Misclassification of Race/Ethnicity on Gonorrhea Case Reports – Minnesota, 2006-2008

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Background

Race/ethnicity may be underreported or misreported by medical providers, making it difficult to describe gonorrhea trends by this key demographic category. Previous studies have looked at the agreement between race reporting in administrative and surveillance datasets and self-report. Most of these studies found that misclassification differs by race/ethnicity, with American Indians and Hispanics more likely to have their race/ethnicity misclassified[i]. This is especially problematic for surveillance data used to provide information on racial/ethnic disparities for chronic and infectious diseases. A recent review of HIV surveillance data from five states and one urban jurisdiction found that 30% of American Indian/Alaskan Native individuals were misidentified, with these individuals being most often classified as white[ii].

While Minnesota has low to moderate rates for gonorrhea, the racial/ethnic disparities are very large so race/ethnicity reporting is very important in describing the epidemiology of gonorrhea. Between 2006 and 2008, the Minnesota Department of Health (MDH) participated in the STD Surveillance Network (SSuN) project funded by the Centers for Disease Control and Prevention (CDC). During this period, persons diagnosed with gonorrhea in Hennepin County were contacted via phone to obtain some additional information. Using the data collected through this interview process we were able to evaluate the accuracy of race/ethnicity reporting.

Objectives

(1) To evaluate the accuracy of case-reported race/ethnicity by comparing against self-report;
(2) To examine correlates of having misclassified race/ethnicity.

Methods

Persons residing in Hennepin County, diagnosed with gonorrhea outside of the county STD clinic from July 2006-August 2008, and reported to the MDH with a diagnosis date of less than 60 days prior to the report date were contacted via phone by the MDH to gather supplementary surveillance data including race/ethnicity. Self-reported and case-reported race/ethnicity was compared using Cohen's kappa. Factors associated with having misclassified race/ethnicity were assessed using chi-square significance testing.

Results

Table 1. Interview Results

Interview Result	Number	Percent
Interview Completed	767	30
Refused	146	6
Bad contact info	865	34
Unable to reach in 10 attempts	574	22
Language barrier	39	1
Case ineligible (DX > 60 days)	177	7
TOTAL	**2,568**	**100**

Table 2. Comparison of Self-Reported versus Case-Reported Race

	Case Report							
Case Interview	**White, non-Hispanic**	**Black, non-Hispanic**	**Hispanic**	**AI/AN**	**Asian/PI**	**Multiple / Other**	**Unknown**	**N**
	N (Row%)	N (Row%)	N (Row%)	N (Row%)	N (Row%)	N (Row%)	N (Row%)	
White, non-Hispanic	131 **(81)**	3	0	1	1	1	24	161
Black, non-Hispanic	8	383 **(82)**	1	0	2	8	67	469
Hispanic	4	12	12 **(39)**	0	0	1	2	31
AI/AN	1	3	0	6 **(43)**	0	1	3	14
Asian/PI	0	0	0	1	9 **(82)**	0	1	11
Multiple /Other	4	23	2	1	2	6 **(13)**	9	47
Unknown	0	3	0	0	0	1	0	4
N	148	427	15	9	14	18	106	737
k	0.81	0.63	0.51	0.51	0.71	0.15	NA	

Thirty percent of eligible gonorrhea reports were interviewed (n=767), but of these 30 were the same individual with a repeat infection during the time period and as such removed from this analysis (Table 1). Race/ethnicity was missing for 14.4% of case reports vs. 0.5% of case interviews. Table 2 shows the agreement between race/ethnicity reported during the interview and through the case report. For non-Hispanic whites, non-Hispanic Blacks, and Asian-Pacific Islanders the sensitivity of the case report was fairly good, 81, 82 and 82 percent, respectively. Overall agreement between self-reported and provider-reported race/ethnicity was only moderate with a kappa statistic of 0.56 (0.51 – 0.61). As seen in Table 2, the kappa varied significantly by racial/ethnic group.

Among non-Hispanic whites, non-Hispanic Blacks and American Indians, the main source of misclassification was case reports with "Unknown" or missing race, 15, 14 and 21 percent, respectively. For Hispanics and individuals that identified themselves as having multiple races, the main source of misclassification was being reported under a different racial category.

Figure 1 shows the increase in the rate of gonorrhea for cases in Minnesota if all cases with "Unknown" race/ethnicity are re-classified using the SSuN results. The largest change in rate occurs among American Indians (23%) followed by the rate among Blacks (15%).

Further analysis showed that cases reporting American Indian ($p<0.01$), multiple ($p<0.0001$) and Hispanic ($p<0.0001$) race/ethnicity at interview were significantly more likely to be misclassified than other cases. Age, gender and clinic type were not significant factors in misclassification.

Although clinic type was not a significant factor in misclassification, Emergency Departments and Primary Care clinics had the highest numbers of case reports with "Unknown" or missing race, 19 and 16 percent respectively, compared to 9 percent for Family Planning clinics.

Limitations

This analysis was conducted on a small percentage of all eligible cases (30 percent). The interviewed cases differed from those not reached by race/ethnicity with those identified as white by the case report more likely to be interviewed, and those identified as Hispanic less likely to be interviewed. Additionally, cases diagnosed in urgent care/emergency departments and correctional facilities were also less likely to participate.

The project was limited to Hennepin County cases diagnosed outside of the STD clinic, and not representative of the whole state.

Conclusions

The accuracy of race/ethnicity data gathered through routine STD case reporting is moderate at best when compared with self-reports. Clinics serving high proportions of American Indian, multiracial, and Hispanic patients should be especially vigilant in collecting patient-defined race/ethnicity.

As shown in Figure 1, changes in the classification of those with "Unknown" race/ethnicity had a significant impact in the rates among American Indians and Blacks, which also impacts the rate disparity for these communities. Given that the disparities for these groups are among the highest, the accurate capture of race information has significant implications for surveillance data.

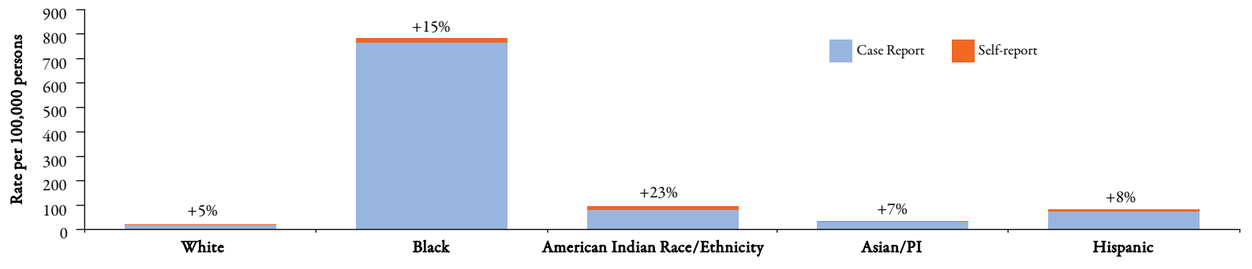
Implications for Programs, Policy, and/or Research

Racial misclassification could result in underestimation of STD morbidity in certain sub-populations and should be assessed periodically by STD surveillance programs.

Providers should ensure that patients are given an intake form that captures race/ethnicity in order to capture accurate information.

Given that the majority of misclassification resulted from reports with "Unknown" or missing race, health departments should work with providers to educate them on the need for accurate data and to develop better ways of capturing the information in an accurate and consistent manner.

Figure 1. Comparison of Gonorrhea Rate by Race/Ethnicity Using Case Report versus Self-Report, Minnesota 2008



References

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[ii] Bertolli J et al. Racial Misclassification of American Indians/Alaska Natives in the HIV/AIDS Reporting Systems of Five States and One Urban Health Jurisdiction, U.S., 1984 – 2002. *Public Health Reports*. May-June 2007;122:382-392

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