

## Health Care Use and HIV Testing of Males Aged 15–39 Years in Physicians' Offices — United States, 2009–2012

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In 2014, 81% of new human immunodeficiency virus (HIV) infection diagnoses in the United States were in males, with the highest number of cases among those aged 20–29 years. Racial and ethnic minorities continue to be disproportionately affected by HIV; there are 13 new diagnoses each year per 100,000 white males, 94 per 100,000 black males, and 42 per 100,000 Hispanic males (1). Despite the recommendation by CDC for HIV testing of adults and adolescents (2), in 2014, only 36% of U.S. males aged ≥18 years reported ever having an HIV test (3), and in 2012, an estimated 15% of males living with HIV had undiagnosed HIV infection (4). To identify opportunities for HIV diagnosis in young males, CDC analyzed data from the 2009–2012 National Ambulatory Medical Care Survey (NAMCS) and U.S. Census data to estimate rates of health care use at U.S. physicians' offices and HIV testing at these encounters. During 2009–2012, white males visited physicians' offices more often (average annual rate of 1.6 visits per person) than black males (0.9 visits per person) and Hispanic males (0.8 visits per person). Overall, an HIV test was performed at 1.0% of visits made by young males to physicians' offices, with higher testing rates among black males (2.7%) and Hispanic males (1.4%), compared with white males (0.7%). Although higher proportions of black and Hispanic males received HIV testing at health care visits compared with white males, this benefit is likely attenuated by a lower rate of health care visits. Interventions to routinize HIV testing at U.S. physicians' offices could be implemented to improve HIV testing coverage.

In 2014, 75% of males responding to the National Health Interview Survey reported having at least one visit to a health care office during the previous year (5). In 2011, among men aged 19–25 years participating in the National Health Interview Survey, 63% self-reported having a usual place for health care, and 59% reported having a doctor visit in the previous year (6). Early initiation of antiretroviral therapy for persons with diagnosed HIV infection has been shown to reduce the risk for HIV transmission (7) and improve clinical outcomes (8). Persons who are found to be HIV-negative but at substantial risk for acquiring HIV infection should be offered prevention services, including preexposure prophylaxis (9) and other risk-reduction interventions.

Data from the 2009–2012 NAMCS\* and the U.S. Census<sup>†</sup> were analyzed to estimate the average annual number of visits to physicians' offices per person, and the average annual percentage of visits where an HIV test was performed in HIV-negative non-Hispanic white, non-Hispanic black, and Hispanic males aged 15–39 years. Current HIV infection was defined using *International Classification of Diseases, Ninth Revision (ICD-9)* codes<sup>§</sup> and Reason for Visit codes consistent with HIV infection. A four-stage probability sampling design is used in NAMCS to allow generation of nationally representative weighted estimates of patient health care visits. Each selected physician was randomly assigned a 1-week data reporting period, and data collectors abstracted medical records from a systematic random sample of patient visits (10). Data collected included patients' demographic characteristics, services provided, patients' symptoms, physicians' diagnoses, and medications prescribed. Eligible physicians included those who were engaged in office-based patient care, were principally engaged in patient care activities, were not federally employed, and were not in the specialties of anesthesiology, pathology, or radiology (10).

Response rates ranged from 39% in 2012 to 62% in 2009. Physicians who provided patient care at Community Health Centers were included in the 2009–2011 NAMCS. The average annual visits per person were calculated by dividing average annual number of visits during 2009–2012 by the average U.S. population during those years. The average annual percentage of visits with an HIV test was estimated by 5-year age group and by race/ethnicity, and was calculated by subtracting the average annual number of visits in which an HIV test was not performed from the average annual total number of visits and dividing by the average annual total number of visits. This methodology was used because the outcome, visits with an HIV test, had unweighted cell sizes <30 for several subgroups. Using visits in which an HIV test was not performed provided more reliable weighted estimates. All analyses used weighting to account for the complex sampling design.

\* <http://www.cdc.gov/nchs/ahcd/index.htm>.

† <http://wonder.cdc.gov/Bridged-Race-v2014.HTML>.

§ <http://www.cdc.gov/nchs/icd/icd9.htm>.

During 2009–2012, males aged 15–39 years made an average of 1.4 visits per year to physicians' offices. Visits by white males (1.6 visits per person) were more frequent than visits by black males (0.9) and Hispanic males (0.8) (Table 1). Among all racial/ethnic groups, visits per person per year by males aged 15–19 years, 20–24 years, and 35–39 years were 1.6, 1.0, and 1.8, respectively (Table 1). The number of annual visits per

persons was lower for all age groups among black and Hispanic males compared with white males (Figure).

Overall, HIV testing was performed at 674,001 (1.0%) of the visits made by males aged 15–39 years (Table 2). Compared with white males, for whom HIV testing was reported at 0.7% of visits, HIV testing was reported at 2.7% of visits by black males (prevalence ratio [PR] = 3.8;  $p < 0.001$ ) and 1.4% of visits by Hispanic males (PR = 2.0;  $p = 0.08$ ). Compared with the rate found among males aged 35–39 years (0.6%), HIV testing rates were higher among those aged 20–24 years (1.7%) (PR = 3.0;  $p = 0.007$ ) and 25–29 years (1.8%) (PR = 3.1;  $p = 0.002$ ) (Table 2). Along with age group 35–39 years, the HIV testing rate was lowest among males aged 15–19 years (0.6%) (PR = 1.0;  $p = 0.997$ ).

**TABLE 1. Average annual number of health care visits to physicians' offices\* by males aged 15–39 years and number of visits per person,† by age group and race/ethnicity — National Ambulatory Medical Care Survey, United States, 2009–2012**

Characteristic	U.S. Census pop.	Average annual no. of visits	Average annual no. of visits per person (95% CI)
<b>Overall</b>	<b>49,550,703</b>	<b>66,905,523</b>	<b>1.35</b>
<b>Age group (yrs)</b>			
15–19	10,517,269	16,645,519	1.58 (1.48–1.69)
20–24	10,464,714	10,159,600	0.97 (0.91–1.04)
25–29	9,954,208	10,736,014	1.08 (1.02–1.14)
30–34	9,433,174	13,056,197	1.38 (1.31–1.47)
35–39	9,181,339	16,308,193	1.78 (1.69–1.87)
<b>Race/Ethnicity</b>			
White, non-Hispanic	31,192,483	51,159,233	1.64 (1.59–1.68)
Black, non-Hispanic	7,227,841	6,425,278	0.89 (0.78–1.01)
Hispanic	11,130,379	9,321,012	0.84 (0.71–0.99)

Abbreviation: CI = confidence interval.

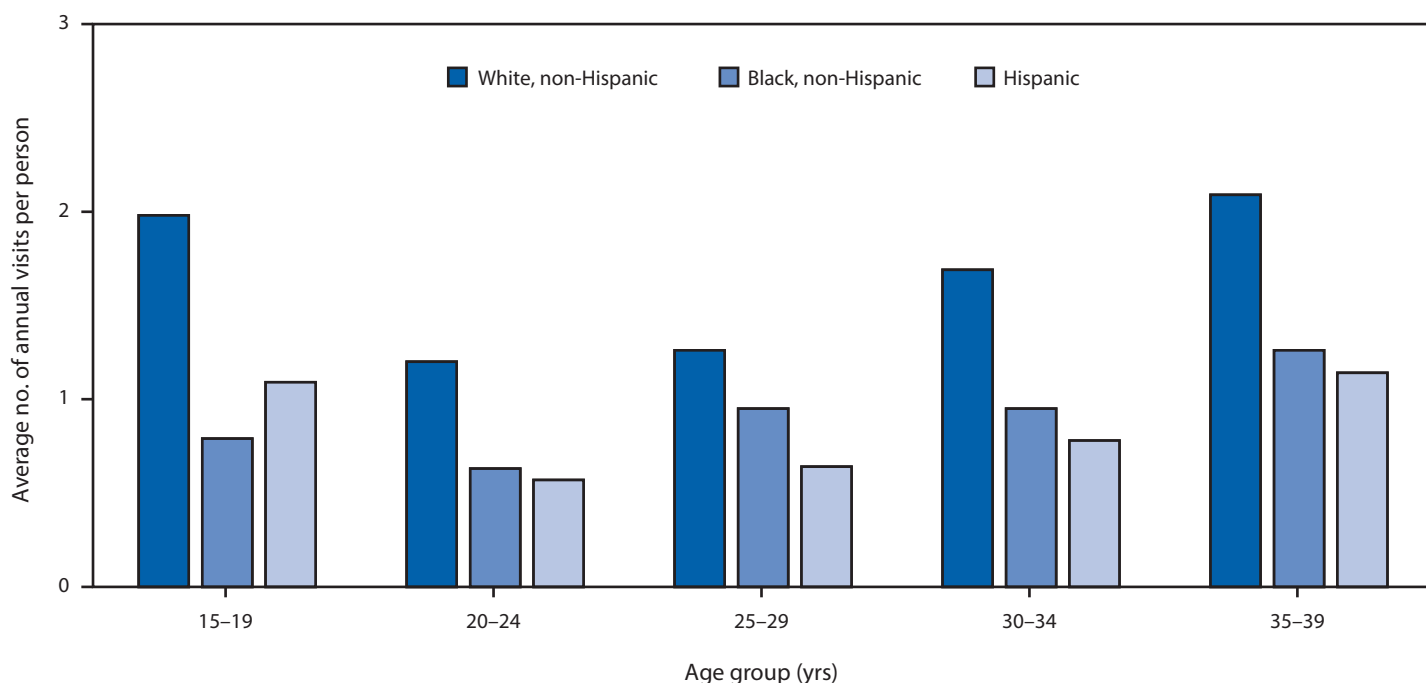
\* Total visits are weighted values. A four-stage probability sampling design is used by the National Ambulatory Medical Care Survey to allow generation of nationally representative weighted estimates of patient visits.

† Total visits divided by U.S. Census population.

## Discussion

HIV testing of young males is important to identify undiagnosed infections and for initiation of crucial HIV treatment and care services for those who test HIV-positive and for HIV prevention services. HIV testing during physicians' office visits can facilitate immediate initiation of antiretroviral therapy or preexposure prophylaxis, or expeditious referral for these services. Males aged 15–39 years frequently visited physicians' offices, but HIV testing was not performed at 99% of those visits. CDC recommends repeat testing at least annually for persons at high risk for HIV infection (2), and although the optimal annual percentage of visits with an HIV test to achieve

**FIGURE. Average number of annual visits to physicians' offices by males aged 15–39 years, by age group and race/ethnicity — National Ambulatory Medical Care Survey, United States, 2009–2012**



**TABLE 2. Average annual number of health care visits to physicians' offices\* by males aged 15–39 years, average annual number and percentage of visits with a test for human immunodeficiency virus (HIV) infection,<sup>†</sup> and HIV testing prevalence ratio,<sup>§</sup> by age group and race/ethnicity — National Ambulatory Medical Care Survey, United States, 2009–2012**

Characteristic	Average annual no. of visits	Average annual no. of visits with an HIV test	Average annual percentage of visits with an HIV test (95% CI)	HIV testing prevalence ratio (95% CI)	p-value
<b>Overall</b>	<b>66,905,523</b>	<b>674,001</b>	<b>1.01 (0.76–1.33)</b>	—	—
<b>Age group (yrs)</b>					
15–19	16,645,519	92,949	0.56 (0.28–1.10)	1.00 (0.40–2.50)	0.997
20–24	10,159,600	173,028	1.70 (0.95–3.03)	3.04 (1.36–6.83)	0.007
25–29	10,736,014	188,683	1.76 (1.14–2.71)	3.14 (1.50–6.58)	0.002
30–34	13,056,197	128,096	0.98 (0.50–1.92)	1.75 (0.71–4.33)	0.223
35–39	16,308,193	91,244	0.56 (0.31–1.01)	Referent	—
<b>Race/Ethnicity</b>					
White, non-Hispanic	51,159,233	367,378	0.72 (0.50–1.04)	Referent	—
Black, non-Hispanic	6,425,278	173,991	2.71 (1.58–4.59)	3.77 (1.96–7.24)	<0.001
Hispanic	9,321,012	132,632	1.42 (0.73–2.75)	1.98 (0.93–4.23)	0.077

**Abbreviation:** CI = confidence interval.

\* Total visits are weighted values. A four-stage probability sampling design is used by the National Ambulatory Medical Care Survey to allow generation of nationally representative weighted estimates of patient visits.

<sup>†</sup> Visits with an HIV test performed calculated by subtracting number of visits with an HIV test not performed from total visits.

<sup>§</sup> Univariate logistic regression model used to estimate prevalence ratios.

universal testing is unknown, these results indicate there are opportunities to improve HIV testing rates at physicians' offices.

Reasons why providers might not be conducting routine HIV testing include lack of knowledge of national testing recommendations, belief that their patients are not at risk, and belief that HIV testing is the responsibility of other health care professionals in different settings. White males had more visits per person at all ages than black or Hispanic males, possibly reflecting differences in access to health care and health insurance rates among racial and ethnic groups in the United States. Fewer annual visits per person among minority males represent fewer HIV testing opportunities. Although HIV testing was performed at a higher percentage of visits made by black and Hispanic males compared with visits made by white males, testing rates were low in all male populations. Interventions to routinize HIV testing, such as opt-out testing, might help to increase testing coverage among young men who might not otherwise seek HIV testing.

The findings in this study are subject to at least three limitations. First, nonresponse to an invitation to participate in NAMCS might have resulted in underestimation or overestimation of HIV testing, given that response rates ranged from 39% to 62% of health care providers contacted for participation. Second, small sample sizes in NAMCS permitted only limited subgroup analyses of HIV testing. Finally, behavioral risk factor data such as sexual behavior or injection drug use were not available in NAMCS, so estimation of HIV testing reflecting these factors was not possible.

### Summary

#### What is already known about this topic?

In 2006, CDC recommended routine HIV testing of adults and adolescents; however, testing coverage in the United States has been suboptimal. Among new HIV diagnoses in 2014, 81% were in males, with the highest number reported in those aged 20–29 years.

#### What is added by this report?

During 2009–2012, males aged 15–39 years had an average of 1.35 visits to physicians' offices each year. Fewer than 1.1% of the visits by males included an HIV test.

#### What are the implications for public health practice?

HIV testing of young males is important to identify undiagnosed infection and for those who test HIV-positive can serve as an entry point for HIV treatment and prevention of further HIV transmission. Opportunities exist to increase HIV testing coverage at visits to physicians' offices. Interventions such as opt-out testing, standing laboratory orders for HIV testing, and electronic medical record reminders could be implemented in physicians' offices to increase testing coverage.

Young males are disproportionately affected by HIV in the United States. HIV testing serves as an entry point for HIV prevention and care services, such as preexposure prophylaxis and antiretroviral therapy. Visits to physicians' offices are important venues for HIV testing. Young men had on average at least one visit each year, indicating that there are many opportunities for testing in these settings. A systems-level approach to increase HIV testing rates that does not rely on

individual providers could use interventions to routinize HIV testing such as electronic medical records reminders, opt-out testing policies, provider education campaigns, and removal of barriers to HIV testing (i.e., special consent forms). These interventions can help ensure that when young men do access the health care system, the opportunity for HIV testing with subsequent linkage to care and prevention services is not lost.

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