Adolescent Chlamydia Rates Adjusted for Sexual Activity

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CDC

Background

- **Chlamydia is the most commonly reported infectious disease and is most prevalent in women aged 15-19 years**
- **Historically, case reports of chlamydia have highlighted the disparate burden for Black and adolescent and young adult women in the United States**
- *"Rates of reported cases of chlamydia were highest for Blacks aged 15–19 and 20–24 years in 2013…**the rate among Black females aged 15–19 years was five times the rate among White females in the same age group** (6,908 vs 1,383 per 100,000)"*

-2013 STD Surveillance report

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Background

However….
- **Fewer than half of female adolescents have ever had sex and are not at risk for chlamydia infection.**
- **Even fewer are *currently* sexually active, which is a better indicator for risk of STD.**
- **CDC recommends chlamydia screening for sexually active female adolescents.**

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Objective

- **To adjust the denominators of chlamydia rates to more accurately reflect the population of sexually active females.**

  - What happens to chlamydia rates for female adolescents when sexual behavior is adjusted for?

- **Because we are focused on STIs in vulnerable and high risk populations, what happens to racial disparities when rates are adjusted?**

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Data Sources

- **2002, 2006-2010, and 2011-2013 National Survey of Family Growth (NSFG) data were used to estimate the proportion of sexually active 15 – 19 year old females in the U.S.**
  - Sexual activity: Respondents were asked how many sex partners they had in the past year, with partner values greater than 0 coded as sexually active
- **Chlamydia case data reported to the CDC for years 2002, 2006-2013**
- **Denominator values were calculated from U.S. Census population counts**

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Analysis

- **Chlamydia rates were calculated using chlamydia case data and U.S. Census population counts for female adolescents.**
- **Chlamydia rates were calculated for sexually active females using denominators adjusted with proportions from NSFG data for 2002, 2006-2008, 2008-2010, & 2011-2013.**
- **Rate ratios for Black and Hispanic adolescents relative to White adolescents were calculated for each time point.**

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Chlamydia rates among all female adolescents and sexually active female adolescents, 15-19 years old, per 100,000 population

	Past year sex (%)	All	Sexually active
Black			
2002	46	6285	13604
2006-2008	45	7236	16153
2008-2010	44	7704	17709
2011-2013	40	7449	18810
Hispanic			
2002	33	2067	6264
2006-2008	38	2156	5629
2008-2010	40	2156	5405
2011-2013	37	2010	5389
White			
2002	43	983	2307
2006-2008	37	1084	2915
2008-2010	42	1184	2845
2011-2013	43	1396	3223

$$rate = \frac{cases}{teens_{15-19\,yrs}} \times 100{,}000$$

$$rates_{adj} = \frac{cases}{(\%\,sex.act. \times teens_{15-19\,yrs})} \times 100{,}000$$

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Chlamydia rates of all female adolescents and sexually active female adolescents (15-19 years) by Race/Ethnicity in the U.S., 2002-2013
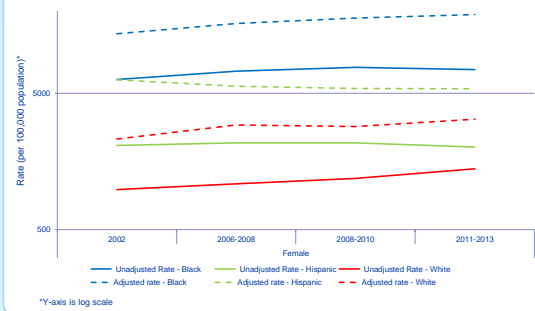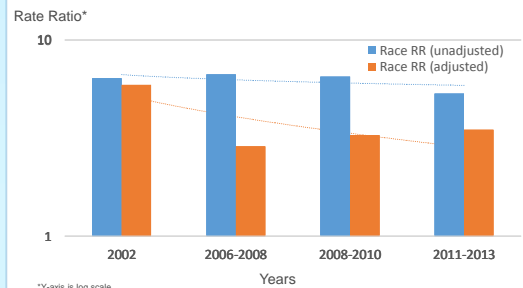

*Y-axis is log scale

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Chlamydia rate ratios of Black and Hispanic female adolescents compared to Whites among all female adolescents and sexually active female adolescents, 15-19 years old

	Rates (All)	Rates (Active)	Rate Ratio (Unadjusted)	Rate Ratio (Adjusted)	Δ
Black					
2002	6285	13604	6.4	5.9	0.5
2006-2008	7236	16153	6.7	3.0	3.8
2008-2010	7704	17709	6.5	3.4	3.2
2011-2013	7449	18810	5.3	3.5	1.8
Hispanic					
2002	2067	6264	2.1	2.7	0.6
2006-2008	2156	5629	2.0	1.8	0.1
2008-2010	2156	5405	1.8	2.0	0.1
2011-2013	2010	5389	1.4	1.7	0.2

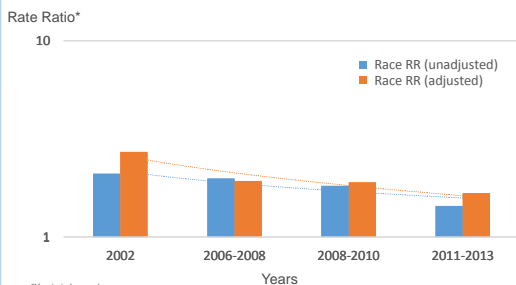$$Rate\ Ratio_{race} = \frac{rate_x}{rate_{wht}}$$

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Chlamydia rate ratios of Black females compared to White females among all adolescents and sexually active adolescents, 15-19 years old by years

*Y-axis is log scale

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Chlamydia rate ratios of Hispanic females compared to White females among all adolescents and sexually active adolescents, 15-19 years old by years

*Y-axis is log scale

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Conclusions

- **The impact of adjustments on Chlamydia rates can be attributed to:**
  - Decrease in proportion of sexually active Blacks
  - Increase in proportion of sexually active Hispanics
  - Stable proportion of sexual activity in Whites
- **Adjustments for sexual behavior attenuate the chlamydia rate disparity between Blacks and Whites, and not adjusting for behavior underestimates the reduction in disparities over time.**
- **Black adolescents remain disproportionately burdened by chlamydial infections, relative to other groups.**

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Limitations and Implications

- **Data do not incorporate screening rates or changes in screening rates over time.**
- **NSFG not administered every year so there is not a perfect match between sexual behavior data and chlamydia case report data.**
- **Race rate ratios are just one measure of disparities**
- **There are large differences in rates of chlamydia between the unadjusted and adjusted rates, so we recommend adjusting for sexual behavior whenever possible, especially when reporting adolescent data.**
- **We must continue to strive to reduce disparities and better reach our most vulnerable and high-risk groups.**

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