	5	9%	7	9%	4	4%	10	6%	12	7%	16	9%	26	8%
	Total	53	100%	78	100%	107	100%	161	100%	175	100%	171	100%	338	100%

*HIV diagnosis before or within 6 months of syphilis diagnosis. ** Hierarchical transmission category for HIV morbidity IDU= Injection Drug Use, NIR/NRR=no reported risk, MSM=men who have sex with men, MSM/IDU=MSM who also inject drugs

North Carolina PSEL Syphilis Cases with HIV infection* (Comorbid) 2003-2009															
Age Groups		2003		2004		2005		2006		2007		2008		2009	
		Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct	Cases	Pct
Female	13-19 Years	1	10%	---	---	1	17%	---	---	---	---	---	---	---	---
	20-29 Years	---	---	---	---	1	17%	---	---	6	38%	5	56%	5	33%
	30-39 Years	4	40%	1	17%	2	33%	4	44%	5	31%	---	---	2	13%
	40-49 Years	5	50%	5	83%	2	33%	5	56%	4	25%	2	22%	8	53%
	50 and over	---	---	---	---	---	---	---	---	1	6%	2	22%	---	---
	Total	10	100%	6	100%	6	100%	9	100%	16	100%	9	100%	15	100%
Male	13-19 Years	---	---	2	3%	2	2%	4	3%	6	4%	7	4%	12	4%
	20-29 Years	13	30%	25	35%	26	26%	50	33%	51	32%	69	43%	127	39%
	30-39 Years	17	40%	28	39%	33	33%	56	37%	42	26%	34	21%	78	24%
	40-49 Years	10	23%	14	19%	31	31%	37	24%	46	29%	42	26%	81	25%
	50 and over	3	7%	3	4%	9	9%	5	3%	14	9%	10	6%	25	8%
	Total	43	100%	72	100%	101	100%	152	100%	159	100%	162	100%	323	100%
All	13-19 Years	1	2%	2	3%	3	3%	4	2%	6	3%	7	4%	12	4%
	20-29 Years	13	25%	25	32%	27	25%	50	31%	57	33%	74	43%	132	39%
	30-39 Years	21	40%	29	37%	35	33%	60	37%	47	27%	34	20%	80	24%
	40-49 Years	15	28%	19	24%	33	31%	42	26%	50	29%	44	26%	89	26%
	50 and over	3	6%	3	4%	9	8%	5	3%	15	9%	12	7%	25	7%
	Total	53	100%	78	100%	107	100%	161	100%	175	100%	171	100%	338	100%

*HIV diagnosis before or within 6 months of syphilis diagnosis.

North Carolina Primary & Secondary Syphilis Cases by Gender, 2000-2005																		
Sex	**2000**	**2000**	**2000**	**2001**	**2001**	**2001**	**2002**	**2002**	**2002**	**2003**	**2003**	**2003**	**2004**	**2004**	**2004**	**2005**	**2005**	**2005**
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
Male	249	52%	6.3	260	57%	6.5	160	59%	3.9	104	69%	2.5	144	75%	3.5	216	79%	5.1
Female	234	48%	5.7	195	43%	4.7	111	41%	2.6	46	31%	1.1	48	25%	1.1	58	21%	1.3
Total	483	100%	6.0	455	100%	5.5	271	100%	3.3	150	100%	1.8	192	100%	2.3	274	100%	3.2

* Cases per 100,000

North Carolina Primary & Secondary Syphilis Cases by Gender, 2006-2009												
Sex	**2006**	**2006**	**2006**	**2007**	**2007**	**2007**	**2008**	**2008**	**2008**	**2009**	**2009**	**2009**
	Cases	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***	**Cases**	**Pct**	**Rate***
Male	243	79%	5.6	264	81%	6.0	243	85%	5.4	472	81%	10.4
Female	66	21%	1.5	60	19%	1.3	44	15%	0.9	108	19%	2.3
Total	309	100%	3.5	324	100%	3.6	287	100%	3.1	580	100%	6.3

* Cases per 100,000

North Carolina P&S Syphilis Cases by Gender and Race/Ethnicity, 2005-2009																
Race/Ethnicity		2005	2005	2005	2006	2006	2006	2007	2007	2007	2008	2008	2008	2009	2009	2009
		Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*
Male	White**	89	41%	3.1	85	35%	2.9	69	26%	2.3	63	26%	2.1	101	21%	3.3
	Black**	113	52%	12.9	152	63%	17.0	185	70%	20.3	168	69%	18.0	343	73%	36.8
	Am.In/AN**	0	0%	0.0	0	0%	0.0	1	0%	1.9	0	0%	0.0	5	1%	9.5
	Asian,PI**	0	0%	0.0	1	0%	1.2	0	0%	0.0	2	1%	2.2	4	1%	4.3
	Hispanic	13	6%	4.2	4	2%	1.2	9	3%	2.5	9	4%	2.3	17	4%	4.4
	Unknown	1	0%	---	1	0%	---	0	0%	---	1	0%	---	2	0%	---
	Total	216	100%	5.1	243	100%	5.6	264	100%	6.0	243	100%	5.4	472	100%	10.4
Female	White**	17	29%	0.6	9	14%	0.3	8	13%	0.3	10	23%	0.3	27	25%	0.8
	Black**	36	62%	3.6	55	83%	5.4	51	85%	4.9	30	68%	2.8	75	69%	7.1
	Am.In/AN**	3	5%	5.6	0	0%	0.0	0	0%	0.0	0	0%	0.0	0	0%	0.0
	Asian,PI**	1	2%	1.2	0	0%	0.0	0	0%	0.0	0	0%	0.0	0	0%	0.0
	Hispanic	0	0%	0.0	2	3%	0.8	1	2%	0.4	3	7%	1.0	6	6%	2.0
	Unknown	1	2%	---	0	0%	---	0	0%	---	1	2%	---	0	0%	---
	Total	58	100%	1.3	66	100%	1.5	60	100%	1.3	44	100%	0.9	108	100%	2.3
Total	White**	106	39%	1.8	94	30%	1.5	77	24%	1.2	73	25%	1.2	128	22%	2.0
	Black**	149	54%	7.9	207	67%	10.8	236	73%	12.1	198	69%	9.9	418	72%	21.0
	Am.In/AN**	3	1%	2.9	0	0%	0.0	1	0%	0.9	0	0%	0.0	5	1%	4.6
	Asian,PI**	1	0%	0.6	1	0%	0.6	0	0%	0.0	2	1%	1.1	4	1%	2.1
	Hispanic	13	5%	2.4	6	2%	1.0	10	3%	1.6	12	4%	1.8	23	4%	3.4
	Unknown	2	1%	---	1	0%	---	0	0%	---	2	1%	---	2	0%	---
	Total	274	100%	3.2	309	100%	3.5	324	100%	3.6	287	100%	3.1	580	100%	6.3

**not Hispanic * Cases per 100,000

North Carolina P&S Syphilis Cases by Gender and Age, 2005-2009																
Age		2005	2005	2005	2006	2006	2006	2007	2007	2007	2008	2008	2008	2009	2009	2009
		Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*
Male	**10-14**	0	0%	0.0	0	0%	0.0	0	0%	0.0	0	0%	0.0	0	0%	0.0
	15-19	9	4%	3.0	12	5%	3.9	17	6%	5.3	21	9%	6.5	29	6%	9.0
	20-24	31	14%	10.0	30	12%	9.3	47	18%	14.7	52	21%	15.7	104	22%	31.3
	25-29	28	13%	9.6	39	16%	13.0	50	19%	16.6	31	13%	10.0	87	18%	28.0
	30-34	29	13%	9.3	34	14%	11.1	32	12%	10.5	19	8%	6.2	52	11%	17.0
	35-39	25	12%	7.9	44	18%	13.5	33	13%	9.9	39	16%	11.5	50	11%	14.8
	40-44	47	22%	14.3	37	15%	11.2	38	14%	11.5	31	13%	9.4	49	10%	14.9
	45-49	23	11%	7.3	27	11%	8.3	19	7%	5.8	25	10%	7.5	50	11%	14.9
	50-64	21	10%	2.9	16	7%	2.1	23	9%	2.9	23	9%	2.8	49	10%	6.0
	65+	2	1%	0.5	4	2%	0.9	5	2%	1.1	2	1%	0.4	2	0%	0.4
	Total	216	100%	5.1	243	100%	5.6	264	100%	6.0	243	100%	5.4	472	100%	10.4
Female	**10-14**	0	0%	0.0	0	0%	0.0	0	0%	0.0	1	2%	0.3	0	0%	0.0
	15-19	5	9%	1.7	9	14%	3.1	1	2%	0.3	4	9%	1.3	13	12%	4.2
	20-24	10	17%	3.5	11	17%	3.9	17	28%	5.9	8	18%	2.7	33	31%	11.2
	25-29	5	9%	1.7	7	11%	2.3	5	8%	1.6	6	14%	1.9	20	19%	6.5
	30-34	3	5%	1.0	9	14%	3.0	7	12%	2.3	8	18%	2.6	14	13%	4.5
	35-39	12	21%	3.8	8	12%	2.5	8	13%	2.4	3	7%	0.9	11	10%	3.3
	40-44	14	24%	4.1	11	17%	3.3	14	23%	4.1	6	14%	1.8	5	5%	1.5
	45-49	5	9%	1.5	6	9%	1.8	5	8%	1.5	5	11%	1.4	6	6%	1.7
	50-64	4	7%	0.5	5	8%	0.6	3	5%	0.3	3	7%	0.3	6	6%	0.7
	65+	0	0%	0.0	0	0%	0.0	0	0%	0.0	0	0%	0.0	0	0%	0.0
	Total	58	100%	1.3	66	100%	1.5	60	100%	1.3	44	100%	0.9	108	100%	2.3

Continued

North Carolina P&S Syphilis Cases by Gender and Age, 2005-2009 (Continued)																
Age		2005	2005	2005	2006	2006	2006	2007	2007	2007	2008	2008	2008	2009	2009	2009
		Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*	Cases	Pct	Rate*
Total	10-14	0	0%	0.0	0	0%	0.0	0	0%	0.0	1	0%	0.2	0	0%	0.0
	15-19	14	5%	2.4	21	7%	3.5	18	6%	2.9	25	9%	4.0	42	7%	6.7
	20-24	41	15%	6.9	41	13%	6.8	64	20%	10.5	60	21%	9.6	137	24%	21.8
	25-29	33	12%	5.6	46	15%	7.6	55	17%	9.1	37	13%	6.0	107	18%	17.3
	30-34	32	12%	5.2	43	14%	7.0	39	12%	6.4	27	9%	4.4	66	11%	10.7
	35-39	37	14%	5.8	52	17%	8.0	41	13%	6.1	42	15%	6.2	61	11%	9.0
	40-44	61	22%	9.1	48	16%	7.2	52	16%	7.8	37	13%	5.6	54	9%	8.1
	45-49	28	10%	4.3	33	11%	5.0	24	7%	3.6	30	10%	4.4	56	10%	8.2
	50-64	25	9%	1.7	21	7%	1.3	26	8%	1.6	26	9%	1.5	55	9%	3.2
	65+	2	1%	0.2	4	1%	0.4	5	2%	0.5	2	1%	0.2	2	0%	0.2
	Total	274	100%	3.2	309	100%	3.5	324	100%	3.6	287	100%	3.1	580	100%	6.3

* Cases per 100,000