

TABLE S1 – Data Sources for Rates and Structural Covariates of Newly Diagnosed Cases of Primary and Secondary Syphilis, Gonorrhoea, and Chlamydia, among Black Residents per 100,000, Residing in 75 Large US MSAs in 2016^a	
Variables	Data Source
Dependent Variable	
Primary and secondary syphilis rates among Black people per 100,000	Centers for Disease Control and Prevention (2016) ^b
Gonorrhoea rates among Black people per 100,000	Centers for Disease Control and Prevention (2016) ^b
Chlamydia rates among Black people per 100,000	Centers for Disease Control and Prevention (2016) ^b
Independent Variable	
No. Black people killed by police	The Guardian (2015) ^c
Potential Covariates	
% Men who have sex with men (MSM)	
No. MSM (numerator)	(2009-2013 5 year estimates) Grey et al. (2016) ^d
Total no. adult males ages 15-64 (denominator)	Intercensal Population Estimates – Census Bureau (2015) ^e
Adult population size – total no. adults ages 15-64	
Intercensal Population Estimates – Census Bureau (2015) ^e	
No. non-Hispanic black adults ages 15-64	
Intercensal Population Estimates – Census Bureau (2015) ^e	
Black residential isolation index^{p,q} (Black population-weighted average of the Black population proportion in each census tract ¹)	
American Community Survey, Annual Social Economic Supplement – Census Bureau (2012-2016, 5 year estimates) ^f	
% population ages 15-29^f	
Total population ages 15-29 of all race and gender (numerator)	Intercensal Population Estimates – Census Bureau (2015) ^e
Total population of all age, race and gender (denominator)	Intercensal Population Estimates – Census Bureau (2015) ^e
Male to female non-institutionalized sex ratio for non-Hispanic Black adults^h	
No. non-Hispanic Black males ages 18-64 (numerator)	Decennial Census – Census Bureau (2000, 2010) ^g
No. non-Hispanic Black females ages 18-64 (denominator)	Decennial Census – Census Bureau (2000, 2010) ^g
% female-headed households^{p,q,r}	
No. female-headed households (numerator)	American Community Survey, Annual Social Economic Supplement – Census Bureau (2012-2016, 5 year estimates) ^f
No. households (denominator)	American Community Survey, Annual Social Economic Supplement – Census Bureau (2012-2016, 5 year estimates) ^f
Population density^h	
Total MSA population of all age, race and gender (numerator)	Decennial Census – Census Bureau (2000, 2010) ^g
Total MSA land area in sq. miles (denominator)	Decennial Census – Census Bureau (2000, 2010) ^g
% uninsured residents^f	
No. uninsured residents (numerator)	Small Area Health Insurance Estimates - Census Bureau (2014) ^{i,j}
No. total population (denominator)	Intercensal Population Estimates - Census Bureau (2014) ^e
Health expenditures per capita^{h,p,r}	
Health expenditures (numerator)	US Census of Governments (2007, 2012) ^{k,l}
No. total population (denominator)	Intercensal Population Estimates – Census Bureau (2007, 2012) ^e
Housing and community development expenditures per capita^{h,q}	
Community and housing development expenditures	US Census of Governments (2007, 2012) ^{k,m}

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Variables	Data Source
(numerator)	
No. total population (denominator)	Intercensal Population Estimates – Census Bureau (2007, 2012) ^e
Police per 1,000 residents^{p, q, r}	Uniform Crime Reporting Program Data: County-Level Detailed Arrest and Offense Data (2015) ⁿ
Hard drug arrest rate per 10,000 covered residents^r	Uniform Crime Reporting Program Data: County-Level Detailed Arrest and Offense Data (2014) ⁿ Note: Data missing for 10 MSAs. These MSAs were excluded from analysis.
Violent crime rate per 10,000 covered residents	Uniform Crime Reporting Program Data: County-Level Detailed Arrest and Offense Data (2014) ⁿ Note: Data missing for 10 MSAs. These MSAs were excluded from analysis.
Police expenditures per capita^h	
Police expenditures (numerator)	US Census of Governments (2007, 2012) ^{k, o}
No. total population (denominator)	Intercensal Population Estimates – Census Bureau (2007, 2012) ^e
Affordable housing as low income households with rent > 30% of income^p	
No. households with income < \$10,000 and with gross rent > 30% of total household income (numerator)	American Community Survey, Annual Social Economic Supplement – Census Bureau (2012-2016, 5 year estimates) ^f
Total number of renter-occupied units with household income < \$10,000 (denominator)	American Community Survey, Annual Social Economic Supplement – Census Bureau (2012-2016, 5 year estimates) ^f
% incarcerated^h	
No. adults in correctional facilities (numerator)	Decennial Census – Census Bureau (2000, 2010) ^g
No. adults (denominator)	Decennial Census – Census Bureau (2000, 2010) ^g
% black adults without a high school diploma or equivalent	
No. non-Hispanic black adults (25 and up) with no high school diploma or GED equivalent (numerator)	American Community Survey, Annual Social Economic Supplement – Census Bureau (2012-2016, 5 year estimates) ^f
No. non-Hispanic black adults for whom educational attainment status is determined (denominator)	American Community Survey, Annual Social Economic Supplement – Census Bureau (2012-2016, 5 year estimates) ^f
% black population employed^t	
No. non-Hispanic black adults employed (numerator)	American Community Survey, Annual Social Economic Supplement – US Census Bureau (2012-2016, 5 year estimates) ^f
No. non-Hispanic black adults in the labor force and non-labor force (denominator)	American Community Survey, Annual Social Economic Supplement – US Census Bureau (2012-2016, 5 year estimates) ^f
% black population in poverty	

TABLE S1 – Data Sources for Rates and Structural Covariates of Newly Diagnosed Cases of Primary and Secondary Syphilis, Gonorrhoea, and Chlamydia, among Black Residents per 100,000, Residing in 75 Large US MSAs in 2016^a	
Variables	Data Source
No. non-Hispanic black adults with income below poverty level (numerator)	American Community Survey, Annual Social Economic Supplement – US Census Bureau (2012-2016, 5 year estimates) ^f
No. non-Hispanic black adults for whom poverty status is determined (denominator)	American Community Survey, Annual Social Economic Supplement – US Census Bureau (2012-2016, 5 year estimates) ^f
Gini index (a summary measure of income inequality reflecting the difference between the observed and perfectly equal income distribution).	Share of aggregate income from American Community Survey, Annual Social Economic Supplement – Census Bureau (2012-2016, 5 year estimates) ^f
% black or white population in poverty (Ratio of % black to white population in poverty)	
No. non-Hispanic Black or white persons with income below poverty level (numerator)	American Community Survey, Annual Social Economic Supplement – Census Bureau (2012-2016, 5 year estimates) ^f
No. non-Hispanic Black or white persons for whom poverty status is determined (denominator)	American Community Survey, Annual Social Economic Supplement – Census Bureau (2012-2016, 5 year estimates) ^f
% black or white population (ages 25 and up) without a high school diploma^g (Ratio of % black to white adults without a high school diploma)	
No. non-Hispanic Black or white adults without a high school diploma (numerator)	American Community Survey, Annual Social Economic Supplement – Census Bureau (2012-2016, 5 year estimates) ^f
No. non-Hispanic Black or white adults (denominator)	American Community Survey, Annual Social Economic Supplement – Census Bureau (2012-2016, 5 year estimates) ^f
% black or white population (ages 15-64) employed (Ratio of % black to white population employed)	
No. non-Hispanic Black or white adults (ages 15-64) employed (numerator)	American Community Survey, Annual Social Economic Supplement – Census Bureau (2012-2016, 5 year estimates) ^f
No. non-Hispanic Black or white adults (ages 15-64) (denominator)	American Community Survey, Annual Social Economic Supplement – Census Bureau (2012-2016, 5 year estimates) ^f

^a 2016 refers to the timeframe for STI outcomes. Correlates were lagged 1-2 years.

^b Centers for Disease Control. Data received by request from the CDC, Nationally Notifiable Disease Surveillance System, Division of STD Prevention on November 22, 2017.

^c The Guardian. The Counted: People killed by police in the US. Available at <https://www.theguardian.com/us-news/ng-interactive/2015/jun/01/the-counted-police-killings-us-database>. Accessed February 22, 2018.

^d Grey J, Bernstein K, Sullivan P et al. Estimating the population sizes of men who have sex with men in US states and counties using data From the American Community Survey. *JMIR Public Health Surveill.* 2016 Apr 21;2(1):e14. doi: 10.2196/publichealth.5365.

^e Intercensal estimates of the resident population by sex, race, and Hispanic origin for counties. Intercensal Estimates of the Resident Population. Washington, DC: US Census Bureau; 2015.

^f US Census Bureau. American Community Survey 5-year block estimate, Annual Social Economic Supplement Data, 2012-2016. Washington, DC: US Census Bureau; American Fact Finder.

^g US Census Bureau. Decennial Census 2010. Washington, DC: US Census Bureau; American Fact Finder. 2000, 2010.

^h Where yearly data were not available, missing year's data were linearly interpolated or extrapolated based on adjacent years average 5-year change.

ⁱ US Census Bureau. American Community Survey, Small Area Health Insurance Estimates; Washington, DC: US Census Bureau; 2015.

^j Health uninsurance rates are based on census, tax return, and insurance participation records as extracted from the US Census Small Area Health Insurance Estimates files.

^k US Census of Governments. County area finances file, 2012. Washington, DC: US Census Bureau; 2007, 2012.

^l Government health expenditures are defined as health operations, construction, and capital outlay expenditures for municipalities as extracted from the US Census County Area Finances File.

^m Government housing and community development expenditures are defined as housing and community development operations, construction, and capital outlay expenditures for municipalities as extracted from the US Census County Area Finances File.

ⁿ U.S. Department of Justice. Uniform Crime Reporting Statistics. County-level detailed arrest and offense data. 2014-2015.

^o Police expenditures are defined as operations, construction, and capital outlay expenditures for municipalities as extracted from the US Census County Area Finances File.

^p This variable has been dropped from the multivariable model for syphilis (see Table S3)

^q This variable has been dropped from the multivariable model for gonorrhoea (see Table S3)

^r This variable has been dropped from the multivariable model for chlamydia (see Table S3)

^s Ratio of % black to % white adults without high school diploma has been dropped from all multivariable models (see Table S3)

^t % Black employment variable has been dropped from all multivariable models (see Table S3)

Table S2. Descriptive Statistics of Rates of Sexually Transmitted Infections Among Black People (per 100,000), no. Black People Killed by Police, and Structural Covariates in 75 Large MSAs – 2016^a

Covariate	Mean	Standard Deviation	Median	25 th Percentile	75 th Percentile
Non-Hispanic Black syphilis rate per 100,000	22.11	17.04	17.84	10.50	28.32
Non-Hispanic Black gonorrhea rate per 100,000	471.23	240.30	431.08	272.81	650.66
Non-Hispanic Black chlamydia rate per 100,000	1,053.75	438.77	1,059.63	724.78	1,320.75
No. Black persons killed by police	2.28	2.95	1.00	0.00	3.00
% MSM	2.97	1.22	3.13	1.77	3.79
Adult population size	1,446,719.13	1,330,860.60	955,735.00	587,835.00	1,801,218.00
No. non-Hispanic Black adults	202,073.71	278,279.40	106,214.00	39,676.00	219,811.00
Black isolation index	29.83	17.89	29.33	13.48	40.90
% of population ages 15-29	452,564.33	421,165.47	292,898.00	188,171.00	543,823.00
Non-Hispanic Black sex ratio	0.99	0.21	0.91	0.85	1.03
% female-headed households	12.77	2.43	13.12	11.24	14.21
Population density (population over square miles)	1,058.07	1,887.61	565.81	346.76	1,048.15
% without health insurance	12.16	4.90	11.63	8.29	15.36
Health expenditures per capita (\$)	145.31	135.36	94.99	49.30	210.80
Housing/community expenditures per capita (\$)	146.76	89.98	141.91	81.66	180.53
Police per 1,000	2.43	1.21	2.06	1.79	2.75
Hard drug arrest rate per 10,000	21.37	16.38	17.72	11.56	24.56
Violent crime rate per 10,000	39.73	17.00	36.94	28.12	48.62
Police expenditures per capita (\$)	277.41	88.61	268.28	223.36	314.96
Affordable housing	69.24	4.12	68.92	66.88	71.83
% incarcerated	0.82	0.73	0.72	0.47	0.90
Gini index	0.46	0.02	0.46	0.45	0.47
% Black population employed	60.55	6.59	62.01	57.56	65.17
% Black adults without a high school diploma	12.93	3.88	12.39	10.53	15.11
% Black population in poverty	20.91	6.99	20.27	17.26	24.65
Ratio of % black to white population employed	1.00	0.10	0.99	0.94	1.04
Ratio of % black to white adults without a high school diploma	2.08	0.70	2.01	1.54	2.39
Ratio of % black to white population in poverty	2.39	0.70	2.32	1.93	2.87

a. The outcome is 2016 STI data. We lagged covariates 1-2 years because we did not expect an instantaneous effect on the outcome.

Table S3. Results of Bivariate and Multivariate Analyses Regressing Rates of Sexually Transmitted Infections Among Black People (per 100,000) on Logged no. Black People Killed by Police and Structural Covariates in 75 Large MSAs – 2016^a

Covariate	Logged Syphilis ^b			Gonorrhea			Chlamydia		
	Bivariate	Multivariable		Bivariate	Multivariable		Bivariate	Multivariable	
	Standardized B (CI)	Standardized B (CI)	Unstandardized b (CI)	Standardized B (CI)	Standardized B (CI)	Unstandardized b (CI)	Standardized B (CI)	Standardized B (CI)	Unstandardized b (CI)
Logged ^c no. Black persons killed by police	0.07 (-0.25, 0.39)	0.14* (-0.41, 0.70)	0.17* (-0.31, 0.65)	-0.08 (-0.37, 0.21)	0.14* (-0.30, 0.57)	39.36* (-85.6, 164.3)	-0.16* (-0.42, 0.10)	0.02 (-0.4, 0.45)	13.06 (-210, 237)
% MSM	0.20* (-0.08, 0.49)	0.16* (-0.39, 0.70)	0.12* (-0.21, 0.44)	0.23* (-0.04, 0.5)	0.07 (-0.32, 0.46)	13.98 (-63.6, 91.6)	0.09* (-0.16, 0.34)	0.25* (-0.13, 0.62)	89.92* (-46, 226)
Adult population size	0.11* (-0.21, 0.44)	0.11* (-0.68, 0.9)	0.0* (0.0, 0.0)	-0.08* (-0.39, 0.24)	0.12* (-0.45, 0.69)	0.0* (0.0, 0.0)	-0.16* (-0.44, 0.12)	0.01 (-0.49, 0.51)	0.0 (0.0, 0.0)
No. non-Hispanic Black adults	0.28* (-0.12, 0.69)	-0.42* (-1.39, 0.55)	0.0* (0.0, 0.0)	-0.24* (-0.61, 0.12)	-0.63* (-1.31, 0.04)	0.0* (0.0, 0.0)	-0.22* (-0.55, 0.12)	-0.31* (-1.02, 0.4)	0.0* (0.0, 0.0)
Black isolation index ^d	0.66* (0.11, 1.20)	-	-	0.40* (-0.11, 0.90)	-	-	0.34* (-0.12, 0.80)	-0.06 (-0.73, 0.6)	-1.54 (-17.6, 14.5)
% of population ages 15-29	0.28* (-0.02, 0.59)	0.28* (-0.2, 0.75)	0.12* (-0.05, 0.29)	-0.11* (-0.40, 0.18)	-0.12* (-0.47, 0.22)	-14.63* (-55.8, 26.6)	-0.03 (-0.29, 0.24)	-	-
Non-Hispanic Black sex ratio	-0.14* (-0.56, 0.28)	-0.30* (-1.00, 0.40)	-0.44* (-2.95, 2.07)	-0.38* (-0.74, -0.01)	-0.62* (-1.11, -0.14)	-755.2* (-1,340, -170)	-0.26* (-0.6, 0.07)	-0.30* (-0.79, 0.19)	-669.7* (-1761, 422)
% female-headed households	0.35 (0.1, 0.61)	-	-	0.03 (-0.22, 0.28)	-	-	0.07 (-0.16, 0.3)	-	-
Population density (population over	0.16* (-0.08, 0.39)	0.07 (-0.36, 0.49)	0.0 (0.0, 0.0)	-0.12* (-0.33, 0.10)	-0.16* (-0.45, 0.13)	-0.02* (-0.06, 0.02)	-0.12* (-0.32, 0.08)	-0.06 (-0.33, 0.21)	-0.02 (-0.09, 0.06)

% without health insurance	0.35* (-0.24, 0.95)	-0.22* (-1.36, 0.93)	-0.08* (-0.24, 0.09)	-0.45* (-0.98, 0.09)	0.08 (-0.74, 0.90)	3.65 (-36.2, 43.5)	-0.42 (-0.9, 0.06)	-	-
Health expenditures per capita (\$)	0.06 (-0.37, 0.49)	-	-	0.31* (-0.07, 0.69)	0.22* (-0.17, 0.62)	0.36* (-0.26, 0.98)	0.21 (-0.14, 0.56)	-	-
Housing/ community expenditures per capita (\$)	1.87* (-0.23, 3.97)	-1.73* (-6.31, 2.84)	0.0* (-0.01, 0.0)	-0.05 (-2.04, 1.93)	-	-	-0.41* (-2.2, 1.39)	-1.65* (-5.01, 1.72)	-1.27* (-3.9, 1.3)
Police per 1,000	0.05 (-0.2, 0.30)	-	-	-0.07 (-0.30, 0.15)	-	-	-0.02 (-0.22, 0.18)	-	-
Hard drug arrest rate per 10,000	-0.10* (-0.50, 0.30)	-0.22* (-0.78, 0.34)	-0.01* (-0.03, 0.02)	-0.13* (-0.49, 0.23)	-0.05 (-0.46, 0.36)	-0.70 (-6.91, 5.51)	-0.02 (-0.35, 0.31)	-	-
Violent crime rate per 10,000	0.56* (0.24, 0.87)	0.36* (-0.24, 0.96)	0.01* (-0.01, 0.04)	0.11* (-0.22, 0.44)	0.05 (-0.39, 0.50)	0.83 (-5.45, 7.11)	0.19* (-0.1, 0.49)	0.14* (-0.33, 0.61)	3.71* (-8.6, 16.0)
Police expenditures per capita (\$)	0.24* (-4.01, 4.49)	-2.47* (-8.6, 3.65)	0.0* (0.0, 0.0)	-4.69* (-8.24, -1.14)	-6.65* (-11.4, -1.9)	-1.44* (-2.46, -0.42)	-3.92* (-7.18, -0.66)	-3.21* (-7.90, 1.48)	-1.27* (-3.13, 0.59)
Affordable housing	0.01 (-0.41, 0.44)	-	-	0.16* (-0.21, 0.53)	0.11* (-0.29, 0.51)	5.15* (-13.9, 24.2)	0.34* (0.02, 0.67)	0.27* (-0.15, 0.68)	23.43* (-13.0, 59.9)
% incarcerated	0.29* (0.06, 0.53)	0.22* (-0.19, 0.63)	0.13* (-0.31, 0.56)	0.08* (-0.14, 0.31)	0.12* (-0.16, 0.41)	43.55* (-58.6, 145.7)	0.17* (-0.02, 0.37)	0.16* (-0.1, 0.42)	102.65* (-66, 272)
Gini index	0.48* (0.13, 0.84)	0.67* (-0.05, 1.39)	16.04* (-7.5, 39.5)	0.18* (-0.17, 0.53)	0.70* (0.16, 1.25)	7,594* (1,725, 13,462)	0.07* (-0.25, 0.39)	0.50* (-0.08, 1.08)	9,872* (-1,678, 21,422)
% Black population employed ^d	-0.31* (-0.61, -0.02)	-	-	-0.18* (-0.45, 0.08)	-	-	-0.22* (-0.46, 0.01)	-	-

% Black adults without a high school diploma	0.61* (0.23, 0.99)	0.35* (-0.5, 1.21)	0.02* (-0.11, 0.16)	0.48* (0.13, 0.83)	-0.04 (-0.65, 0.58)	-1.98 (-35.2, 31.3)	0.45* (0.13, 0.77)	-0.39* (-1.03, 0.25)	-38.21* (-101, 25)
% Black population in poverty	0.36* (0.05, 0.66)	-0.21* (-1.01, 0.59)	0.0* (-0.08, 0.08)	0.48* (0.24, 0.72)	0.10* (-0.47, 0.68)	3.52* (-16.40, 23.44)	0.47* (0.26, 0.68)	0.35* (-0.24, 0.94)	22.23* (-15.3, 59.8)
Ratio of % black to white population employed	0.41 (0.08, 0.74)	0.08 (-0.67, 0.82)	1.66 (-3.31, 6.63)	0.33 (0.05, 0.61)	0.23* (-0.32, 0.79)	527.47* (-717, 1,772)	0.33 (0.08, 0.58)	0.07 (-0.5, 0.65)	300.55 (-2,078, 2,679)
Ratio of % black to white adults without a high school diploma	0.14 (-0.21, 0.48)	-	-	0.27 (-0.04, 0.57)	-	-	0.23 (-0.05, 0.51)	-	-
Ratio of % black to white population in poverty	0.14 (-0.21, 0.49)	-0.23* (-0.89, 0.43)	-0.22* (-0.95, 0.5)	0.50 (0.22, 0.78)	-0.33* (-0.85, 0.18)	-120.02* (-307, 67)	0.48 (0.24, 0.73)	-0.09 (-0.61, 0.43)	-60.86 (-406, 2845)

a. The outcome is 2016 STI data. We lagged covariates 1-2 years because we did not expect an instantaneous effect on the outcome.

b. Variable's distribution was skewed and natural log transformed to approximately conform to the normal distribution.

c. Variable natural log transformed to linearize its relationship with the outcome.

d. Where missing in the multivariable model, we removed from the multivariate model due to multicollinearity. We assessed multicollinearity diagnostics using variance decomposition proportions (VDP) $\geq .5$ associated with confidence indices (CI) > 15 . When multicollinearity was indicated, we assessed pairwise correlations $\geq .75$ and tested models with each covariate independently to assess change in VDP and CI.

Note: Bivariate and multivariate models include state covariate.

*Significant at the a priori level. Confounders proceeded to the next stage of analysis, the multivariate model, if they changed the no. Black people killed by police/STI relationship by $> 10\%$ in bivariate models. In the multivariate model, the criteria for substantive significance was a standardized coefficient ≥ 0.10 .

Table S4. Back Transformation of Coefficients[§] for Regressions with Natural Log-transformed Variables

Regression	Natural-log (ln) Transformed Variables	Unstandardized Coefficient (β_1) for No. Black Persons Killed by Police	Back Transformation ^c of Unstandardized Coefficient (β_1) for No. Black Persons Killed by Police	Back Transformation Interpretation	Median (\bar{x}) STI rate	Absolute increase (Δ) in median (\bar{x}) STI rates per 1 unit increase in mean ^e (\bar{x}) no. Black persons killed by police (1 death = 43.9% of mean ^c no. deaths)	Percent increase in \bar{x} STI rate per 1 unit increase in mean (\bar{x}) no. Black persons killed by police
Syphilis Rate	<ul style="list-style-type: none"> • Non-Hispanic Black syphilis rate/100,000^a (outcome) • No. Black persons killed by police^b (exposure) 	$\beta_1 = 0.17$	$\% \Delta \text{ STI rate} = 100 * (1.01^{\beta_1} - 1)$ $\% \Delta \text{ STI rate} = 0.17$	% change _g (% Δ) in STI rate per 1% change in no. Black persons killed by police	17.84	$\Delta \bar{x} \text{ STI rate}$ $= \left(\frac{\% \Delta \text{ STI rate} * 43.9 * \bar{x} \text{ STI rate}}{100} \right)$ $= \left(\frac{0.17 * 43.9 * 17.84}{100} \right)$ $\Delta \bar{x} \text{ STI rate} = 1.33$	$\% \Delta \bar{x} \text{ STI rate} = 100 * \frac{\Delta \bar{x} \text{ STI rate}}{\bar{x} \text{ STI rate}} = 100 * \frac{1.33}{17.84}$ $\% \Delta \bar{x} \text{ STI rate} = 7.5\%$
Gonorrhea Rate	<ul style="list-style-type: none"> • No. Black persons killed by police^b (exposure only) 	$\beta_1 = 39.36$	$\Delta \text{ STI rate} = \beta_1 \ln \left(\frac{101}{100} \right)$ $\Delta \text{ STI rate} = 0.39$	Absolute change (Δ STI) per 1% change in no. Black persons killed by police	431.08	$\Delta \bar{x} \text{ STI rate}$ $= \Delta \text{ STI rate} * 43.9$ $= 0.39 * 43.9$ $\Delta \bar{x} \text{ STI rate} = 17.12$	$\% \Delta \bar{x} \text{ STI rate} = 100 * \frac{\Delta \bar{x} \text{ STI rate}}{\bar{x} \text{ STI rate}} = 100 * \frac{17.12}{431.08}$ $\% \Delta \bar{x} \text{ STI rate} = 4.0\%$
Chlamydia Rate	<ul style="list-style-type: none"> • No. Black persons killed by police^b (exposure only) 	$\beta_1 = 13.06$	$\Delta \text{ STI rate} = \beta_1 \ln \left(\frac{101}{100} \right)$ $\Delta \text{ STI rate} = 0.13$	Absolute change (Δ STI) per 1% change in no. Black persons killed by police	1,059.63	$\Delta \bar{x} \text{ STI rate}$ $= \Delta \text{ STI rate} * 43.9$ $\Delta \bar{x} \text{ STI rate} = 5.7$	$\% \Delta \bar{x} \text{ STI rate} = 100 * \frac{\Delta \bar{x} \text{ STI rate}}{\bar{x} \text{ STI rate}} = 100 * \frac{5.7}{1,059.63}$ $\% \Delta \bar{x} \text{ STI rate} = 0.5\%$

- a. Variable's distribution was skewed and natural log transformed to approximately conform to the normal distribution.
- b. Variable natural log transformed to linearize its relationship with the outcome.
- c. Cornell University. Cornell Statistical Consulting Unit. StatNews #83. June 2012. Interpreting Coefficients in Regression with Log-Transformed Variables.
- d. Median (\bar{x}): Black police killings = 1.0, Non-Hispanic Black syphilis rate/100,000 = 17.8, Non-Hispanic Black gonorrhea rate/100,000 = 431.1, Non-Hispanic Black chlamydia rate/100,000 = 1,059.6
- e. Mean (\bar{x}): Black police killings = 2.3, Non-Hispanic Black syphilis rate/100,000 = 22.11, Non-Hispanic Black gonorrhea rate/100,000 = 471.2, Non-Hispanic Black chlamydia rate/100,000 = 1,053.8
- f. Back transformation was conducted on coefficients estimated by testing final multivariate models with unstandardized outcome (STI rate) and main exposure (no. Black police killings) variables.
- g. Back transformation process for the syphilis model differs from those for the other two models. In the syphilis model, both the exposure and the outcome variables were natural log-transformed, in other models only the exposure was natural log-transformed.