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Chlamydia trachomatis infection among 15-35 year-olds in Baltimore, MD, USA

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Abstract

Background—*Chlamydia trachomatis* (Ct) is the most frequently reported infectious disease in the U.S. This article reports population and subpopulation prevalence estimates of Ct and correlates of infection among 15-35 year-olds in Baltimore, MD, USA.

Methods—The Monitoring STIs Survey Program (MSSP) monitored STI prevalence among probability samples of residents of Baltimore, a city with high STI rates. MSSP respondents completed telephone audio computer-assisted self-interviews and provided biospecimens for STI testing.

Results—Among 2120 Baltimore residents aged 15 to 35 years, the estimated prevalence of chlamydia was 3.9% (95% Cl: 2.8, 5.0). Prevalence was 5.8% (95% Cl: 4.1, 7.6) among black MSSP respondents versus 0.7% (95% Cl: 0.0, 1.4) among nonblack respondents; all but four infections detected were among black respondents. Sexual behaviors and other factors associated with infection were far more prevalent among black than nonblack Baltimore residents. Racial disparities persisted after adjustment for sociodemographic, behavioral and health factors.

Conclusion—The MSSP highlights a higher Ct prevalence among young people in Baltimore than in the U.S. overall, with notable racial disparities in infection and associated risk behaviors. Public health efforts are needed to improve the diagnosis and treatment of asymptomatic infections in this population.

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Introduction

Chlamydia trachomatis (Ct) is the most frequently reported infectious disease in the U.S. Women, African-Americans and younger age groups are disproportionately affected. The reported rate among women (583.8 cases per 100,000) is much higher than among men (211.1 cases per 100,000), and the rate among blacks is eight times higher than among whites.[1] Women aged 15-19 and 20-24 years have the highest reported Ct rates, whereas age-specific rates among men are highest among 20-24 year olds.[1] High reported rates of Ct among young women, however, likely are influenced by screening practices; women under age 26 are the only group for whom screening is routinely recommended.[2] Surveillance data, however, fail to adequately capture undiagnosed, generally asymptomatic, Ct infections; the majority of women and men with chlamydial infections have no symptoms.[3, 4]

National-level surveys of representative samples provide estimates of infection prevalence in the overall U.S. population rather than relying on case reports of infection. In the 1999-2002 National Health and Nutrition Examination Surveys (NHANES), 2.2% of 14-39 year-olds were infected with Ct. The survey found no significant difference between men and women, but the racial and age group disparities noted in surveillance data were evident. Among females, the highest prevalence was in 14-19 year-olds (4.6%) whereas prevalence among males was highest in 20-29 year-olds (3.2%). Prevalence was higher among non-Hispanic blacks (6.4%) than non-Hispanic whites (1.5%).[5,6] The 2001-2002 National Longitudinal Study of Adolescent Health (Add Health), a nationally representative school-based study, estimated a Ct prevalence of 4.2% among 18-26 year-olds and, like both the NHANES and surveillance data, found higher prevalences among black men and women than other races.[7] Add Health, in contrast to the NHANES, estimated a slightly higher Ct prevalence among women (4.7%) than men (3.7%).[7]

In this article we report chlamydia prevalence findings from the 2006-2009 Monitoring STIs Survey Program (MSSP). The MSSP was designed to monitor the prevalence of STIs among 15-35 year-old residents of Baltimore, Maryland – a U.S. city with high rates of STIs in both surveillance data[1] and in a 1997-98 population survey.[8] Approximately 65% of Baltimore residents report their race as black or African-American, compared to 12.8% in the U.S. overall.[9] The MSSP offers the opportunity to assess changes in STI prevalence over time in the population of Baltimore, and it is the first population-based survey to integrate telephone survey methods (T-ACASI) with the testing of mailed-in biological specimens-- a method more cost-efficient than traditional household surveys.

Materials and Methods

All study procedures were approved by the Institutional Review Boards of Research Triangle Institute, the University of North Carolina-Chapel Hill, the University of Massachusetts-Boston and the Johns Hopkins Medical Institutions.

Study sample

Probability samples of 15-35 year-olds residing in Baltimore completed telephone audio computer-assisted self-interviews (T-ACASI) and provided biospecimens. A stratified, list-assisted, probability sampling design was used to maximize efficiency in identifying the target population of English-speaking males and females aged 15-35 years residing in Baltimore households with landline telephones. (Data from the 2006-2008 combined American Community Survey indicate that 92.7% of Baltimore households were telephone accessible.[9] This included persons living in households that relied exclusively on cell phones. There is no estimate of the percentage of “cell phone only” households in

Baltimore, but the most recent estimate for the state of Maryland was 10.8%.[10]) Four strata were sampled probabilistically. The first three strata were sampled using regularly updated commercially-available information on Baltimore households[11] and included: (1) households believed to contain someone aged 15-35, (2) households believed to contain no 15-35 year-olds, and (3) households with residents of unknown age. The fourth stratum was constructed by selecting all known landline telephone numbers in Baltimore and removing numbers on the original commercial list. Inclusion of this stratum ensured that the sample included all households with landline telephones and that each telephone number was in only one stratum.

Survey execution

Sampled households with known addresses were sent a lead letter describing the study. Telephone interviewers made up to 14 attempts to reach sampled households over a 4-week period. Screening was completed with an adult household member. In households with more than one person aged 15-35, one member was selected probabilistically. Up to 75 call-back attempts were made to reach the potential participant.

Interviewers obtained verbal informed consent for the interview. Separate written consent was required for biospecimen testing. Participants were informed they would be recontacted for a positive infection result and that contact information for infected persons would be reported to the local health department, as required by Maryland law. Minors aged 15-17 were recruited with parental permission and minor assent. Minors' survey and test results were not shared with parents.

T-ACASI interview

The interviewers transferred consenting participants to a T-ACASI (telephone audiocomputer assisted self interviewing) system to complete the survey. T-ACASI offers respondents privacy without requiring literacy and has been found to increase reporting of sensitive and stigmatized behaviors.[12-14] The survey took 13 minutes on average to complete. Participants received $10 to $20 for completing the interview.[15]

Biospecimen collection and laboratory testing

Participants who agreed to provide a specimen were mailed a collection kit with instructions and a consent form. Urine specimen containers contained DNA/RNA Protect™ (Sierra Molecular, Inc., Sonora, CA, USA) to prevent nucleic acid degradation. Participants mailed specimens in pre-addressed postage-paid shipping cartons to the University of North Carolina-Chapel Hill via U.S. Postal Service first class mail. Participants received $40 to $100 for providing a specimen. (Additional incentives were offered to participants who delayed returning their specimens.)[15]

Specimens were tested for Ct using the APTIMA Combo2 assay (Gen-Probe, San Diego, CA, USA). Specimens with initial positive results were retested using the same assay, and only confirmed positive results are reported. Specimens were received a median of four days after collection; 96% were received within 10 days of collection. Average urine volume was 67.0 ± 22.8 mL (mean±sd; range: 2, 100 mL). The distributions of specimen transit time and volume were similar for specimens with positive and negative results. Participants who tested positive were referred for treatment to the Baltimore City Health Department.

Sample weighting

We constructed sample weights to adjust for unequal selection probabilities and for survey and specimen nonresponse. An initial set of weights was calculated as the inverse of the probability of selection within each of the four sample strata with adjustments for differing

probabilities of selection within households and the number of household landline telephones. Post-stratification adjustments were applied to match the sample distribution to the 2006 American Community Survey[9] for the Baltimore population by age, gender, race/ethnicity, and education. Two separate sets of weights were constructed—one for the sample of T-ACASI respondents and a second for the sample of respondents who provided a biospecimen.

Statistical Analyses

We include completed interviews and specimens collected from telephone numbers released between September 8, 2006 and June 14, 2009 and specimens received before August 15, 2009. Ct prevalences, overall and in subpopulations, were estimated using the sample weights described above. Odds ratios were generated using bivariable and multivariable logistic regression. In multivariate analysis, we constructed a model that included all sociodemographic, behavioral and health characteristics. To explore racial variation in prevalence (black versus nonblack), we compared the prevalence of identified risk factors by racial group. We also conducted bivariable and multivariable logistic regression analyses in the black-only population.

All statistical analyses accounted for the complex survey design using SAS version 9.1.3.

Results

Survey execution

Interviewers determined that 27.9% (20,435) of the 73,318 telephone numbers sampled were residential; 14,199 (69.5%) residential numbers were screened for eligibility, and 4998 included one or more eligible household members. (The residential status of telephone numbers was successfully obtained for 93.5% of telephone numbers in the sample. An extensive search using a random sample of the remaining 6.5% of unresolved numbers indicated that approximately 4% were indeed residential. This was included in response rate calculations). Of the residential numbers not screened for eligibility, 3212 (52%) were refusals and 3024 (48%) could not be reached after extensive attempts (an average of 21.3 call attempts per number). Interviews were completed with 2936 (58.7%) eligible respondents. Reasons for non-response included respondent refusal (30.2%, n=1508) and inability to contact the respondent (11.1%, n=554). The AAPOR Method 3 response rate calculation taking into account all telephone numbers dialed was 40.5%.

73% of interview respondents (n=2136) provided a biological specimen for testing. A total of 2120 specimens was tested. Specimens without a signed consent form (n=12) and non-urine specimens (n=4) were not tested. Provision of a specimen was not associated with race, gender, age group, being a minor or marital status. However, the minority of interview respondents with less than a high school education (or more than two grades behind in school, if under age 20) (13.7%, n=337) were more apt to provide a biospecimen than more educated respondents, 81.5% v. 70.2%. Sensitivity analysis using imputed probabilities of CT and/or trichomonas(TV) infection for nonrespondents indicated that specimen nonresponse did not appear to have an effect on estimates of the combined prevalence of CT and/or TV infection.[16]

Population prevalence of Ct

The overall estimated prevalence of Ct infection among Baltimore residents aged 15-35 years was 3.9% (95% Cl: 2.8, 5.0; Table 1a). Among respondents who reported having engaging in sexual intercourse (90%), the prevalence of Ct was 4.4% (data not shown).

Ct prevalence among sociodemographic subgroups

Ct prevalence was 5.8% among black respondents versus 0.7% among nonblack respondents. After adjustment for sociodemographic, behavioral and health factors, black race remained strongly associated with Ct, with the odds of infection among blacks 4.8 times higher that of nonblacks (95%CI: 1.3, 18.2) (Table 1a). Although prevalence did not differ significantly between males and females in bivariable or multivariable analysis, it was highest among black males, 7.4% (Tables 1a, 1b). Similarly, among respondents reporting sexual experience, Ct prevalence was significantly higher among blacks than nonblacks and did not differ significantly by gender but was higher among males than females (data not shown).

The prevalence of Ct was highest among 15-19 year-olds, 6.6%, and decreased to 5.9% among 20-24 year-olds, 1.7% among 25-29 year-olds, and 1.2% among 30-35 year-olds (Table 1a). The odds of Ct were nearly three times higher in the two younger age groups than among 30-35 year-olds, with adjustment for sociodemographic and behavioral/health factors (Table 1a). A similar pattern was noted among sexually experienced respondents, with the highest prevalences among 15-19 (9.2%) and 20-24 year-olds (6.4%) and much lower prevalences among 25-29 and 30-35 year olds (1.7 and 1.3%, respectively) (data not shown). Age group differences in prevalence were also noted within racial groups. Among blacks, prevalence was 8.0% among 15-19 year-olds and 8.4% among 20-24 year-olds, compared to 2.9% and 2.3% among 25-29 and 30-35 year-olds, respectively (Table 1b).

Prevalence also was higher among unmarried, 4.8%, than married participants, 0.1%.

Behavioral and health risk factors for chlamydial infection

Several sexual behaviors and health factors were associated in bivariable analysis with Ct infection (Table 2). Respondents who had acquired a new sexual partner in the past three months had four times the odds of Ct as persons without a new partner (OR=4.02, CI: 2.1, 7.5.). Having multiple partners in the past year (OR=3.45, CI:1.8, 6.8)., having partner who had multiple partners (OR=1.90, CI: 1.0, 3.6)., and having a partner who had been incarcerated in the past year (OR=2.92, CI: 1.5, 5.6) also were associated with increased odds of infection in bivariable analysis.

In addition, reporting recent vaginal/penile dripping or discharge was associated with greater odds of Ct in bivariable analysis(OR=1.97, CI: .98, 3.0), as was having a previous STI diagnosis (OR=2.43, CI: .99, 4.1).,

In multivariable analysis, however, most behavioral and health factors were not significant predictors of Ct. Only having a recent new partner remained significantly associated with the odds of infection (OR=2.6, CI: 1.4, 4.9.).

Racial disparities in Ct

We conducted additional analyses to explore the disparities in Ct prevalence between black Baltimore residents and those of other races. All the demographic, behavioral and health characteristics associated with increased odds of infection were far more prevalent among black than nonblack Baltimore residents (Table 3). Significantly more blacks than others had a recent new sexual partner, 27.8% versus 10.4%, and multiple partners in the past year, 48.4% versus 18.0%. 21% of black respondents had a sexual partner who had had a concurrent partner, compared to 11.2% of nonblack respondents. More black than nonblack respondents also were unsure if their partner had a concurrent partner, 18.5% versus 6.3%. Approximately 15% of black respondents had an incarcerated partner in the past year,

relative to 4.3% of nonblacks. Having a STI diagnosis in the past year also was more common among blacks than nonblacks, 8.5% versus 0.9%.

Racial disparities in sexual behavior were present within all age groups, but the differences were most notable among 15-19 year-olds. In this age group, dramatically higher proportions of black than nonblack respondents reported a new recent sexual partner (33.8% versus 9.4%) and multiple partners in the past year (45.0% versus 20.1%). Higher proportions of black than nonblack 15-19 year-olds also reported having a sexual partner who had another partner (14.5% versus 12.6%) and an incarcerated partner (11.7% versus 7.3%) (data not shown.)

In an analysis including black respondents only, we used bivariable and multivariable logistic regression to assess the relationships between the sociodemographic and behavioral factors and odds of Ct infection (Table 4). We found that the same sociodemographic characteristics linked with infection in the overall population--age group and marital status--also were predictive of infection in the black-only population, and in multivariable analysis the size of their effects was similar. (The small number of Ct infections in the nonblack population limited our ability to compare risk factors among black MSSP respondents to those among nonblack respondents.)

The relative impact of some behavioral factors on infection with Ct, however, appeared to be somewhat attenuated in the black population compared to the overall population. In both populations, having a recent new sexual partner was associated with higher odds of infection in bivariable and multivariable analysis, but in bivariable analysis this relationship was weaker in the black-only (OR=2.88, CI 1.5, 5.5) than in the overall population (OR=4.02, CI 2.1, 7.5). Having multiple partners was associated with infection in bivariable analysis; however, the relationship was weaker among black residents than in the overall population. Respondents in the overall population who reported multiple partners had 3.5 times the odds of infection in bivariable analysis (CI 1.8, 6.8; Table 2); in the black-only population the odds were 1.9 with an association of borderline statistical significance (CI: 0.97, 3.8; Table 4). In multivariable analysis, having multiple partners was not associated with the odds of infection.

Discussion

The MSSP revealed a Ct prevalence of 3.9% among 15-35 year-old residents of Baltimore, MD, with no significant difference between males and females. This is higher than the national prevalence estimated by the NHANES in 14-39 year-olds[5], as well as the 3.0% prevalence measured in the BSBS, a 1997-98 population-based household survey of 18-35 year-olds in Baltimore.[8] The MSSP prevalence is similar to the prevalence among 18-26 year-olds in the Add Health study.[7] In the MSSP, prevalence was highest among the youngest age groups, with nearly 7% of 15-19 year-olds testing positive for Ct; an age group that was not included in the BSBS or Add Health studies.

The MSSP highlights extreme racial disparities in chlamydial infection and associated risk behaviors in Baltimore. Prevalence among black respondents, who comprise nearly two-thirds of the Baltimore population, was much higher than in other racial groups. All but four infections detected were among black residents. The racial differences detected by the MSSP are consistent with disparities measured in the NHANES[2] but less marked than the Add Health findings of 1.9% prevalence among non-Hispanic whites versus 12.5% among non-Hispanic blacks.[7] The 1997-98 Baltimore STD and Behavior Study[8] measured similar racial disparities in Ct prevalence among 18-35 year-old females (6.4% in blacks versus 0% in other races). However, while the BSBS detected small differences among

males (1.1% in black males versus 2.4% in other races), differences in the MSSP were considerably larger (7.45 among black males versus 0.6% in others). The MSSP and BSBS samples were drawn independently, and variation in estimates can be assessed statistically. Adjustment of estimates using survey and poststratification weights and statistical controls for variation in sample composition can be helpful in assuring that the estimates are drawn from more comparable samples of the population; however, they cannot ensure adequate correction for all methodological differences. Comparison of estimates over time is being examined more carefully in a separate analysis.

The impact of screening and survey interview nonresponse may have limited the generalizability of our prevalence findings. However, we limited sample bias through the application of poststratification weights to align our sample to the age, race and education distribution of the Baltimore population. It should be kept in mind that MSSP results can be generalized only to the population that was sampled, households with landline telephones. [9]

Sociodemographic factors, sexual behaviors and health characteristics associated with chlamydial infection also varied by race in the MSSP. Black respondents were more likely than others to have a recent new sexual partner, multiple partners in the past year, an incarcerated partner, and a recent STI diagnosis. Racial disparities in reported sexual behaviors were most common among the youngest age groups. Within all age groups, STI-related risk behaviors were more prevalent among black than nonblack respondents. While it is possible that self-reporting of risk behaviors varied by race in the MSSP as well as other studies, the effectiveness of T-ACASI in encouraging the reporting of sexual behaviors has not varied across racial groups in a prior large-scale survey experiment.[12,13]

The racial disparities in chlamydial prevalence detected in the MSSP persisted after adjusting for sexual behaviors and other factors. Other population-based studies also have noted that racial differences in STI prevalence cannot be fully explained by individual-level behaviors. In the 1999-2002 NHANES, higher odds of Ct among non-Hispanic blacks relative to non-Hispanic whites persisted after adjusting for number of lifetime sexual partners and sociodemographic factors.[5] In multivariate analysis of adolescent females in the 2003-04 NHANES, black race, but not number of sexual partners or length of time a respondent was sexually active, was predictive of an STI (gonorrhea, chlamydia, trichomonas, or HSV-2). [17]

Other studies have attributed the existence of higher STI rates among blacks regardless of risk behavior profiles to sexual partner selection patterns being largely segregated by race, with blacks usually choosing partners of their own race and being more likely than whites to cross high- and low-risk behavior groupings when choosing partners.[19-21] Our ability to explore this hypothesis was limited since the MSSP did not collect data regarding partner race. Other factors not measured in the survey, including community-level factors, also may account for racial disparities. Collection of both STI prevalence and behavioral data over extended times frames would allow the exploration of variations in the effects of risk factors when prevalence changes.

In conclusion, the MSSP documented stark racial disparities in Ct prevalence among adolescents and young adults in Baltimore, MD --nearly one in seventeen (5.8%) black 15-35 year-olds has an untreated Ct infection. As Ct is a potential cofactor for HIV transmission, this disparity may accentuate racial disparities in HIV prevalence. Focused public health efforts are needed to improve the diagnosis and treatment of asymptomatic infections among black youth in Baltimore. In addition to promoting safer sexual behaviors, an important step in addressing racial disparities in infection in Baltimore is to develop STI

prevention interventions at the network or structural level. Public health agencies might improve case finding by incorporating screening interventions into neighborhoods and venues where high risk youth live and access services, such as school-based screening programs and programs targeting out-of-school youth.

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Table 1

a. Estimated prevalence of Ct and Odds Ratios, by sociodemographic characteristics, MSSP, Baltimore MD, Sept 2006-June 2009 (n=2120).

		Prevalence			Unadjusted			Adjusted		
Population		**%Ct+**	**95% Cl**	**n**	**OR**	**95% CI**	**p-value**	**OR**	**95% CI**	**p-value**
All		3.9	2.8, 5.0	2120	/			/		
Gender:	Female	3.4	2.2, 4.6	1322	0.76	0.4, 1.4	0.349	0.59	0.3, 1.2	0.165
	Male	4.5	2.4, 6.5	798	referent			referent		
Age group:	15-19	6.6	3.7, 9.6	576	5.70	2.1, 15.3	0.0005	2.73	0.9,7.9	0.064
	20-24	5.9	3.0, 8.9	460	5.10	1.9, 14.1	0.001	2.77	0.9, 8.3	0.067
	25-29	1.7	0.5, 2.8	501	1.40	0.5, 4.1	0.5802	0.92	0.3, 2.9	0.885
	30-35	1.2	0.2, 2.3	583	referent			referent		
Race:	Black	5.8	4.1, 7.6	1346	9.30	2.8, 30.9	0.0003	4.83	1.3, 18.2	0.020
	Nonblack[1]	0.7	0.0, 1.4	774	referent			referent		
Married:	yes	0.1	0.0, 0.2	379	0.02	0.0, 0.1	<0.0001	0.07	0.0, 0.6	0.012
	no	4.8	3.4, 6.2	1741	referent			referent		
Low level of education[2]:	yes	5.5	2.4, 8.7	273	1.56	0.8, 3.1	0.21	0.99	0.5, 2.0	0.982
	no	3.6	2.4, 4.9	1847	referent			referent		

b. Estimated prevalence of Ct by race, gender and age group, MSSP, Baltimore, MD, Sept 2006-June 2009.

Race	**Gender**	**%Ct+**	**95% Cl**	n
Black	Females	4.7	3.0, 6.4	887
	Male	7.4	4.0, 10.7	459
Nonblack[1]	Females	0.76	0.0, 1.8	435
	Male	0.58	0.0, 1.7	339
Race	**Age Group**	**%Ct+**	**95% Cl**	**n**
Black	15-19	8.0	4.3, 11.6	432
	20-24	8.4	4.1, 12.6	322
	25-29	2.9	0.9, 4.9	291
	30-35	2.3	0.2, 4.4	301
Nonblack	15-19	2.3	0.0, 5.9	144

20-24	1.0	0.0, 3.0	138
25-29	0.0	/	210
30-35	0.2	0.0, 0.6	282

Ns are unweighted. Percentages are weighted.

OR=Odds Ratio. Unadjusted ORs from bivariable models. Adjusted ORs from models controlling for all sociodemographic, behavioral & health variables in Tables 1 & 2.

[1]83.4% of nonblack respondents reported their race as white, 11.4% as “other race,” and 5.2% as Asian.

[2]Low level of education=less than a high school degree or, among those younger than age 20, being two or more years behind in school

Table 2

Prevalence of Ct and Odd Ratios, by behavior/health characteristic, MSSP, Baltimore MD, Sept 2006-June 2009 (n=2120)

		Prevalence			Unadjusted			Adjusted		
Behavioral/health characteristic		**%Ct+**	**95%CI**	**n**	**OR**	**95%CI**	**p-value**	**OR**	**95%CI**	**p-value**
BEHAVIORAL										
New partner, past 3 months[1]	yes	9.3	5.7, 12.9	435	4.02	2.1, 7.5	0.0001	2.16	1.1, 4.4	0.037
	no	2.5	1.4, 3.6	1657	referent			referent		
2+ sexual partners, past year[1]	yes	6.9	4.6, 9.3	756	3.45	1.8, 6.8	0.0003	1.28	0.6, 3.0	0.568
	no	2.1	0.9, 3.3	1363	referent			referent		
Respondent's sexual partner had other partners, past year[1]	yes	6.3	3.2, 9.3	378	1.90	1.0, 3.6	0.05	1.10	0.5, 2.3	0.886
	no/DK	2.9	1.6, 4.2	1438	referent			referent		
Respondent had sexual partner who was incarcerated, past year[1]	yes	9.0	4.6, 13.4	236	2.92	1.5, 5.6	0.001	1.80	0.8, 3.8	0.135
	no	3.3	2.1, 4.4	1868	referent			referent		
Respondent incarcerated, past year	yes	6.1	1.1, 11.1	116	1.67	0.7, 4.3	0.279	0.74	0.3, 2.0	0.556
	no	3.7	2.6, 4.9	2000	referent			referent		
HEALTH										
Dysuria, past 3 months	yes	3.3	0.4, 6.1	118	0.83	0.3, 2.2	0.67	0.73	0.3, 2.0	0.531
	no	3.9	2.7, 5.1	2001	referent			referent		
Dripping/discharge, past 3 months	yes	6.9	3.0, 10.9	201	1.97	0.98, 3.0	0.058	1.76	0.8, 3,9	0.155
	no	3.6	2.4, 4.8	1919	referent			referent		
STI diagnosis, past year	yes	8.4	3.0, 13.8	129	2.43	1.1, 5.3	0.025	1.42	0.6, 3.2	0.414
	no	3.6	2.5, 4.8	1984	referent			referent		

Ns are unweighted and may vary slightly due to nonresponse. Percentages are weighted.

[1]Respondents with no lifetime partners (n=244) or no partners in the past year(n=142) coded as 'no'

OR=odds ratio. DK=don't know. Unadjusted ORs from bivariable models. Adjusted ORs from models controlling for all sociodemographic, behavioral & health variables.

Table 3

STI risk factors, percentages by racial group, MSSP, Baltimore MD, Sept 2006-June 2009.

Characteristic		Black	Nonblack	p
Age group:	15-19	33.1	16.9	<.0001
	20-24	25.6	20.9	
	25-29	20.7	26.1	
	30-35	20.7	36.1	
Married	yes	8.3	36.6	<.0001
	no	91.7	63.4	
Had new partner in past 3 months[1]	yes	27.8	10.4	<.0001
	no	72.2	89.6	
Had 2 or more partners, past year[1]	yes	48.4	18.0	<.0001
	no	51.6	82.0	
Respondent's sexual partner had other partners, past year[1]:	yes	21.0	11.2	<.0001
	no	60.5	82.6	
	DK	18.5	6.3	
Respondent had sexual partner who was incarcerated, past year[1]	yes	14.6	4.3	<.0001
	no	85.4	95.6	
Dripping/discharge, past 3 months	yes	9.4	5.3	0.003
	no	90.6	94.7	
STI diagnosis, past year	yes	8.5	0.9	<.0001
	no	91.5	99.1	

Percentages are weighted.

[1] Respondents with no lifetime partners (n=244) or no partners in the past year (n=142) were coded 'no.'

Table 4

Prevalence of Ct and Odd Ratios among black respondents, MSSP, Baltimore MD, Sept 2006-June 2009 (n=1346)

		Prevalence			Unadjusted			Adjusted		
Characteristic		**% Ct+**	**95% CI**	**n**	**OR**	**95% CI**	**p-value**	**OR**	**95% CI**	**p-value**
SOCIODEMOGRAPHIC										
Gender:	Female	4.7	3.0, 6.4	887	0.62	0.3, 1.2	0.126	0.56	0.3, 1.2	0.144
	Male	7.4	4.0, 10.7	459	referent			referent		
Age group:	15-19	8.0	4.3, 11.6	432	3.69	1.3, 10.6	0.015	2.54	0.8, 7.8	0.102
	20-24	8.4	4.1, 12.6	322	3.89	1.3, 11.5	0.014	3.04	1.0, 9.9	0.059
	25-29	2.9	0.9, 4.9	291	1.29	0.4, 4.1	0.672	1.01	0.3, 3.6	0.994
	30-35	2.3	0.2, 4.4	301	referent			referent		
Married:	yes	0.3	0.0, 0.8	108	0.04	0.0, 0.3	0.002	0.09	0.0, 0.7	0.023
	no	6.4	4.4, 8.3	1238	referent			referent		
Low level of education[2]:	yes	5.4	2.2, 8.6	225	0.9	0.4, 1.9	0.785	0.65	0.3, 1.2	0.446
	no	5.9	3.9, 8.0	1121	referent			referent		
BEHAVIORAL										
New partner, past 3 months[1]	yes	10.8	6.5, 15.1	352	2.88	1.5, 5.5	0.001	2.43	1.2, 4.9	0.012
	no	4.0	2.2, 5.9	973	referent			referent		
Had 2+ sexual partners, past year[1]	yes	7.7	5.0, 10.4	614	1.92	0.97, 3.8	0.063	1.02	0.4, 2.4	0.962
	no	4.2	1.9, 6.4	731	referent			referent		
Respondent had sexual partner who had other partners, past year[1]	yes	10.8	6.5, 15.1	352	1.65	0.9, 3.2	0.14	1.30	0.6, 2.8	0.504
	no/DK	4.0	2.2, 5.8	973	referent			referent		
Respondent had sexual partner who was incarcerated, past year[1]	yes	8.4	4.1, 12.8	213	1.61	0.8, 3.2	0.166	1.39	0.7, 3.0	0.398
	no	5.4	3.5, 7.3	1120	referent			referent		
Respondent jailed, past year	yes	5.2	0.9, 9.6	97	0.89	0.4, 2.3	0.806	0.54	0.2, 1.5	0.238
	no	5.9	4.0, 7.7	1245	referent			referent		
HEALTH										
Dysuria, past 3 months	yes	6.1	0.8, 11.5	70	1.05	0.4, 2.8	0.917	0.85	0.3, 2.3	0.749
	no	5.8	4.0, 7.7	1275	referent			referent		
Dripping/discharge, past 3 months	yes	8.8	3.6, 14.0	150	1.65	0.8, 3.4	0.184	1.79	0.8, 4.1	0.163
	no	5.5	3.7, 7.4	1196	referent			referent		
STI diagnosis, past year	yes	9.0	3.2, 14.7	119	1.66	0.8, 3.6	0.207	1.49	0.6, 3.5	0.357

		Prevalence			Unadjusted			Adjusted		
Characteristic		**% Ct+**	**95% Cl**	**n**	**OR**	**95% CI**	**p-value**	**OR**	**95% CI**	**p-value**
	no	5.6	3.7, 7.5	1220	referent			referent		

Ns are unweighted. Percentages are weighted.

[1]Respondents with no lifetime partners (n=244) or no partners in the past year (n=142) were coded ‘no.’

OR=odds ratio. DK=don’t know

Unadjusted ORs from bivariable models. Adjusted ORs from models controlling for all sociodemographic, behavioral & health variables in Tables 1a & 2.

[2]Low level of education=less than a high school degree or, among those younger than age 20, being two or more years behind in school