

Epidemiologic Characterization of Repeat Gonorrhea Infections in Mississippi, 2005-2012

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INTRODUCTION

Gonorrhea is a very common infectious disease. CDC estimates that, annually, 820,000 people in the United States get new gonorrheal infections, and less than half of these infections are detected and reported to CDC. It is estimated that 570,000 of them were among young people 15-24 years of age.¹

Mississippi has consistently reported among the highest rates of infection for over a decade. If untreated these infections can spread to a woman's uterus or fallopian tubes and cause pelvic inflammatory disease (PID).¹ PID can lead to serious outcomes in women, such as tubal infertility, ectopic pregnancy, and chronic pelvic pain. In addition, epidemiologic and biologic studies provide evidence that gonococcal infections facilitate the transmission of HIV infection.²

OBJECTIVES

To describe the recent epidemiology of gonorrhea infections and to identify the risk factors associated with repeat and recent repeat (<6 months) infections among Mississippians.

METHODS

- Data obtained from STD*MIS for cases reported in 2005-2012.
- Model 1: Compared individuals with 1 infection to individuals with repeat infections.
- Model 2: Compared individuals with 1 infection to individuals with recent repeat infections (repeat infections within 6 months).
- SAS was used to analyze data.
- Infections within one month were excluded

RESULTS

Table 1: Characteristics of Cases with Gonorrhea Infection, 2005-2012

Age (mean, SD)	24 ± 7.8
	Number (%)
Sex	
Male	19,445 (41%)
Female	27,646 (59%)
Unknown	7 (<1%)
Race	
Black	33,924 (72%)
White	3,803 (8%)
Other	629 (1%)
Unknown	8,742 (19%)
Number Times of Reported Infection	
	Total # Infec
1	40,108
2	10,760
3	3,351
4	1,368
>4	876
Total	46,463

Table 2: Unadjusted and Adjusted Odds Ratios for Predictors of Repeat Gonorrhea Infection, Mississippi, 2005-2012

	Unadjusted OR	CI	P Value	Adjusted OR	CI	P Value
Age Group						
<25	2.072	1.918	2.237	<.0001	1.732	1.561 1.922 0.95
25+	Reference			Reference		
Gender						
Male	Reference			-	-	-
Female	1.028	0.966	1.094	0.38	-	-
Race						
Black	1.867	1.642	2.123	<.0001	1.695	1.437 1.998 <.0001
Non-Black	Reference			Reference		
Geo Location						
Urban	1.067	1.003	1.135	0.039	1.209	1.108 1.318 <.0001
Rural	Reference			Reference		

Table 3: Unadjusted and Adjusted Odds Ratios for Predictors of Recent Repeat Gonorrhea Infection, Mississippi, 2005-2012

	Unadjusted OR	CI	P Value	Adjusted OR	CI	P Value
Age Group						
<25	1.908	1.728	2.106	<.0001	1.855	1.671 2.059 0.9435
25+	Reference			Reference		
Gender						
Male	Reference			-	-	-
Female	0.945	0.87	1.026	0.18	-	-
Race						
Black	1.819	1.543	2.145	<.0001	1.797	1.523 2.12 <.0001
Non-Black	Reference			Reference		
Geo Location						
Urban	1.153	1.063	1.251	0.0006	1.228	1.126 1.34 <.0001
Rural	Reference			Reference		

- During 2005-2012, Mississippi reported 56,463 episodes of gonorrhea.
 - 40,108 single cases
 - 16,355 repeat infections
- Repeat infection reports ranged from 2-10 per individual (mean = 2.3 ± 0.8 cases).
 - Among repeat infections, 35% were recent repeaters.
- Overall, the average time between the initial and first repeat infection was 18.2 ± 17.7 months (median=12.1 months)
 - The time between initial and first repeat infection was not significantly significant when compared among men and women (18.4 vs. 18.0 months, respectively)
- The mean age of those with single infection was 24± 8.0 years
- The mean age for those with repeat infection was 21 ± 6.2 years
 - The mean age of males with single infections was 26± 9.3 years, compared to 24± 7.6 years for those with repeat infections (p=<.0001).
 - The mean age of females with single infection was 23± 6.7 years, compared to 20± 4.5 years for those with repeat infections (p=<.0001).

CONCLUSIONS/IMPLICATIONS

Race and geographic location were independent predictors of repeat and recent repeat gonorrhea infection. Nearly one third of all reports were repeat infections, underscoring the importance in compliance of rescreening 3 months post treatment and annual screening of at risk groups.

Mississippi's gonorrhea screening programs and STD/HIV prevention programs should consider risk reduction strategies and disease screening intensification that target populations at high risk for repeated infection.

REFERENCES

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