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National Black HIV/AIDS Awareness Day — February 7, 2015

February 7 is National Black HIV/AIDS Awareness Day, an observance intended to raise awareness of human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) and encourage action, such as HIV testing, to reduce the disproportionate impact of HIV/AIDS on blacks or African Americans in the United States. Two of the three goals of the National HIV/AIDS Strategy are to reduce new HIV infections and HIV disparities (*1*).

Compared with other races and ethnicities, blacks had the highest HIV incidence in 2010, with an estimated rate of 68.9 per 100,000 population, which was nearly eight times the estimated rate of 8.7 among whites (*2*). By the end of 2011, an estimated 491,100 of the estimated 1.2 million persons living with HIV in the United States were blacks, accounting for the highest percentage (41%) of persons living with HIV, followed by whites (34%) and Hispanics/Latinos (20%) (*3*). Among blacks living with HIV in 2011, 85% had their infection diagnosed, 40% were engaged in care, 36% were prescribed antiretroviral therapy, and 28% were virally suppressed (*4*).

Information about National Black HIV/AIDS Awareness Day is available at http://www.cdc.gov/features/blackhivaidsawareness. Information about blacks and HIV/AIDS is available at http://www.cdc.gov/hiv/risk/racialethnic/aa/index.html.

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Mortality Among Blacks or African Americans with HIV Infection — United States, 2008–2012

Azfar-e-Alam Siddiqi, MD, PhD[1], Xiaohong Hu, MS[1], H. Irene Hall, PhD[1] (Author affiliations at end of text)

A primary goal of the National HIV/AIDS Strategy is to reduce HIV-related health disparities, including HIV-related mortality in communities at high risk for human immunodeficiency virus (HIV) infection (*1*). As a group, persons who self-identify as blacks or African Americans (referred to as blacks in this report), have been affected by HIV more than any

INSIDE

87 HIV Testing and Service Delivery Among Blacks or African Americans — 61 Health Department Jurisdictions, United States, 2013
91 Advisory Committee on Immunization Practices Recommended Immunization Schedule for Adults Aged 19 Years or Older — United States, 2015
93 Advisory Committee on Immunization Practices Recommended Immunization Schedules for Persons Aged 0 Through 18 Years — United States, 2015
95 Vaccination Coverage Among Adults, Excluding Influenza Vaccination — United States, 2013
103 Vital Signs: Disparities in Nonsmokers' Exposure to Secondhand Smoke — United States, 1999–2012
109 Update: Ebola Virus Disease Epidemic — West Africa, January 2015
111 Outbreaks of Avian Influenza A (H5N2), (H5N8), and (H5N1) Among Birds — United States, December 2014–January 2015
112 Announcements
113 QuickStats

Continuing Education examination available at http://www.cdc.gov/mmwr/cme/conted_info.html#weekly.

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other racial/ethnic population. Forty-seven percent of persons who received an HIV diagnosis in the United States in 2012 and 43% of all persons living with diagnosed HIV infection in 2011 were black. Blacks also experienced a low 3-year survival rate among persons with HIV infection diagnosed during 2003–2008 (*2*). CDC and its partners have been pursuing a high-impact prevention approach and supporting projects focusing on minorities to improve diagnosis, linkage to care, and retention in care, and to reduce disparities in HIV-related health outcomes (*3*). To measure trends in disparities in mortality among blacks, CDC analyzed data from the National HIV Surveillance System. The results of that analysis indicated that among blacks aged ≥13 years the death rate per 1,000 persons living with diagnosed HIV decreased from 28.4 in 2008 to 20.5 in 2012. Despite this improvement, in 2012 the death rate per 1,000 persons living with HIV among blacks was 13% higher than the rate for whites and 47% higher than the rate for Hispanics or Latinos. These data demonstrate the need for implementation of interventions and public health strategies to further reduce disparities in deaths.

Data from the National HIV Surveillance System for 2008–2012 and reported to CDC through June 2014 were used to determine the numbers of deaths and rates of death among black persons living with HIV aged ≥13 years at the time of death. Numbers and rates for the total U.S. population and for whites and Hispanics or Latinos were calculated for comparison. Two sets of death rates were calculated overall and by age, race/ethnicity and sex: 1) deaths per 100,000 population and 2) deaths per 1,000 persons living with HIV. The numerator for each rate was the estimated number of deaths by year of death. The denominators for the rates per 100,000 population were calculated using year-specific census or postcensus data (for persons aged ≥13 years) from the U.S. Census Bureau for the years 2008–2012 (*4*). For a given year (year X), the denominator for the rate per 1,000 persons living with HIV was calculated by adding the number of new HIV diagnoses among persons aged ≥13 years during year X to the number of persons living with diagnosed HIV aged ≥13 years at the end of the year X-1. For rates by HIV transmission category, only rates per 1,000 persons living with HIV could be calculated because the U.S. Census does not collect the data needed for calculating rates per 100,000 population. The number of deaths was statistically adjusted for reporting delays and missing transmission category (*5*).

In 2012, an estimated 8,165 (48%) deaths occurred among black persons living with HIV, which was 1.5 times the number of deaths among whites (5,426) and 3.2 times the deaths among Hispanics or Latinos (2,586). During 2008–2012, there was a consistent decline in the number of deaths and rates of death among blacks. The number of deaths decreased 18%, and rate per 100,000 population decreased 21%; rate per 1,000 persons living with HIV decreased 28%. Although deaths also decreased among other race/ethnicity groups, the decreases generally were greater and more consistent among blacks than among other races/ethnicities (Table 1).

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TABLE 1. Estimated number and rate of deaths of persons aged ≥13 years with diagnosed HIV infection,* by race/ethnicity — United States, 2008–2012

	2008			2009			2010			2011			2012		
Race/Ethnicity	No.†	Rate per 100,000 pop.	Rate per 1,000 PLWH§	No.†	Rate per 100,000 pop.	Rate per 1,000 PLWH§	No.†	Rate per 100,000 pop.	Rate per 1,000 PLWH§	No.†	Rate per 100,000 pop.	Rate per 1,000 PLWH§	No.†	Rate per 100,000 pop.	Rate per 1,000 PLWH§
Black/African American	9,920	33.1	28.4	9,596	31.7	26.5	8,682	28.3	23.3	8,444	27.2	21.9	8,165	26.0	20.5
Hispanic/Latino	2,949	8.5	18.5	2,913	8.2	17.5	2,809	7.4	16.3	2,799	7.2	15.6	2,586	6.5	13.9
White	5,662	3.3	20.8	5,545	3.2	19.8	5,395	3.2	18.8	5,307	3.1	18.1	5,426	3.2	18.1
Other races	890	5.5	22.8	998	6.1	24.6	1,003	5.5	23.9	946	5.0	21.8	989	5.1	22.0
Total	**19,421**	**7.7**	**23.7**	**19,052**	**7.5**	**22.5**	**17,890**	**7.0**	**20.5**	**17,496**	**6.8**	**19.4**	**17,166**	**6.6**	**18.5**

Abbreviations: HIV = human immunodeficiency virus; PLWH = persons living with diagnosed HIV infection.

* Data include persons with diagnosed HIV infection regardless of stage of disease at diagnosis. Deaths of persons with a diagnosis of HIV infection might have resulted from any cause.

† Estimates include statistical adjustment that accounted for reporting delays, but not for incomplete reporting.

§ Rate per 1,000 population aged ≥13 years living with diagnosed HIV infection (PLWH). Denominator was estimated as (no. PLWH at the end of [year X-1]) + (no. new diagnoses during year X).

In 2012, deaths per 1,000 persons living with HIV among blacks were higher among older persons compared with younger persons, with the highest rate (41.3) among those aged ≥55 years. By transmission category, among black males, the lowest death rate (per 1,000 persons living with HIV) was among males whose HIV infection was attributed to male-to-male sexual contact (15.3), and the highest rate was among males who had their HIV infection attributed to injection drug use (33.1). Among black females, the death rate among those with HIV infection attributed to heterosexual contact (17.9) also was lower compared with the rate among those black females with infection attributed to injection drug use (29.2). These patterns were consistent across all races/ethnicities (Table 2).

Racial/ethnic disparities varied among states. In 23 states and the District of Columbia, the death rate per 1,000 persons living with HIV in blacks was higher than that in whites, whereas in 27 states blacks had a death rate that was lower than that in whites. The rate among blacks was higher than that among Hispanics/Latinos in 37 states and the District of Columbia. In 2012, the highest and lowest rates per 1,000 persons living with HIV among blacks were in West Virginia (28.9) and Nebraska (9.3), respectively, and among the 10 states with the highest death rates per 1,000 persons living with HIV in blacks, seven were in the South. The highest and lowest rates per 100,000 population among blacks were in the District of Columbia (98.4) and Alaska (5.2), respectively, and the largest number of deaths (1,147) occurred in Florida (Table 3).

Discussion

The results of these analyses indicate that black persons living with HIV experienced higher numbers and rates of deaths during 2008–2012 than other races/ethnicities. However, the numbers and rates of death declined consistently during the same period. The death rate per 1,000 persons living with HIV among blacks decreased 28% during 2008–2012, more than the overall decline (22%) seen among all persons living with HIV. Other than among blacks, such a consistent decline was observed only among Hispanics or Latinos.

Despite differences in the magnitude of the death rates, the mortality pattern among blacks by age, sex, and transmission category was similar to that seen in other races/ethnicities. In all three races/ethnicities, the highest rates of death were observed in the oldest persons living with HIV infection (aged ≥55 years), who might have been living longer with HIV and had more complications from HIV, and who also might have a higher all-cause mortality because of their age. By transmission category, in all races/ethnicities, men who have sex with men had lower death rates than persons in most other transmission categories; whereas persons who had their infection attributed to injection drug use had the highest death rate. This finding is consistent with reports that persons who use injection drugs are more likely to have comorbid conditions and an increased all-cause mortality than nonusers of injection drugs (*6*).

Whereas the overall disparity in deaths per 1,000 blacks living with HIV compared with whites living with HIV has narrowed over the period covered by this analysis (from 37% in 2008 to 13% in 2012), in 2012, the death rate was still higher (20.5) among blacks compared with whites (18.1) and Hispanics or Latinos (13.9). In general, blacks with HIV are less likely to have their infection diagnosed, with 15% unaware of their infection in 2011 compared with 12% of whites (*7*). Among blacks whose HIV was diagnosed in 2012, 77% were linked to care, which was lower than the percentage among any other race/ethnicity; in 2011, the percentages of black persons living with HIV who were retained in care (48%) or who had a suppressed viral load (40%) were lower than the percentages among whites and Hispanics or Latinos (*7*).

TABLE 2. Estimated number and rate of deaths of persons aged ≥13 years with diagnosed HIV infection,* by race/ethnicity and selected characteristics — United States, 2012

	Black/African American			Hispanic/Latino			White			Total†		
Characteristic	No.§	Rate per 100,000 pop.	Rate per 1,000 PLWH¶	No.§	Rate per 100,000 pop.	Rate per 1,000 PLWH¶	No.§	Rate per 100,000 pop.	Rate per 1,000 PLWH¶	No.§	Rate per 100,000 pop.	Rate per 1,000 PLWH¶
Age at death (yrs)												
13–24	141	1.8	4.7	33	0.3	3.7	30	0.1	4.1	215	0.4	4.4
25–34	710	13.0	10.8	205	2.4	6.4	254	1.0	8.2	1,227	2.9	9.0
35–44	1,324	26.0	14.1	417	5.5	7.9	788	3.2	11.7	2,696	6.7	11.9
45–54	2,698	50.0	21.0	927	15.7	15.4	2,160	7.2	17.9	6,123	13.8	18.9
≥55	3,292	41.8	41.3	1,003	14.8	31.5	2,194	3.5	29.6	6,905	8.4	35.7
Transmission category												
Males												
Male-to-male sexual contact	2,257	—	15.3	940	—	9.4	3,189	—	15.1	6,777	—	14.0
Injection drug use	1,448	—	33.1	584	—	26.1	530	—	33.8	2,723	—	32.1
Male-to-male sexual contact and injection drug use	456	—	27.7	215	—	22.0	530	—	24.3	1,303	—	25.3
Heterosexual contact	1,182	—	24.6	205	—	14.8	254	—	26.7	1,719	—	23.2
Other**	40	—	12.2	18	—	12.4	57	—	25.5	124	—	17.0
Subtotal	**5,383**	**36.4**	**20.8**	**1,962**	**9.7**	**13.3**	**4,559**	**5.5**	**17.5**	**12,645**	**9.9**	**18.0**
Females												
Injection drug use	847	—	29.2	251	—	26.3	401	—	30.8	1,611	—	29.7
Heterosexual contact	1,894	—	17.9	359	—	12.9	451	—	17.5	2,832	—	17.0
Other**	42	—	11.6	15	—	11.7	14	—	13.3	79	—	12.6
Subtotal	**2,782**	**16.7**	**20.1**	**625**	**3.2**	**16.2**	**866**	**1.0**	**21.7**	**4,521**	**3.4**	**19.9**
Total	**8,165**	**26.0**	**20.5**	**2,586**	**6.5**	**13.9**	**5,426**	**3.2**	**18.1**	**17,166**	**6.6**	**18.5**

Abbreviations: HIV = human immunodeficiency virus; PLWH = persons living with diagnosed HIV infection.

* Data include persons with diagnosed HIV infection regardless of stage of disease at diagnosis. Deaths of persons with a diagnosis of HIV infection might have resulted from any cause.

† Includes other races.

§ Estimates include statistical adjustment that accounted for reporting delays and missing transmission category, but not for incomplete reporting.

¶ Rate per 1,000 population aged ≥13 years living with diagnosed HIV infection (PLWH). Denominator was estimated as (no. PLWH at the end of [year X-1]) + (no. new diagnoses during year X).

** Includes hemophilia, blood transfusion, perinatal exposure, and risks factor not reported or not identified.

The findings in this report are subject to at least one limitation. The report evaluates all-cause mortality in persons living with HIV and does measure mortality resulting from HIV. Therefore, the report does not allow for any direct evaluation of possible differences in quality of care among persons living with HIV, by race/ethnicity. However, because HIV infection causes immune suppression, which in turn results in fatal comorbidities such as cancers and opportunistic infections, all-cause mortality likely is a better indicator of the actual mortality experience than cause-specific mortality.

CDC, with its partners, has been pursuing a high-impact prevention approach to advance the goals of the National HIV/AIDS Strategy and to maximize the effectiveness of current HIV prevention and care methods (*3*). CDC also supports projects focused on blacks aimed at optimizing outcomes along the continuum of care, such as HIV testing (the first essential step for entry into the continuum of care) and projects that support linkage to, retention in, and return to care for all persons infected with HIV (*8*). The results of the analyses

What is already known on this topic?

In 2012, blacks accounted for 47% of persons who received a human immunodeficiency virus (HIV) diagnosis, and in 2011, they accounted for 43% of persons living with HIV. During 2008–2011 more deaths among black persons living with HIV occurred each year than among any other race/ethnicity.

What is added by this report?

During 2009–2012, the number of deaths among black persons living with HIV declined 18%, and the rate of death per 1,000 persons living with HIV declined 28%. In 2012, the number of deaths per 1,000 black persons living with HIV was 20.5 among blacks compared with 18.1 among whites and 13.9 among Hispanics or Latinos.

What are the implications for public health practice?

To achieve the National HIV/AIDS strategy's objective of reducing health disparities, efforts are needed to increase entry into and retention in care of black persons living with diagnosed HIV. Rates of death caused by HIV infection vary by geographic area, and efforts tailored to each area's unique needs and situations might be needed to reduce the rates of early deaths among blacks.

TABLE 3. Estimated number and rate of deaths of persons aged ≥13 years with diagnosed HIV infection,* by race/ethnicity and state/area of residence — United States, 2012

	Black/African American			Hispanic/Latino			White			Total†		
State/Area	No.§	Rate per 100,000 pop.	Rate per 1,000 PLWH¶	No.§	Rate per 100,000 pop.	Rate per 1,000 PLWH¶	No.§	Rate per 100,000 pop.	Rate per 1,000 PLWH¶	No.§	Rate per 100,000 pop.	Rate per 1,000 PLWH¶
Alabama	212	20.7	26.8	4	2.6	10.7	103	3.8	28.9	333	8.3	27.1
Alaska	1	5.2	14.5	1	4.1	21.1	7	1.8	23.2	13	2.3	21.1
Arizona	26	12.4	19.7	45	3.1	12.0	134	4.1	19.0	223	4.1	17.2
Arkansas	40	11.3	18.0	3	2.3	11.3	49	2.6	20.3	99	4.1	19.4
California	369	20.0	17.6	468	4.2	11.7	831	6.3	16.2	1,786	5.7	14.9
Colorado	15	9.5	9.5	28	3.4	12.0	56	1.8	7.6	106	2.5	9.1
Connecticut	72	25.1	21.1	46	11.8	13.7	77	3.5	22.5	200	6.6	19.1
Delaware	47	29.8	24.4	3	4.5	10.8	10	1.9	11.7	60	7.8	19.6
District of Columbia	255	98.4	21.7	17	34.1	17.0	19	9.4	7.8	298	54.0	18.9
Florida	1,147	47.6	23.5	306	8.4	14.7	538	5.5	18.8	2,047	12.4	20.3
Georgia	442	18.3	16.5	23	3.5	6.5	128	2.7	16.3	613	7.6	15.4
Hawaii	1	6.7	13.0	2	2.4	10.1	9	3.2	7.5	20	1.7	8.3
Idaho	0	0.0	0.0	0	0.0	0.0	20	1.8	29.3	20	1.5	22.9
Illinois	270	18.1	16.1	62	4.0	10.2	154	2.2	15.0	530	5.0	15.1
Indiana	65	13.7	19.2	6	2.2	8.8	106	2.4	21.3	187	3.5	19.8
Iowa	6	8.2	16.6	0	0.0	0.0	25	1.1	19.8	33	1.3	17.5
Kansas	14	10.4	18.8	4	2.0	10.4	26	1.4	17.3	49	2.1	17.2
Kentucky	50	18.0	26.4	2	2.5	7.4	79	2.5	23.9	135	3.7	23.5
Louisiana	337	28.8	26.1	7	4.0	8.3	114	4.9	23.7	471	12.4	24.9
Maine	0	0.0	0.0	0	0.0	0.0	8	0.8	8.5	10	0.9	8.2
Maryland	555	39.2	23.2	27	7.1	16.7	103	3.8	21.7	736	15.0	23.2
Massachusetts	54	15.2	9.7	63	12.2	13.4	121	2.8	14.8	244	4.3	12.8
Michigan	223	19.8	26.0	9	2.8	12.7	96	1.5	19.4	344	4.2	22.9
Minnesota	29	13.8	12.3	5	2.7	7.5	57	1.5	15.5	96	2.2	13.5
Mississippi	175	20.0	26.6	7	11.6	30.7	48	3.3	26.8	235	9.6	26.1
Missouri	94	16.9	18.2	6	3.4	9.0	115	2.8	19.8	222	4.4	18.6
Montana	0	0.0	0.0	1	4.9	62.0	4	0.6	13.5	6	0.7	14.0
Nebraska	4	6.9	9.3	1	0.9	4.7	13	1.0	12.8	22	1.4	12.0
Nevada	42	23.2	25.3	35	6.4	20.9	75	5.9	20.2	159	7.0	21.2
New Hampshire	0	0.0	0.0	3	8.6	17.4	12	1.2	15.0	16	1.4	13.6
New Jersey	416	44.1	22.4	141	10.9	14.4	155	3.5	19.3	759	10.2	19.5
New Mexico	3	10.9	25.7	24	3.2	19.0	16	2.2	17.3	54	3.2	20.7
New York	1,081	45.5	20.2	731	25.9	16.9	372	3.8	14.0	2,409	14.6	18.3
North Carolina	351	20.6	20.1	15	2.5	8.4	148	2.7	21.8	541	6.7	20.1
North Dakota	0	0.0	0.0	0	0.0	0.0	2	0.4	15.8	2	0.4	10.6
Ohio	137	12.1	16.4	12	4.4	11.9	189	2.4	21.0	347	3.6	18.3
Oklahoma	26	11.4	20.2	5	2.1	10.6	69	3.1	22.6	117	3.7	21.5
Oregon	6	10.1	15.5	9	2.7	12.9	78	3.0	19.4	98	3.0	18.4
Pennsylvania	321	29.2	20.5	89	15.4	18.0	243	2.8	24.5	701	6.5	21.9
Rhode Island	7	14.1	13.2	2	1.9	3.8	8	1.1	8.1	18	1.9	8.3
South Carolina	216	20.4	19.8	6	3.5	10.6	67	2.6	18.8	291	7.4	18.9
South Dakota	0	0.0	0.0	0	0.0	0.0	5	0.8	18.0	7	1.0	15.3
Tennessee	247	28.4	26.6	4	1.9	6.3	178	4.3	30.2	437	8.1	26.8
Texas	514	21.0	19.2	323	4.4	14.7	456	4.6	21.0	1,394	6.6	19.0
Utah	2	10.1	10.1	1	0.5	2.5	16	0.9	9.2	24	1.1	9.4
Vermont	0	0.0	0.0	0	0.0	0.0	3	0.5	6.6	4	0.7	7.9
Virginia	234	18.2	17.8	26	5.1	15.7	99	2.2	14.9	377	5.5	16.9
Washington	17	8.4	10.4	6	1.0	4.1	134	3.1	18.0	172	3.0	15.2
West Virginia	13	23.7	28.9	2	12.1	37.1	16	1.1	15.0	32	2.0	19.6
Wisconsin	27	9.9	13.3	6	2.6	9.6	29	0.7	11.5	65	1.4	11.8
Wyoming	0	0.0	0.0	0	0.0	0.0	5	1.1	27.4	5	1.0	19.2
Total	**8,165**	**26.0**	**20.5**	**2,586**	**6.5**	**13.9**	**5,426**	**3.2**	**18.1**	**17,166**	**6.6**	**18.5**

Abbreviations: HIV = human immunodeficiency virus; PLWH = persons living with diagnosed HIV infection.

* Data include persons with diagnosed HIV infection regardless of stage of disease at diagnosis. Deaths of persons with a diagnosis of HIV infection might have resulted from any cause.

† Includes other races.

§ Estimates include statistical adjustment that accounted for reporting delays, but not for incomplete reporting.

¶ Rate per 1,000 population aged ≥13 years living with diagnosed HIV infection (PLWH). Denominator was estimated as (no. PLWH at the end of [year X-1]) + (no. new diagnoses during year X).

in this report show that, although disparities in mortality by race/ethnicity persist, the overall outlook for all persons living with HIV has improved, and the gaps between different races/ethnicities have narrowed. Focusing prevention and care efforts on minority populations with a disproportionate HIV burden could lead to further reduction, if not elimination, of health disparities, such as higher mortality, and help achieve the goals of the National HIV/AIDS Strategy.

[1]Division of HIVAIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, CDC (Corresponding author: Azfar-e-Alam Siddiqi, asiddiqi@cdc.gov, 404-639-5353)

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HIV Testing and Service Delivery Among Blacks or African Americans — 61 Health Department Jurisdictions, United States, 2013

Puja Seth, PhD[1], Tanja Walker, MPH[1], NaTasha Hollis, PhD[1], Argelia Figueroa, MS[1], Lisa Belcher, PhD[1] (Author affiliations at end of text)

In the United States, approximately 1.2 million persons are living with human immunodeficiency virus (HIV), of whom approximately 14.0% have not received a diagnosis. Some groups are disproportionately affected by HIV, such as persons who self-identify as blacks or African Americans (in this report referred to as blacks). Blacks accounted for 12.0% of the United States' population but accounted for 41.0% of persons living with HIV in 2011 (*1*). HIV testing is critical to identify those who are infected and link them to HIV medical care for their own health and to reduce transmission to partners (*2,3*). To assess progress toward increasing HIV testing and service delivery among blacks in 2013, CDC analyzed national-level program data submitted by 61 health departments* and 151 directly funded community-based organizations through the National HIV Prevention Program Monitoring and Evaluation system. This report describes the results of that analysis, which found that, in 2013, blacks accounted for 45.0% of CDC-funded HIV testing events (TEs)† and more than half (54.9%) of all newly identified HIV-positive persons (in this report referred to as new positives). Among blacks, gay, bisexual, and other men who have sex with men (collectively referred to as MSM) had the highest percentage of new positives (9.6%). Broader implementation of routine HIV screening and HIV testing targeted towards populations at high risk can help identify persons with undiagnosed HIV infection and link these persons to HIV medical care and prevention services. Linkage to medical care and referrals to HIV partner services and HIV prevention services among blacks could be improved.

In 2013, CDC funded 61 health departments and 151 community-based organizations to provide HIV testing and HIV-related services in the United States. National HIV Prevention Program Monitoring and Evaluation data for CDC-funded HIV TEs and other HIV program activities are collected locally using a CDC-provided semi-standard template. Data are submitted without personal identifiers through a secure, online, CDC-supported system. CDC uses these data for monitoring and evaluation of HIV testing and HIV-related service delivery.

Valid HIV TEs were defined as tests for which either a test technology (e.g., conventional, rapid, nucleic acid amplification, or other testing) or test result (positive, negative, indeterminate, or invalid) was reported. Persons who tested HIV-positive but did not report a previous HIV-positive test result were categorized as new positives. HIV service delivery among these persons included linkage to HIV medical care (i.e., attendance at first medical appointment), referral and interview for partner services (i.e., to help persons living with HIV notify sex and drug-injecting partners of possible HIV exposure, to offer services that can protect the health of partners, and to prevent sexually transmitted disease reinfection) (*4*), and referral to HIV prevention services (i.e., services or interventions directly aimed at reducing the risk for transmitting or acquiring HIV) (*5*).

Analyses included data submitted to CDC as of June 2, 2014, which were stratified by age, sex, U.S. Census region, and selected target populations (MSM, heterosexual males, and heterosexual females).§ The percentage of missing data ranged from 8.8% to 32.8% across several service delivery indicators. CDC requires target population data for all HIV TEs in non–health care settings and only for HIV-positive TEs in health care settings (N = 424,497).¶**

In 2013, CDC funded 3,343,633 HIV TEs in the United States. Blacks accounted for 45.0% (1,506,016) of all CDC-funded HIV TEs, the largest proportion of any racial/ethnic group. Blacks accounted for 51.5% and 47.1% of TEs among all persons aged 13–19 and 20–29 years, respectively. They also

* Grantees include health departments in the 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and eight directly funded city/county health departments (Baltimore, Maryland; Chicago, Illinois; Fulton County, Georgia; Houston, Texas; Los Angeles County, California; New York, New York; Philadelphia, Pennsylvania; and San Francisco, California).

† An HIV testing event is one or more HIV tests performed to determine a person's HIV status. During one TE, a person might be tested once (e.g., one rapid test or one conventional test) or multiple times (e.g., one rapid test followed by one conventional test to confirm a preliminary HIV-positive test result). Valid HIV TEs were defined as tests for which either a test technology (conventional, rapid, nucleic acid amplification, or other testing) or test result (positive, negative, indeterminate, or invalid) was reported.

§ MSM are males who reported male-to-male sexual contact in the past 12 months. Heterosexual males are males who only reported contact with a female in the past 12 months. Heterosexual females are females who only reported contact with a male in the past 12 months.

¶ A health care setting is defined as a site that provides medical diagnostic and treatment services (e.g., inpatient facilities, outpatient facilities, and emergency departments). A non–health care setting is a site that does not provide medical diagnostic and treatment services (e.g., HIV counseling and testing sites and community settings).

** Other target populations and missing data among blacks accounted for 31.0% of HIV testing events (transgender = 0.4%, persons who inject drugs = 1.1%, persons not reporting sex with male or female or injection drug use (i.e., no risk behavior) = 9.9%, and missing = 19.6%).

accounted for 47.0% of TEs among females and 52.5% of TEs in the South. Finally, among target populations, 23.3% of TEs among MSM were among black MSM, and 52.4% and 52.0% of TEs among heterosexual males and females, respectively, were among blacks (Table 1).

Of the 1,506,016 TEs among blacks, most were among persons aged 20–29 years (42.5%) and persons living in the South (66.1%). More females (52.7%) were tested than males (46.9%). Of the 424,497 TEs with target population information, heterosexual females accounted for 32.1%. MSM and heterosexual males accounted for 8.8% and 28.1%, respectively (Table 2).

Among CDC-funded TEs in 2013, blacks accounted for 54.9% of all new positives. Blacks accounted for 68.9% and 57.9% of new positives among all persons aged 13–19 and 20–29 years, respectively. They also accounted for 68.9% of new positives among women and 65.8% of new positives in the South. Among target populations, 45.2% of new positive MSM were black, and 71.6% and 70.2% of new positive heterosexual males and females, respectively, were black (Table 1).

New positives accounted for 0.64% (9,571 of 1,506,016) of TEs among blacks. Among blacks, the HIV positivity for new positives was highest among MSM (9.6%). Although MSM accounted for 8.8% (37,222 of 424,497) of HIV TEs among blacks, they accounted for 37.3% (3,570 of 9,571) of new positive blacks. Among new positive blacks, 53.5% were linked to medical care within any timeframe after their HIV diagnosis; 44.5% were linked to medical care within 90 days; 65.8% were referred to HIV partner services; 46.4% were interviewed for HIV partner services, and 53.6% were referred to HIV prevention services. HIV service delivery was generally comparable by age group and sex, but the Midwest and South lagged in HIV service delivery. Overall, a higher percentage of new positive black MSM than heterosexual males and females were linked to HIV medical care, referred to and interviewed for HIV partner services, and referred to HIV prevention services (Table 2).

Discussion

Blacks are disproportionately affected by HIV. In 2011, blacks accounted for 41% of all persons living with HIV in the United States (*1*). In 2012, the rate of HIV diagnoses was 58.3 per 100,000 for blacks, in comparison with 18.5 for

TABLE 1. Number and percentage of HIV testing events and newly identified HIV-positive persons among blacks or African Americans, in comparison with all CDC-funded HIV testing events, by selected characteristics — United States, Puerto Rico, and the U.S. Virgin Islands, 2013*

	HIV testing events			Newly identified HIV-positive persons		
		HIV testing events among blacks			Newly identified HIV-positive blacks	
Characteristic	All CDC-funded HIV testing events	No.	(%)	All newly identified HIV-positive persons	No.	(%)
Age group (yrs)						
13–19	279,412	143,797	(51.5)	579	399	(68.9)
20–29	1,358,687	639,706	(47.1)	6,895	3,989	(57.9)
30–39	756,782	308,182	(40.7)	4,118	1,935	(47.0)
40–49	461,696	198,277	(42.9)	3,056	1,530	(50.1)
≥50	456,169	207,908	(45.6)	2,434	1,488	(61.1)
Sex						
Male	1,632,645	706,148	(43.3)	13,976	7,224	(51.7)
Female	1,687,367	793,894	(47.0)	3,188	2,196	(68.9)
Region						
Northeast	596,617	245,322	(41.1)	2,562	1,294	(50.5)
Midwest	375,204	192,506	(51.3)	1,659	956	(57.6)
South	1,896,334	995,531	(52.5)	10,314	6,787	(65.8)
West	435,008	68,679	(15.8)	2,558	530	(20.7)
U.S. dependent areas	40,470	3,978	(9.8)	333	4	(1.2)
Target population†						
Men who have sex with men	159,560	37,222	(23.3)	7,896	3,570	(45.2)
Heterosexual males	227,758	119,403	(52.4)	2,505	1,793	(71.6)
Heterosexual females	262,154	136,205	(52.0)	2,147	1,508	(70.2)
Total	**3,343,633**	**1,506,016**	**(45.0)**	**17,426**	**9,571**	**(54.9)**

Abbreviation: HIV = human immunodeficiency virus.
Source: National HIV Prevention Program Monitoring and Evaluation system.
* HIV testing events were defined as tests for which either a test technology (conventional, rapid, nucleic acid amplification testing, or other) or test result (positive, negative, indeterminate, or invalid) was reported. Persons who tested HIV-positive but did not report a previous positive test result were categorized as newly identified HIV-positive persons.
† Data to identify target populations are required for all testing events conducted in non–health care settings but are only required for HIV-positive persons from health care settings. Therefore, for target populations, HIV testing events and newly identified HIV-positive persons represent data from non–health care settings but only positive testing events from health care settings (N = 995,834 for all CDC-funded testing events and N = 424,497 for blacks). Other target populations and missing data among blacks accounted for 31.0% of HIV testing events (transgender = 0.4%, persons who inject drugs = 1.1%, persons not reporting sex with male or female or injection drug use [i.e., no risk behavior] = 9.9%, and missing = 19.6%).

TABLE 2. Number and percentage of newly identified HIV-positive persons and HIV service delivery among newly identified HIV-positive blacks or African Americans, by selected characteristics — United States, Puerto Rico, and the U.S. Virgin Islands, 2013*

	HIV testing events among blacks†		Newly identified HIV-positive blacks		Linked to HIV medical care within any timeframe		Linked to HIV medical care within 90 days		Referred to HIV partner services		Interviewed for HIV partner services		Referred to HIV prevention services	
Characteristic	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**
Age group (yrs)														
13–19	143,797	(9.5)	399	(0.28)	216	(54.1)	179	(44.9)	287	(71.9)	191	(47.9)	218	(54.6)
20–29	639,706	(42.5)	3,989	(0.62)	2,142	(53.7)	1,783	(44.7)	2,744	(68.8)	1,852	(46.4)	2,207	(55.3)
30–39	308,182	(20.5)	1,935	(0.63)	1,055	(54.5)	873	(45.1)	1,252	(64.7)	903	(46.7)	1,011	(52.2)
40–49	198,277	(13.2)	1,530	(0.77)	777	(50.8)	647	(42.3)	916	(59.9)	668	(43.7)	725	(47.4)
≥50	207,908	(13.8)	1,488	(0.72)	795	(53.4)	653	(43.9)	899	(60.4)	663	(44.6)	765	(51.4)
Sex														
Male	706,148	(46.9)	7,224	(1.02)	3,858	(53.4)	3,200	(44.3)	4,787	(66.3)	3,333	(46.1)	3,927	(54.4)
Female	793,894	(52.7)	2,196	(0.28)	1,194	(54.4)	1,001	(45.6)	1,405	(64.0)	1,049	(47.8)	1,132	(51.5)
Region														
Northeast	245,322	(16.3)	1,294	(0.53)	844	(65.2)	746	(57.7)	947	(73.2)	681	(52.6)	977	(75.5)
Midwest	192,506	(12.8)	956	(0.50)	369	(38.6)	329	(34.4)	610	(63.8)	356	(37.2)	505	(52.8)
South	995,531	(66.1)	6,787	(0.68)	3,562	(52.5)	2,867	(42.2)	4,308	(63.5)	3,057	(45.0)	3,337	(49.2)
West	68,679	(4.6)	530	(0.77)	343	(64.7)	316	(59.6)	430	(81.1)	344	(64.9)	305	(57.5)
U.S. dependent areas	3,978	(2.6)	4	(0.10)	3	(75.0)	3	(75.0)	3	(75.0)	3	(75.0)	2	(50.0)
Target population§														
Men who have sex with men	37,222	(8.8)	3,570	(9.6)	2171	(60.8)	1,970	(55.2)	2,821	(79.0)	2,008	(56.2)	2,417	(67.7)
Heterosexual males	119,403	(28.1)	1,793	(1.5)	914	(51.0)	814	(45.4)	1,270	(70.8)	915	(51.0)	966	(53.9)
Heterosexual females	136,205	(32.1)	1,508	(1.1)	870	(57.7)	802	(53.2)	1,126	(74.7)	844	(56.0)	892	(59.2)
Total	**1,506,016**		**9,571**	**(0.64)**	**5,121**	**(53.5)**	**4,261**	**(44.5)**	**6,298**	**(65.8)**	**4,441**	**(46.4)**	**5,126**	**(53.6)**

Abbreviation: HIV = human immunodeficiency virus.
Source: National HIV Prevention Program Monitoring and Evaluation system.
* The denominator for the percentage for newly identified HIV-positive persons is HIV testing events. The denominator for the percentages of all other columns is newly identified HIV-positive persons.
† The percentages for HIV testing events are column percentages. For target populations, the denominator is 424,497, and for all other client characteristics, the denominator is 1,506,016.
§ Not required for persons who test negative in health care settings. Data to identify target populations are required for all testing events conducted in non–health care settings but are only required for HIV-positive persons from health care settings. Therefore, for target populations, HIV testing events and newly identified HIV-positive persons represent data from non–health care settings but only positive testing events from health care settings (N = 424,497). Other target populations and missing data accounted for 31.0% of HIV testing events (transgender = 0.4%, persons who inject drugs = 1.1%, persons not reporting sex with male or female or injection drug use [i.e., no risk behavior] = 9.9%, and missing = 19.6%).

Hispanics and 6.7 for whites (*6*). However, a national survey indicated that the percentage of blacks who had ever been tested increased from 57.0% during 2003–2006 to 64.0% during 2007–2010 and was highest among blacks during both periods when compared with other racial/ethnic groups (*7*). The current findings indicate that among CDC-funded HIV TEs, blacks accounted for 45.0% of HIV TEs and over half (54.9%) of all new positives in 2013. Although 8.8% of the HIV TEs among blacks were conducted among MSM, they accounted for 37.3% of all new positive blacks.

HIV testing and knowledge of HIV status are the gateway to important prevention services, and for HIV-positive persons, services along the HIV continuum of care. Early initiation and adherence to antiretroviral therapy has substantial medical benefits for HIV-positive persons and prevention benefits by reducing HIV transmission to HIV-negative partners up to 96% (*2,3*). Therefore, in addition to identifying new HIV-positive persons, it is critical to ensure all HIV-positive persons are linked to HIV medical care and receive necessary HIV prevention services. The National HIV/AIDS Strategy (*8*) has a goal for 2015 that 85.0% of persons newly diagnosed with HIV are linked to HIV medical care within 90 days of diagnosis. The current finding of 44.5% for linkage within 90 days suggests that linkage among blacks needs to be significantly improved to meet the National HIV/AIDS Strategy goal. Because rates of referrals to HIV partner services and HIV prevention services ranged from 46.4% to 65.8%, referrals to these services also could be improved.

The findings in this report are subject to at least five limitations. First, because of missing data, the service delivery data are an underestimate and represent the minimum percentage achieved, particularly for linkage to care. Second, data for target populations are only required in non–health care settings and for TEs resulting in an HIV-positive result in health care settings

What is already known on this topic?

Blacks aged 18–64 years were tested more frequently for human immunodeficiency virus (HIV) than Hispanics or whites in the past 12 months. However, about 31.0% have never been tested, and 15.0% of blacks living with HIV do not know they are infected. Undiagnosed HIV infection can significantly influence HIV transmission rates in communities. In 2011, an estimated 73,600 HIV-positive blacks living in the United States were unaware of their HIV status.

What is added by this report?

An analysis of national-level program data on HIV testing and service delivery for blacks in 2013 submitted through the National HIV Prevention Program Monitoring and Evaluation system showed that blacks accounted for 45.0% of CDC-funded HIV testing events and over half (54.9%) of all newly identified HIV-positive persons. Also, 9.6% of black men who have sex with men receiving a CDC-funded test were newly identified as HIV-positive in 2013.

What are the implications for public health practice?

Linkage to medical care and referrals to HIV partner services and other HIV prevention services among blacks who obtain HIV testing services could be improved.

(28% of TEs among blacks). Therefore, results are underreporting the number of TEs that are being conducted among these populations. Third, the percentage of missing data (19.6%) is high among target populations. Fourth, because this report focuses only on some CDC-funded HIV TEs and does not represent all HIV tests conducted in the United States, these findings might not be generalizable to the entire United States. Finally, because self-report was used to identify a new HIV diagnosis, the number of new positives reported likely represents an overestimation of new positives. Given the importance of programmatic data for effective public health monitoring and evaluation, continued technical assistance is needed to help grantees improve the completeness and accuracy of data.

Continued efforts to expand routine screening as recommended by the U.S. Preventive Services Task Force (*9*) and CDC guidelines (*10*) and to target HIV testing services toward populations at high risk, such as MSM, can help identify HIV-positive persons whose infection is undiagnosed, particularly in jurisdictions with the highest HIV prevalence among blacks. Programmatic efforts to increase prevention efforts among HIV-negative persons also are critical to reduce their risk for HIV infection. Finally, linkage to care and behavioral prevention activities for HIV-positive persons are critical to ensure receipt of key services to improve their health and to prevent HIV transmission to their partners (*5*).

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Guoshen Wang, MS, Division of HIV/AIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, CDC.

[1]Division of HIV/AIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, CDC (Corresponding author: Puja Seth, pseth@cdc.gov, 404-639-6334)

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Advisory Committee on Immunization Practices Recommended Immunization Schedule for Adults Aged 19 Years or Older — United States, 2015

David K. Kim, MD[1], Carolyn B. Bridges, MD[1], Kathleen H. Harriman, PhD[2], Advisory Committee on Immunization Practices (ACIP)*, ACIP Adult Immunization Work Group (Author affiliations at end of text)

In October 2014, the Advisory Committee on Immunization Practices (ACIP) approved the *Recommended Immunization Schedule for Adults Aged 19 Years or Older, United States, 2015*. This schedule provides a summary of ACIP recommendations for the use of vaccines routinely recommended for adults aged 19 years or older in two figures, footnotes for each vaccine, and a table that describes primary contraindications and precautions for commonly used vaccines for adults. Changes in the 2015 adult immunization schedule from the 2014 schedule included the August 2014 recommendation for routine administration of the 13-valent pneumococcal conjugate vaccine (PCV13) in series with the 23-valent pneumococcal polysaccharide vaccine (PPSV23) for all adults aged 65 years or older (*1*), the August 2014 revision on contraindications and precautions for the live attenuated influenza vaccine (LAIV) (*2*), and the October 2014 approval by the Food and Drug Administration to expand the approved age for use of recombinant influenza vaccine (RIV) (*3*). These revisions were also reviewed and approved by the American College of Physicians, American Academy of Family Physicians, American College of Obstetricians and Gynecologists, and American College of Nurse-Midwives.

Recommendations for routine use of vaccines in children, adolescents, and adults are developed by the Advisory Committee on Immunization Practices (ACIP). ACIP is chartered as a federal advisory committee to provide expert external advice and guidance to the Director of the Centers for Disease Control and Prevention (CDC) on use of vaccines and related agents for the control of vaccine-preventable diseases in the civilian population of the United States. Recommendations for routine use of vaccines in children and adolescents are harmonized to the greatest extent possible with recommendations made by the American Academy of Pediatrics (AAP), the American Academy of Family Physicians (AAFP), and the American College of Obstetricians and Gynecologists (ACOG). Recommendations for routine use of vaccines in adults are harmonized with recommendations of AAFP, ACOG, and the American College of Physicians (ACP). ACIP recommendations adopted by the CDC Director become agency guidelines on the date published in the Morbidity and Mortality Weekly Report (MMWR). Additional information regarding ACIP is available at http://www.cdc.gov/vaccines/acip.

The 2015 adult immunization schedule contains the following changes from the 2014 schedule:

- Figure 1, the recommended adult immunization schedule by vaccine and age group, has been revised to designate PCV13 for adults aged 65 years or older as "recommended" (from the previous "recommended if some other risk is present"). Figure 2, showing vaccines that might be indicated for adults on the basis of medical and other indications, is unchanged.
- The footnotes for pneumococcal vaccination have been revised to provide algorithmic, patient-based guidance for the health care provider to arrive at appropriate vaccination decisions for individual patients.
- The footnote for influenza vaccination has been updated to indicate that adults aged 18 years or older (changed from adults aged 18 through 49 years) can receive RIV. (The upper age limit for LAIV remains 49 years.) A list of currently available influenza vaccines is available at http://www.cdc.gov/flu/protect/vaccine/vaccines.htm.
- Table 1, showing contraindications and precautions to commonly used vaccines in adults, has been revised to update the section on LAIV to reflect the changes in the ACIP recommendations for the 2014–15 influenza season. These changes include moving "influenza antiviral use within the last 48 hours" from the precautions column to the contraindications column, and moving asthma and chronic lung diseases; cardiovascular, renal, and hepatic diseases; and diabetes and other conditions from the contraindications column to the precautions column. Immune suppression, egg allergy, and pregnancy remain contraindications for LAIV.

Details on these updates and information on other vaccines recommended for adults are available under *Adult Immunization Schedule, United States, 2015* at http://www.cdc.gov/vaccines/schedules and in the *Annals of Internal Medicine* (*4*). The full ACIP recommendations for each vaccine are not included in the schedule because of space limitations but are available at http://www.cdc.gov/vaccines/hcp/acip-recs/index.html.

* Current and past ACIP member rosters are available at http://www.cdc.gov/vaccines/acip/committee/members-archive.html.

[1]Immunization Services Division, National Center for Immunization and Respiratory Diseases, CDC; [2]California Department of Public Health (Corresponding author: David K. Kim, dkim@cdc.gov, 404-639-0969)

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ACIP Adult Immunization Work Group

Work Group Chair: Kathleen Harriman, PhD, Richmond, California.

Work Group Members: John Epling, MD, Syracuse, New York; Sandra Fryhofer, MD, Atlanta, Georgia; Jane Kim, MD, Durham, North Carolina; Laura Pinkston Koenigs, MD, Springfield, Massachusetts; Marie-Michele Leger, MPH, Alexandria, Virginia; Susan M. Lett, MD, Boston, Massachusetts; Robert Palinkas, MD, Urbana, Illinois; Gregory Poland, MD, Rochester, Minnesota; Joni Reynolds, MPH, Denver, Colorado; Laura E. Riley, MD, Boston, Massachusetts; William Schaffner, MD, Nashville, Tennessee; Kenneth Schmader, MD, Durham, North Carolina; Rhoda Sperling, MD, New York, New York.

Work Group Contributors: Carolyn B. Bridges, MD, Atlanta, Georgia; Elizabeth Briere, MD, Atlanta, Georgia; Amy Fiebelkorn, MPH, Atlanta, Georgia; Lisa Grohskopf, MD, Atlanta, Georgia; Craig Hales, MD, Atlanta, Georgia; Rafael Harpaz, MD, Atlanta, Georgia; Charles LeBaron, MD, Atlanta, Georgia; Jennifer L. Liang, DVM, Atlanta, Georgia; Jessica MacNeil, MPH, Atlanta, Georgia; Lauri Markowitz, MD, Atlanta, Georgia; Matthew Moore, MD, Atlanta, Georgia; Tamara Pilishvili, MPH, Atlanta, Georgia; Sarah Schillie, MD, Atlanta, Georgia; Raymond A. Strikas, MD, Atlanta, Georgia; Walter W. Williams, MD, Atlanta, Georgia.

Work Group Consultants: Tamera Coyne-Beasley, MD, Chapel Hill, North Carolina; Molly Howell, MPH, Bismarck, North Dakota; Linda Kinsinger, MD, Durham, North Carolina; Terri Murphy, MSN, Durham, North Carolina; Diane Peterson, Saint Paul, Minnesota; Litjen Tan, PhD, Chicago, Illinois.

Work Group Secretariat: David K. Kim, MD, Atlanta, Georgia.

Advisory Committee on Immunization Practices Recommended Immunization Schedules for Persons Aged 0 Through 18 Years — United States, 2015

Raymond A. Strikas, MD[1], Advisory Committee on Immunization Practices (ACIP),* ACIP Child/Adolescent Immunization Work Group
(Author affiliations at end of text)

Each year, the Advisory Committee on Immunization Practices (ACIP) reviews the recommended immunization schedules for persons aged 0 through 18 years to ensure that the schedules reflect current recommendations for Food and Drug Administration–licensed vaccines. In October 2014, ACIP approved the recommended immunization schedules for persons aged 0 through 18 years for 2015, which include several changes from the 2014 immunization schedules. For 2015, the figures, footnotes, and tables are being published on the CDC immunization schedule website (http://www.cdc.gov/vaccines/schedules/index.html). This provides readers electronic access to the most current version of the schedules and footnotes on the CDC website. Health care providers are advised to use figures, tables, and the combined footnotes together. Printable versions of the 2015 immunization schedules for persons aged 0 through 18 years also are available at the website in several formats, including portrait, landscape, and pocket-sized versions. Ordering instructions for laminated versions and "parent-friendly" schedules also are available at the immunization schedule website.

For further guidance on use of each vaccine included in the schedules, including contraindications and precautions when using a vaccine, health care providers are referred to the respective ACIP vaccine recommendations at http://www.cdc.gov/vaccines/hcp/acip-recs. In addition, changes in recommendations for specific vaccines can occur between annual updates to the childhood/adolescent immunization schedules.

These immunization schedules are approved by ACIP (http://www.cdc.gov/vaccines/acip/index.html), the American Academy of Pediatrics (http://www.aap.org), the American Academy of Family Physicians (http://www.aafp.org), and the American College of Obstetricians and Gynecologists (http://www.acog.org).

The most current immunization schedules can be found on the Vaccines and Immunizations pages of CDC's website (http://www.cdc.gov/vaccines/schedules). If errors or omissions are discovered, CDC posts revised versions on these web pages. CDC encourages organizations that previously have relied on copying the schedules on their websites to instead use syndication to consistently display schedules that are current. This is a more reliable and accurate method and ensures that the most current and accurate immunization schedules are on each organization's website.

Use of content syndication requires a one-time step that ensures that an organization's website displays current schedules as soon as they are published or revised. Instructions for the syndication code are available at http://www.cdc.gov/vaccines/schedules/syndicate.html. CDC offers technical assistance for implementing this form of content syndication. Assistance from a website staff member is available via e-mail at ncirdwebteam@cdc.gov.

Changes to the previous schedules† include the following:

- Figure 1, "Recommended Immunization Schedule for Persons Aged 0 through 18 Years" was modified to highlight the recommendations for influenza vaccination for children 1) for live attenuated influenza vaccine, which may only be administered beginning at age 2 years, and 2) for children aged 6 months through 8 years, who need 2 doses of influenza vaccine in the first year vaccinated, and in subsequent years only require 1 dose of vaccine.

Recommendations for routine use of vaccines in children, adolescents, and adults are developed by the Advisory Committee on Immunization Practices (ACIP). ACIP is chartered as a federal advisory committee to provide expert external advice and guidance to the Director of the Centers for Disease Control and Prevention (CDC) on use of vaccines and related agents for the control of vaccine-preventable diseases in the civilian population of the United States. Recommendations for routine use of vaccines in children and adolescents are harmonized to the greatest extent possible with recommendations made by the American Academy of Pediatrics (AAP), the American Academy of Family Physicians (AAFP), and the American College of Obstetrics and Gynecology (ACOG). Recommendations for routine use of vaccines in adults are harmonized with recommendations of AAFP, ACOG, the American College of Physicians (ACP), and the American College of Nurse Midwives (ACNM). ACIP recommendations adopted by the CDC Director become agency guidelines on the date published in the Morbidity and Mortality Weekly Report (MMWR). *Additional information regarding ACIP is available at http://www.cdc.gov/vaccines/acip.*

* Current and past Advisory Committee on Immunization Practices member rosters are available at http://www.cdc.gov/vaccines/acip/committee/members-archive.html.

† Past immunization schedules are available at http://www.cdc.gov/vaccines/schedules/past.html.

Therefore, the gold bar for live attenuated influenza vaccine (LAIV) or inactivated influenza vaccine (IIV) 1 or 2 doses extends from 2 through 8 years (midpoint of column for 7–10 years) and a new gold bar (1 dose) extends from 9 to 18 years to reflect these changes.

- A purple bar was added for measles-mumps-rubella (MMR) vaccine for children aged 6–11 months, denoting the recommendation to vaccinate such children if they will travel or live abroad.
- Pages 4 through 6 contain combined footnotes for each vaccine related to routine vaccination, catch-up vaccination,[§] and vaccination of persons with high-risk medical conditions or special circumstances.
- Standardized formatting is used for footnotes for each vaccine to reflect the number of vaccine doses in a particular series.
- The diphtheria/tetanus/acellular pertussis (DTaP) vaccine footnote has language added stating if the fourth dose DTaP vaccine was administered 4 months or more after the third dose, at an appropriate age, it can be counted as a valid dose, and need not be repeated after the recommended 6-month interval between doses 3 and 4.
- The meningococcal conjugate vaccine footnote was revised to more clearly present recommendations for use of MenACWY-CRM, MenACWY-D, and Hib-MenCY-TT in children aged 2 months and older with anatomic or functional asplenia, or with persistent complement deficiencies.
- The influenza vaccine footnote was updated to reflect revised contraindications for LAIV: LAIV should not be administered to some persons, including 1) persons who have experienced severe allergic reactions to LAIV, any of its components, or to a previous dose of any other influenza vaccine; 2) children aged 2 through 17 years receiving aspirin or aspirin-containing products; 3) persons who are allergic to eggs; 4) pregnant women; 5) immunosuppressed persons; 6) children aged 2 through 4 years with asthma or who had wheezing in the past 12 months; and 7) persons who have taken influenza antiviral medications in the previous 48 hours. All other contraindications and precautions to use of LAIV are available at http://www.cdc.gov/mmwr/pdf/wk/mm6332.pdf.
- The pneumococcal vaccine footnote was updated to provide clearer guidance for vaccination of persons with high-risk conditions:
  - Administer 1 dose of PCV13 if any incomplete schedule of 3 doses of PCV (PCV7 and/or PCV13) was received previously.
  - Administer 2 doses of PCV13 at least 8 weeks apart if unvaccinated or any incomplete schedule of fewer than 3 doses of PCV (PCV7 and/or PCV13) was received previously.
- Figure 2, Catch-Up Immunization Schedule: *Haemophilus influenzae* type b (Hib) conjugate vaccine, pneumococcal conjugate vaccine, and tetanus, diphtheria, acellular pertussis (Tdap), and varicella vaccine catch-up schedules were updated to provide more clarity. Minimum ages were noted as "not-applicable" for children aged 7 years and older for hepatitis A and B, polio, meningococcal, MMR, and varicella vaccines.

In addition to the updated schedule figures and footnotes, CDC has developed "job-aids" with detailed scenarios by age group and previous doses of vaccine received for DTaP, Hib, and pneumococcal conjugate vaccines. These materials should assist health care providers in interpreting Figure 2, the Childhood/Adolescent Immunization catch-up schedule. The job-aids are available at http://www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html.

[§] For persons aged 4 months through 18 years who start late or who are more than 1 month behind in receiving recommended vaccinations.

[1]Immunization Services Division, National Center for Immunization and Respiratory Diseases, CDC (Corresponding author: Raymond A. Strikas, ras8@cdc.gov, 404-639-6465)

ACIP Child/Adolescent Immunization Work Group

Work Group chair: Jose Romero, MD, Little Rock, Arkansas (ACIP).

Work Group members: Allison Kempe, MD, Aurora, Colorado (ACIP); Cynthia Pellegrini, Washington, DC (ACIP); H. Cody Meissner, MD, Boston, Massachusetts; Amy B. Middleman, Oklahoma City, Oklahoma; Susan Lett, MD, Boston, Massachusetts; Diane Peterson, Saint Paul, Minnesota; Chris Barry, MMSc, Raleigh, North Carolina; Everett Schlamm, MD, Verona, New Jersey; Katie Brewer, MSN, Silver Spring, Maryland; Patricia Stinchfield, MPH, Saint Paul, Minnesota; Rosemary Spence, MA, Denver, Colorado; William L. Atkinson, MD, Harrisonville, Missouri; Yolanda Wimberley, MD, Atlanta, Georgia; Jennie Yoost, MD, Huntington, West Virginia.

Work Group Contributors: Andrew Kroger, MD, Atlanta, Georgia; Charles Wolfe, Atlanta, Georgia; Donna Weaver, MN, Atlanta, Georgia; JoEllen Wolicki, Atlanta, Georgia; Akiko Wilson, Atlanta, Georgia; Jennifer Hamborsky, MPH, Atlanta, Georgia, Suzanne Johnson-DeLeon, Atlanta, Georgia.

Vaccination Coverage Among Adults, Excluding Influenza Vaccination — United States, 2013

Walter W. Williams, MD[1], Peng-Jun Lu, MD, PhD[1], Alissa O'Halloran, MSPH[1], Carolyn B. Bridges, MD[1], David K. Kim, MD[1], Tamara Pilishvili, MPH[2], Craig M. Hales[3], MD, Lauri E. Markowitz, MD[4] (Author affiliations at end of text)

Vaccinations are recommended throughout life to prevent vaccine-preventable diseases and their sequelae. Adult vaccination coverage, however, remains low for most routinely recommended vaccines (*1*) and below *Healthy People 2020* targets.* In October 2014, the Advisory Committee on Immunization Practices (ACIP) approved the adult immunization schedule for 2015 (*2*). With the exception of influenza vaccination, which is recommended for all adults each year, other adult vaccinations are recommended for specific populations based on a person's age, health conditions, behavioral risk factors (e.g., injection drug use), occupation, travel, and other indications (*2*). To assess vaccination coverage among adults aged ≥19 years for selected vaccines, CDC analyzed data from the 2013 National Health Interview Survey (NHIS). This report highlights results of that analysis for pneumococcal, tetanus toxoid–containing (tetanus and diphtheria vaccine [Td] or tetanus and diphtheria with acellular pertussis vaccine [Tdap]), hepatitis A, hepatitis B, herpes zoster (shingles), and human papillomavirus (HPV) vaccines by selected characteristics (age, race/ethnicity,† and vaccination indication). Influenza vaccination coverage estimates for the 2013–14 influenza season have been published separately (*3*). Compared with 2012 (*1*), only modest increases occurred in Tdap vaccination among adults aged ≥19 years (a 2.9 percentage point increase to 17.2%), herpes zoster vaccination among adults aged ≥60 years (a 4.1 percentage point increase to 24.2%), and HPV vaccination among males aged 19–26 years (a 3.6 percentage point increase to 5.9%); coverage among adults in the United States for the other vaccines did not improve. Racial/ethnic disparities in coverage persisted for all six vaccines and widened for Tdap and herpes zoster vaccination. Increases in vaccination coverage are needed to reduce the occurrence of vaccine-preventable diseases among adults. Awareness of the need for vaccines for adults is low among the general population, and adult patients largely rely on health care provider recommendations for vaccination. The Community Preventive Services Task Force and the National Vaccine Advisory Committee have recommended that health care providers incorporate vaccination needs assessment, recommendation, and offer of vaccination into every clinical encounter with adult patients to improve vaccination rates and to narrow the widening racial/ethnic disparities in vaccination coverage (*4,5*).

The NHIS collects information about the health and health care of the noninstitutionalized U.S. civilian population using nationally representative samples. In-person interviews are conducted by the U.S. Census Bureau for CDC's National Center for Health Statistics. Questions about receipt of vaccinations recommended for adults are asked of one randomly selected adult within each family in the household. The presence of selected high-risk conditions,§ as defined by ACIP for pneumococcal disease, was determined by responses to questions in the NHIS (*2*). Comprehensive information on all high-risk conditions for hepatitis B or A were not collected in the 2013 NHIS. Analyses were conducted to estimate age at first dose of HPV vaccination using data being collected in the NHIS for the first time starting in 2013. The final sample adult component response rate for the 2013 NHIS was 61.2%. Weighted data¶ were used to produce national vaccination coverage estimates. Point estimates and estimates of corresponding variances were calculated using statistical software to account for the complex sample design. Statistical significance was defined as $p<0.05$.

Pneumococcal Vaccination Coverage

Reported pneumococcal vaccination coverage (23-valent pneumococcal polysaccharide vaccine [PPSV23] and 13-valent pneumococcal conjugate vaccine [PCV13]) among adults aged 19–64 years at high risk was 21.2% overall, similar to the estimate from 2012 (Table 1). Coverage among whites aged 19–64 years at high risk was higher (22.3%) compared with Hispanics

* *Healthy People 2020* objectives and targets for immunization and infectious diseases are available at https://www.healthypeople.gov/2020/topics-objectives/topic/immunization-and-infectious-diseases/objectives.

† Race/ethnicity was categorized as Hispanic, black, white, Asian, and "other." Persons identified as Hispanic might be of any race. Persons identified as black, white, Asian, or other race are non-Hispanic. "Other" includes American Indian/Alaska Native and multiple race. The five racial/ethnic categories are mutually exclusive.

§ Adults were considered at high risk for pneumococcal disease or its complications if they had ever been told by a doctor or other health professional that they had diabetes, emphysema, chronic obstructive pulmonary disease, coronary heart disease, angina, heart attack, or other heart condition; had a diagnosis of cancer during the previous 12 months (excluding nonmelanoma skin cancer); had ever been told by a doctor or other health professional that they had lymphoma, leukemia, or blood cancer; had been told by a doctor or other health professional that they had chronic bronchitis or weak or failing kidneys during the preceding 12 months; had an asthma episode or attack during the preceding 12 months; or were current smokers.

¶ Additional information on NHIS methods is available at http://www.cdc.gov/nchs/nhis/methods.htm.

TABLE 1. Estimated proportion of adults aged ≥19 years who received selected vaccinations, by age group, high-risk (HR) status,* and race/ethnicity† — National Health Interview Survey, United States, 2013

Characteristics	Sample size	%	(95% CI)	Difference from 2012
Pneumococcal vaccination, ever§				
19–64 yrs, HR, total	8,988	21.2	(20.2–22.3)	1.2
19–64 yrs, HR, white	5,476	22.3	(21.0–23.8)	0.9
19–64 yrs, HR, black	1,532	21.2	(18.9–23.8)	1.5
19–64 yrs, HR, Hispanic	1,339	17.9	(15.4–20.7)¶	4.1**
19–64 yrs, HR, Asian	324	11.0	(7.7–15.3)¶	-2.3
19–64 yrs, HR, others	317	19.8	(15.1–25.5)	-0.4
≥65 yrs, total	7,433	59.7	(58.3–61.2)	-0.2
≥65 yrs, white	5,270	63.6	(61.9–65.4)	-0.3
≥65 yrs, black	984	48.7	(44.8–52.6)¶	2.5
≥65 yrs, Hispanic	724	39.2	(34.7–43.8)¶	-4.3
≥65 yrs, Asian	322	45.3	(38.6–52.0)¶	4.0
≥65 yrs, others	133	54.6	(43.8–65.0)	9.9
Tetanus vaccination, past 10 yrs††				
19–49 yrs, total	16,845	62.9	(61.8–64.0)	-1.3
19–49 yrs, white	8,890	69.0	(67.7–70.4)	-0.7
19–49 yrs, black	2,506	54.1	(51.6–56.6)¶	-1.9
19–49 yrs, Hispanic	3,777	52.5	(50.4–54.6)¶	-1.4
19–49 yrs, Asian	1,222	52.7	(49.0–56.4)¶	-1.6
19–49 yrs, others	450	66.0	(59.7–71.8)	-5.9
50–64 yrs, total	8,366	64.0	(62.6–65.4)	0.5
50–64 yrs, white	5,394	67.3	(65.6–69.0)	-0.2
50–64 yrs, black	1,365	54.4	(51.0–57.7)¶	2.0
50–64 yrs, Hispanic	1,044	55.0	(50.8–59.1)¶	2.7
50–64 yrs, Asian	368	53.4	(47.3–59.4)¶	5.2
50–64 yrs, others	195	69.7	(60.5–77.6)	-0.1
≥65 yrs, total	7,236	56.4	(54.9–57.8)	1.2
≥65 yrs, white	5,111	59.6	(57.9–61.3)	1.9
≥65 yrs, black	964	40.3	(36.0–44.7)¶	-4.3
≥65 yrs, Hispanic	719	45.3	(40.7–50.0)¶	0.5
≥65 yrs, Asian	314	42.8	(36.3–49.5)¶	-3.0
≥65 yrs, others	128	72.4	(62.4–80.5)¶	22.2**
Tetanus vaccination including pertussis vaccine, past 8 yrs§§				
≥19 yrs, total	22,464	17.2	(16.5–17.9)	2.9**
≥19 yrs, white	12,992	19.7	(18.8–20.6)	3.6**
≥19 yrs, black	3,497	12.6	(11.1–14.2)¶	2.7**
≥19 yrs, Hispanic	3,972	10.2	(9.0–11.4)¶	1.5
≥19 yrs, Asian	1,466	15.5	(13.1–18.2)¶	0.8
≥19 yrs, others	537	22.4	(17.7–27.9)	0.9
≥19 yrs, living with an infant aged <1 yr	738	29.4	(25.7–33.3)	3.4
≥19 yrs, not living with an infant aged <1 yr	21,726	16.7	(16.0–17.4)	2.9**
19–64 yrs, total	17,356	18.4	(17.6–19.2)	2.8**
19–64 yrs, white	9,502	21.6	(20.6–22.6)	3.4**
19–64 yrs, black	2,747	13.6	(11.9–15.5)¶	3.2**
19–64 yrs, Hispanic	3,442	10.5	(9.2–11.8)¶	1.2
19–64 yrs, Asian	1,208	16.2	(13.6–19.1)¶	-0.1
19–64 yrs, others	457	22.8	(17.7–29.0)	0.1
19–64 yrs, living with an infant aged <1 yr	728	29.6	(25.9–33.6)	3.7
19–64 yrs, not living with an infant aged <1 yr	16,628	17.8	(17.1–18.6)	2.7**
≥65 yrs, total	5,108	11.9	(10.7–13.1)	3.9**
≥65 yrs, white	3,490	13.0	(11.6–14.5)	4.1**
≥65 yrs, black	750	6.5	(4.1–10.2)¶	0.6
≥65 yrs, Hispanic	530	7.3	(4.7–11.2)¶	4.0**

See table footnotes on page 97.

TABLE 1. (*Continued*) Estimated proportion of adults aged ≥19 years who received selected vaccinations, by age group, high-risk (HR) status,* and race/ethnicity† — National Health Interview Survey, United States, 2013

Characteristics	Sample size	%	(95% CI)	Difference from 2012
≥65 yrs, Asian	258	11.1	(6.5–18.2)	6.9**
≥65 yrs, others	80	18.3	(9.9–31.5)	—¶¶
≥65 yrs, living with an infant aged <1 yr	10	—¶¶	—¶¶	—¶¶
≥65 yrs, not living with an infant aged <1 yr	5,098	11.9	(10.7–13.2)	3.9**
Hepatitis A vaccination (≥2 doses), ever***				
≥19 yrs, total	29,751	9.0	(8.5–9.5)	0.1
≥19 yrs, had traveled outside the United States to countries other than Europe, Japan, Australia, New Zealand, or Canada since 1995	9,249	15.9	(14.8–17.0)	-0.2
≥19 yrs, had not traveled outside the United States to countries other than Europe, Japan, Australia, New Zealand, or Canada since 1995	20,457	5.7	(5.3–6.1)†††	0.1
≥19 yrs, with chronic liver conditions, overall	396	13.3	(9.7–17.9)	0.2
19–49 yrs, total	14,752	12.3	(11.5–13.1)	0.1
19–49 yrs, white	7,801	12.6	(11.6–13.6)	0.4
19–49 yrs, black	2,254	11.0	(9.4–12.9)	-0.3
19–49 yrs, Hispanic	3,273	10.6	(9.3–12.1)¶	0.1
19–49 yrs, Asian	1,032	16.1	(13.3–19.5)¶	-2.6
19–49 yrs, others	392	15.2	(11.4–20.1)	-0.9
19–49 yrs, had traveled outside the United States to countries other than Europe, Japan, Australia, New Zealand, or Canada since 1995	5,360	18.8	(17.3–20.3)	-0.2
19–49 yrs, had not traveled outside the United States to countries other than Europe, Japan, Australia, New Zealand, or Canada since 1995	9,372	8.6	(7.9–9.4)†††	-0.0
19–49 yrs, with chronic liver conditions, overall	122	14.5	(8.6–23.4)	—¶¶
≥50 yrs, total	14,999	5.4	(4.9–5.9)	0.2
≥50 yrs, had traveled outside the United States to countries other than Europe, Japan, Australia, New Zealand, or Canada since 1995	3,889	11.8	(10.5–13.2)	-0.2
≥50 yrs, had not traveled outside the United States to countries other than Europe, Japan, Australia, New Zealand, or Canada since 1995	11,085	2.8	(2.4–3.2)†††	0.3
≥50 yrs, with chronic liver conditions, overall	274	12.7	(8.3–18.9)	1.5
Hepatitis B vaccination				
≥19 yrs, total	30,743	25.0	(24.3–25.8)	-2.1**
≥19 yrs, had traveled outside the United States to countries other than Europe, Japan, Australia, New Zealand, or Canada since 1995	9,861	33.1	(31.8–34.5)	-1.9

See table footnotes on page 97.

TABLE 1. (*Continued*) Estimated proportion of adults aged ≥19 years who received selected vaccinations, by age group, high-risk (HR) status,* and race/ethnicity† — National Health Interview Survey, United States, 2013

Characteristics	Sample size	%	(95% CI)	Difference from 2012
≥19 yrs, had not traveled outside the United States to countries other than Europe, Japan, Australia, New Zealand, or Canada since 1995	20,830	20.9	(20.1–21.7)†††	-2.3**
≥19 yrs, with chronic liver conditions, overall	417	34.0	(28.0–40.5)	4.0
19–49 yrs, total	15,582	32.6	(31.5–33.8)	-2.6**
19–49 yrs, white	8,196	35.2	(33.8–36.7)	-2.3
19–49 yrs, black	2,360	30.5	(27.9–33.2)¶	-3.7
19–49 yrs, Hispanic	3,470	23.7	(21.7–25.8)¶	-3.4**
19–49 yrs, Asian	1,143	39.3	(35.6–43.3)¶	-0.4
19–49 yrs, others	413	34.8	(28.4–41.7)	-2.6
19–49 yrs, had traveled outside the United States to countries other than Europe, Japan, Australia, New Zealand, or Canada since 1995	5,841	39.7	(37.9–41.6)	-2.5
19–49 yrs, had not traveled outside the United States to countries other than Europe, Japan, Australia, New Zealand, or Canada since 1995	9,718	28.4	(27.2–29.7)†††	-3.0**
19–49 yrs, with chronic liver conditions, overall	121	39.5	(28.2–52.0)	-0.6
≥50 yrs, total	15,161	16.1	(15.2–17.0)	-1.2
≥50 yrs, had traveled outside the United States to countries other than Europe, Japan, Australia, New Zealand, or Canada since 1995	4,020	23.3	(21.5–25.1)	-1.3
≥50 yrs, had not traveled outside the United States to countries other than Europe, Japan, Australia, New Zealand, or Canada since 1995	11,112	13.1	(12.2–14.1)†††	-1.1
≥50 yrs, with chronic liver conditions, overall	296	31.3	(24.7–38.7)	6.8
19–59 yrs, with diabetes, overall	1,288	26.3	(23.5–29.4)	-2.3
≥60 yrs, with diabetes, overall	1,948	13.9	(12.0–16.0)	-1.2
Herpes zoster				
≥60 yrs, total	10,160	24.2	(22.9–25.6)	4.1**
≥60 yrs, white	7,124	27.4	(25.8–29.0)	4.6**
≥60 yrs, black	1,375	10.7	(8.5–13.3)¶	1.9
≥60 yrs, Hispanic	1,029	9.5	(7.4–12.1)¶	0.8
≥60 yrs, Asian	440	22.6	(18.2–27.7)	5.7
≥60 yrs, others	192	24.5	(16.7–34.3)	4.8
HPV vaccination among females (≥1 dose), ever****				
19–21 yrs, total	684	44.7	(39.9–49.6)	0.3
22–26 yrs, total	1,393	32.4	(29.0–36.0)	4.1
19–26 yrs, total	2,077	36.9	(34.0–39.9)	2.4
19–26 yrs, white	1,072	41.7	(37.6–46.0)	-0.5
19–26 yrs, black	353	30.6	(24.9–36.8)¶	1.4
19–26 yrs, Hispanic	463	30.3	(24.9–36.4)¶	11.6**
19–26 yrs, Asian	119	19.8	(12.5–29.9)¶	4.3
19–26 yrs, others	70	43.1	(26.9–60.9)	1.9
HPV vaccination among males (≥1 dose), ever****				
19–26 yrs, total	1,837	5.9	(4.6–7.6)	3.6**
19–21 yrs, total	564	7.7	(5.2–11.5)	5.3**
22–26 yrs, total	1,273	4.9	(3.6–6.8)	2.7**

Abbreviations: CI = confidence interval; HPV = human papillomavirus.

* Adults were considered at high risk for pneumococcal disease if they had ever been told by a doctor or other health professional that they had diabetes, emphysema, chronic obstructive pulmonary disease, coronary heart disease, angina, heart attack, or other heart condition; had a diagnosis of cancer during the previous 12 months (excluding nonmelanoma skin cancer); had ever been told by a doctor or other health professional that they had lymphoma, leukemia, or blood cancer; had been told by a doctor or other health professional that they had chronic bronchitis or weak or failing kidneys during the preceding 12 months; had an asthma episode or attack during the preceding 12 months; or were current smokers. Information on high-risk status for hepatitis B or A was not collected in 2013.

† Race/ethnicity was categorized as follows: Hispanic, black, white, Asian and "other." In this report, persons identified as Hispanic might be of any race. Persons identified as black, white, Asian, or other race are non-Hispanic. "Other" includes American Indian/Alaska Native and multiple race. The five racial/ethnic categories are mutually exclusive.

§ Respondents were asked if they had ever had a pneumonia shot.

¶ $p<0.05$ by t-test for comparisons, with non-Hispanic white as the reference.

** $p<0.05$ by t-test test for comparisons between 2013 and 2012 within each level of each characteristic.

†† Respondents were asked if they had received a tetanus shot in the past 10 years. Vaccinated respondents included adults who received tetanus-diphtheria toxoid (Td) during the past 10 years, or tetanus, diphtheria, and acellular pertussis vaccine (Tdap) during 2005–2013.

§§ Respondents who had received a tetanus shot in the past 10 years were asked if their most recent shot was given in 2005 or later. Respondents who had received a tetanus shot since 2005 were asked if they were told that their most recent tetanus shot included the pertussis or whooping cough vaccine. Among 34,227 respondents aged ≥19 years, those without a "yes" or no" classification for tetanus vaccination status within the preceding 10 years (n = 1,780 [5.2%]) or for tetanus vaccination status during 2005–2013 (n = 1,276 [3.7%]), or those who reported tetanus vaccination during 2005–2013 but were not told vaccine type by the provider (n = 7,209 [21.1%]) or did not know vaccine type (Td or Tdap) (n = 1,498 [4.4%]) were excluded, yielding a sample of 22,464 respondents aged ≥19 years for whom Tdap vaccination status could be assessed. In February 2012, the Advisory Committee on Immunization Practices recommended Tdap vaccination for all adults aged ≥19 years, including adults aged ≥65 years.

¶¶ Estimate is not reliable because of small sample size (n<30) or relative standard error (standard error / estimates) >0.3.

*** Respondents were asked if they had ever received the hepatitis A vaccine, and if yes, were asked how many shots were received.

††† $p<0.05$ by t-test for comparisons between persons who had traveled outside the United States to countries other than Europe, Japan, Australia, New Zealand, or Canada since 1995, and persons who had not traveled outside the United States to these areas since 1995.

§§§ Respondents were asked if they had ever received the hepatitis B vaccine, and if yes, if they had received ≥3 doses or <3 doses.

¶¶¶ Respondents were asked if they had ever received a shingles vaccine.

**** Respondents were asked if they had ever received the HPV shot or cervical cancer vaccine.

(17.9%) and Asians (11.0%), but coverage was not significantly different for blacks (21.2%) and persons of other race (19.8%). Among adults aged ≥65 years, coverage was 59.7% overall, similar to the estimate for 2012. Coverage among whites aged ≥65 years (63.6%) was higher compared with blacks (48.7%), Hispanics (39.2%), and Asians (45.3%) (Table 1).

Tetanus Vaccination Coverage

In 2013, the proportion of adults reporting having received any tetanus toxoid–containing vaccination during the past 10 years was 62.9% for adults aged 19–49 years, 64.0% for adults aged 50–64 years, and 56.4% for adults aged ≥65 years (Table 1). The proportion of adults receiving tetanus vaccination during the past 10 years across all age groups did not change compared with 2012 (*1*). Whites had higher coverage across all age groups compared with blacks, Hispanics, and Asians.

Among adults aged ≥19 years for whom Tdap vaccination specifically could be assessed (including adults aged ≥65 years), overall reported coverage was 17.2%, a 2.9 percentage point increase compared with 2012 (Table 1). Tdap coverage for black (12.6%), Hispanic (10.2%), and Asian (15.5%) adults aged ≥19 years was lower compared with whites (19.7%). Coverage among adults aged ≥19 years who reported living with an infant aged <1 year** was 29.4%, higher than the 16.7% coverage among adults aged ≥19 years without household contact with an infant aged <1 year.

Among 14,159 respondents who reported receiving a tetanus vaccination during 2005–2013, 51.2% reported that they were not informed of the vaccination type, and 10.6% could not recall what type of tetanus vaccination they had received (Table 2). Of the remaining 38.2% of respondents who reported they knew what type of tetanus vaccine they received, 68.3% reported receiving Tdap.

During 2005–2013, Tdap vaccination of health care personnel (HCP) aged ≥19 years was 37.3%, a 5.9 percentage point increase compared with 2012 (Table 3). White HCP had higher Tdap coverage (39.9%) compared with black HCP (32.2%) and Hispanic HCP (29.5%).

Among adults aged ≥19 years who received a tetanus vaccination and reported they knew what type of tetanus vaccine they received, HCP were more likely to report receipt of Tdap (76.9%) than were non-HCP (66.5%) (Table 2).

Hepatitis A Vaccination Coverage

In 2013, reported hepatitis A vaccination coverage (≥2 doses) among adults was 9.0% for adults aged ≥19 years, 12.3% among adults aged 19–49 years, and 5.4% among adults aged ≥50 years, similar to the estimates for 2012 (Table 1). Among adults aged 19–49 years, coverage was higher for Asians (16.1%) than for whites (12.6%), but coverage for Hispanics (10.6%) was lower than for whites. Vaccination coverage was higher among adults aged ≥19 years who had traveled outside the United States since 1995 to a country where hepatitis A

** In 2006, a single dose of Tdap was recommended for adults who have or who anticipate having close contact with an infant aged <1 year (e.g., parents, grandparents, child-care providers, and health care personnel) to reduce the risk for transmitting pertussis.

TABLE 2. Type of tetanus vaccine received, and proportion that were tetanus, diphtheria, acellular pertussis (Tdap) vaccine, among adults aged ≥19 years who received a tetanus vaccination, by selected characteristics — National Health Interview Survey, United States, 2013

	Type of vaccine received among those who received a tetanus vaccination during 2005–2013									Proportion Tdap of total tetanus vaccinations during 2005–2013*		
		Received Tdap		Received other tetanus vaccine		Doctor did not inform the patient		Could not recall vaccine type				
Characteristics	No. in sample	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	No. in sample	%	(95% CI)
≥19 yrs, all adults	14,159	26.1	(25.1–27.1)	12.1	(11.4–12.8)	51.2	(50.0–52.4)	10.6	(9.8–11.4)	5,451	68.3	(66.7–70.0)
≥19 yrs, HCP†	1,584	47.0	(43.8–50.2)	14.1	(11.9–16.7)	31.2	(28.2–34.4)	7.7	(6.2–9.4)	959	76.9§	(73.1–80.3)
≥19 yrs, non–HCP	12,564	23.5	(22.4–24.6)	11.8	(11.1–12.7)	53.8	(52.4–55.1)	10.9	(10.1–11.8)	4,489	66.5	(64.5–68.4)
19–64 yrs, all adults	11,542	26.9	(25.8–28.0)	12.1	(11.3–12.9)	50.6	(49.3–51.9)	10.5	(9.7–11.3)	4,582	69.0	(67.3–70.8)
19–64 yrs, HCP	1,439	47.4	(43.9–50.9)	14.1	(11.7–16.9)	31.0	(27.9–34.4)	7.5	(5.9–9.3)	882	77.1§	(73.0–80.7)
19–64 yrs, non–HCP	10,095	24.1	(23.0–25.2)	11.8	(11.0–12.7)	53.3	(51.9–54.7)	10.8	(10.0–11.8)	3,698	67.1	(65.1–69.1)
≥65 yrs, all adults	2,617	21.6	(19.5–23.9)	12.2	(10.5–14.2)	54.9	(52.6–57.3)	11.2	(9.6–13.1)	869	63.9	(59.2–68.4)
≥65 yrs, HCP	145	41.8	(33.1–51.1)	14.6	(9.0–22.8)	33.4	(24.2–44.2)	10.2	(5.6–17.7)	77	74.2	(62.3–83.3)
≥65 yrs, non–HCP	2,469	20.5	(18.3–22.9)	12.1	(10.3–14.1)	56.2	(53.8–58.6)	11.3	(9.6–13.2)	791	62.9	(57.8–67.7)

Abbreviations: CI = confidence interval; HCP = health care personnel.

* Calculated by dividing number of respondents who reported receiving Tdap by the sum of those who reported receiving Tdap and those who reported receiving other tetanus vaccination; respondents who reported that the doctor did not inform them of the vaccine type they received and those who could not recall the vaccine type were excluded.

† Adults were classified as HCP if they reported they currently volunteer or work in a hospital, medical clinic, doctor's office, dentist's office, nursing home, or some other health care facility, including part-time and unpaid work in a health care facility, as well as professional nursing care provided in the home.

§ $p<0.05$ by t-test for comparisons between HCP and non-HCP.

is of high or intermediate endemicity (countries other than Japan, Australia, New Zealand, Canada, and the countries of Europe) than among respondents who did not travel outside the United States or had traveled only to countries where the disease is of low endemicity (15.9% versus 5.7%, respectively). Vaccination coverage among adult travelers to countries with high endemicity was similar to the estimate for 2012 (Table 1). Overall coverage among adults aged ≥19 years with chronic liver conditions was 13.3%, similar to the 2012 estimate.

Hepatitis B Vaccination Coverage

Reported hepatitis B vaccination coverage (≥3 doses) among adults was 25.0% for adults aged ≥19 years, 32.6% among adults aged 19–49 years, and 16.1% among adults aged ≥50 years. Overall vaccination coverage decreased compared with 2012 among adults aged ≥19 years by 2.1 percentage points (Table 1). Vaccination coverage was higher among adults aged ≥19 years who had traveled outside the United States since 1995 to a country where hepatitis B is of high or intermediate endemicity (countries other than Japan, Australia, New Zealand, Canada, and the countries of Europe) than among respondents who did not travel outside the United States or had traveled only to countries where hepatitis B is of low endemicity (33.1% versus 20.9%, respectively). Among adults aged 19–49 years, vaccination coverage was lower for blacks (30.5%) and Hispanics (23.7%) compared with whites (35.2%), but higher for Asians (39.3%). Overall coverage among adults aged ≥19 years with chronic liver conditions was 34.0%, similar to the 2012 estimate. Vaccination coverage for persons with diabetes was 26.3% for those aged 19–59 years and 13.9% for those aged ≥60 years, similar to the estimates for 2012. Overall, hepatitis B vaccination coverage among HCP was 61.7%, similar to the estimate for 2012. Hispanic HCP had lower coverage (54.0%) compared with white HCP (62.9%) (Table 3).

Herpes Zoster Vaccination Coverage

In 2013, 24.2% of adults aged ≥60 years reported receiving herpes zoster vaccination to prevent shingles, an increase from the 20.1% reported in 2012 (Table 1). Whites aged ≥60 years had higher herpes zoster vaccination coverage (27.4%) compared with blacks (10.7%) and Hispanics (9.5%).

HPV Vaccination Coverage

In 2013, 36.9% of women aged 19–26 years reported receipt of ≥1 dose of HPV vaccine, similar to the estimate reported for 2012 (Table 1). Coverage was 44.7% among women aged 19–21 years and 32.4% among those aged 22–26 years, similar

TABLE 3. Estimated proportion of health care personnel (HCP)* who received selected vaccinations, by age group and race/ethnicity† — National Health Interview Survey (NHIS), United States, 2013

Characteristics	Sample size	% (95% CI)	Difference from 2012
Tetanus vaccination including pertussis vaccine, past 8 years§			
HCP, ≥19 yrs, total	1,965	37.3 (34.6–40.1)	5.9¶
HCP, ≥19 yrs, white	1,197	39.9 (36.3–43.6)	6.9¶
HCP, ≥19 yrs, black	318	32.2 (25.9–39.2)**	9.7
HCP, ≥19 yrs, Hispanic	255	29.5 (22.7–37.4)**	4.4
HCP, ≥19 yrs, Asian	147	32.7 (24.1–42.7)	-6.7
HCP, ≥19 yrs, others	48	46.8 (28.8–65.7)	0.7
HCP, 19–64 yrs, total	1,766	37.9 (35.0–40.9)	5.3¶
HCP, 19–64 yrs, white	1,049	40.7 (36.9–44.6)	6.2¶
HCP, 19–64 yrs, black	297	33.2 (26.8–40.4)	10.3¶
HCP, 19–64 yrs, Hispanic	241	28.6 (21.7–36.7)**	3.5
HCP, 19–64 yrs, Asian	137	33.8 (24.9–44.0)	-7.6
HCP, 19–64 yrs, others	42	48.8 (29.1–68.9)	2.8
HCP, ≥65 yrs, total	199	30.7 (23.8–38.7)	13.8¶
HCP, ≥65 yrs, white	148	32.4 (24.1–41.9)	14.9¶
HCP, ≥65 yrs, black	21	—††	—††
HCP, ≥65 yrs, Hispanic	14	—††	—††
HCP, ≥65 yrs, Asian	10	—††	—††
HCP, ≥65 yrs, others	6	—††	—††
Hepatitis B vaccination (≥3 doses), ever¶¶			
HCP, ≥19 yrs, total	2,606	61.7 (59.0–64.3)	-3.3
HCP, ≥19 yrs, white	1,610	62.9 (59.4–66.2)	-2.6
HCP, ≥19 yrs, black	428	58.9 (53.2–64.3)	-2.8
HCP, ≥19 yrs, Hispanic	326	54.0 (46.9–61.0)**	-6.0
HCP, ≥19 yrs, Asian	182	69.0 (60.7–76.2)	-3.3
HCP, ≥19 yrs, others	60	56.0 (39.4–71.4)	-19.8

Abbreviation: CI = confidence interval.

* Adults were classified as HCP if they reported they currently volunteer or work in a hospital, medical clinic, doctor's office, dentist's office, nursing home, or some other health-care facility, including part-time and unpaid work in a health care facility, as well as professional nursing care provided in the home.

† Race/ethnicity was categorized as follows: Hispanic, black, white, Asian and "other." In this report, persons identified as Hispanic might be of any race. Persons identified as black, white, Asian, or other race are non-Hispanic. "Other" includes American Indian/Alaska Native and multiple race. The five racial/ethnic categories are mutually exclusive.

§ Respondents who had received a tetanus shot in the past 10 years were asked if their most recent shot was given in 2005 or later. Respondents who had received a tetanus shot since 2005 were asked if they were told that their most recent tetanus shot included the pertussis or whooping cough vaccine. Among 2,777 HCP aged ≥19 years, those without a "yes" or no" classification for tetanus vaccination status within the preceding 10 years (n = 82 [3.0%]) or for tetanus vaccination status during 2005–2013 (n = 105 [3.8%]), or those who reported tetanus vaccination during 2005–2013 but were not told vaccine type by the provider (n = 500 [18.0%]) or did not know vaccine type (Td or Tdap) (n = 125 [4.5%]) were excluded, yielding a sample of 1,965 respondents aged ≥19 years for whom Tdap vaccination status could be assessed. In February 2012, the Advisory Committee on Immunization Practices recommended Tdap vaccination for all adults aged ≥19 years, including adults aged ≥65 years.

¶ $p<0.05$ by t-test for comparisons between 2013 and 2012 within each level of each characteristic.

** $p<0.05$ by t-test for comparisons, with non-Hispanic white as the reference.

†† Estimate is not reliable because of small sample size (n<30) or relative standard error (standard error / estimates) >0.3.

¶¶ Respondents were asked if they had ever received the hepatitis B vaccine, and if yes, if they had received ≥3 doses or <3 doses.

to 2012 estimates. Among women aged 19–26 years, blacks (30.6%), Hispanics (30.3%), and Asians (19.8%) had lower coverage compared with whites (41.7%), but coverage for adults who indicated other race was similar to that of whites (43.1%). Receipt of ≥1 dose of HPV vaccine among males aged 19–26 years was 5.9%, a 3.6 percentage point increase compared with 2012. Coverage was 7.7% for males aged 19–21 years and 4.9% for those aged 22–26 years, increases of 5.3 and 2.7 percentage points, respectively, compared with 2012.

Among women aged 19–26 years, 1.0% reported receiving the first dose of HPV vaccine at age 8–10 years, 2.0% at age 11–12 years, 53.4% at age 13–17 years, 15.9% at age 18 years, and 27.6% at age 19–26 years. Among males aged 19–26 years, 9.7% reported receiving the first dose of HPV vaccine at age 8–10 years, 8.8% at age 11–12 years, 37.0% at age 13–17 years, 18.1% at age 18 years, and 26.3% at age 19–26 years. Among respondents aged 19–26 years, the difference between age reported at time of interview and age respondents indicated the first dose of HPV vaccine was received was ≥9 years for 5% of women and 23.8% of males. This would imply receipt of vaccination in 2004 or earlier, before HPV vaccine was licensed for use in 2006.

Discussion

In 2013, estimated adult vaccination coverage in the United States for diseases other than influenza was similar to 2012, except for modest increases in Tdap vaccination for adults aged ≥19 years, herpes zoster vaccination among adults aged ≥60 years, and HPV vaccination among males aged 19–26 years, with no improvements in coverage for the other vaccines routinely recommended for adults. Vaccination coverage estimates for the three vaccines in this report that are included in *Healthy People 2020* (pneumococcal, herpes zoster, and hepatitis B [for HCP] vaccines) are below the respective target levels of 90% for persons aged ≥65 years and 60% for persons aged 18–64 years at high risk (pneumococcal vaccine [objectives IID 13.1 and IID 13.2, respectively]), 30% for persons aged ≥60 years (herpes zoster vaccine [IID 14]), and 90% (hepatitis B vaccine for HCP [IID 15.3]). In addition, racial/ethnic disparities in coverage persisted for all six vaccines in this report and widened for Tdap and herpes zoster vaccination, with higher coverage for whites compared with other groups. These data indicate little progress was made in improving adult vaccination coverage in the past year and highlight the need for continuing efforts to increase adult vaccination.

In August 2014, ACIP recommended routine use of PCV13 among adults aged ≥65 years.[††] PCV13 should be administered in series with PPSV23, the vaccine currently recommended for adults aged ≥65 years. PPSV23 contains 12 serotypes in common with PCV13 and 11 additional serotypes. PCV13 vaccine has been demonstrated to reduce the risk for pneumococcal pneumonia, and both PCV13 and PPSV23 have been demonstrated to reduce the risk for invasive pneumococcal infections (*6*). Given the high proportion of invasive pneumococcal disease caused by serotypes unique to PPSV23, broader protection is expected to be provided through use of both PCV13 and PPSV23 in series. Adults who have already received PPSV23 and are recommended to receive PCV13 should receive PCV13 at lease 1 year after PPSV23 vaccine. The 2013 NHIS did not estimate the proportion of pneumococcal vaccinations by type (PCV13 versus PPSV23). The overall pneumococcal vaccination estimates in this report includes respondents who might have received PCV13 or PPSV23.

In 2012, ACIP updated the adult Tdap vaccination recommendation to include all adults aged ≥19 years who have not yet received a dose of Tdap, including those aged ≥65 years (*6*). Tdap, when indicated, should be administered regardless of interval since the last Td vaccination. Although there was a modest increase in overall Tdap vaccination of adults, coverage remained low for all age groups and among adults living with an infant aged <1 year. Health care providers should not miss an opportunity to vaccinate adults aged ≥19 years who have not received Tdap previously.

In December 2011, ACIP recommended that all previously unvaccinated adults aged 19–59 years with diabetes mellitus (type 1 and type 2) be vaccinated against hepatitis B as soon as possible after a diagnosis of diabetes is made, and that unvaccinated adults aged ≥60 years with diabetes may be vaccinated at the discretion of the treating clinician after assessing their risk and the likelihood of an adequate immune response to vaccination (*6*). Hepatitis B vaccination coverage in 2013 among persons with diabetes remained similar to estimates obtained before this recommendation and highlights the need to improve awareness of increased risk for contracting acute hepatitis B among persons with diabetes and to increase hepatitis B vaccination in this population.

ACIP recommends herpes zoster vaccination for adults aged ≥60 years.[§§] Herpes zoster vaccination coverage increased in 2013 compared with 2012, with the 2013 estimate 6 percentage points below the *Healthy People 2020* target of 30%. Shortages of herpes zoster vaccine that might have contributed to lower coverage during the first years after licensure appear to have been resolved in 2012. The cost of herpes zoster vaccine and billing challenges might pose barriers for some patients and providers.[¶¶]

[††] Additional information on use of PCV13 among adults aged ≥65 years available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6337a4.htm?s_cid=mm6337a4_w.

[§§] Additional information on herpes zoster vaccination for adults aged ≥60 years available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6333a3.htm?s_cid=mm6333a3_w.

[¶¶] Additional information on barriers to herpes zoster vaccination available at http://www.gao.gov/products/GAO-12-61 and http://www.gao.gov/assets/590/587009.pdf.

Although the percentage of age-eligible females who reported having received HPV vaccine increased steadily from 2009 to 2012, coverage did not increase further in 2013 and remained low. ACIP recommends routine vaccination of adolescent girls and boys at ages 11 or 12 years and catch-up vaccination for females aged 13–26 years who have not been previously vaccinated (*6*). ACIP recommends vaccination for males aged 13–21 years who have not been vaccinated previously or who have not completed the 3-dose series; males aged 22–26 years may be vaccinated (*6*). Data on age at first dose of HPV vaccination of adults was collected for the first time in 2013. The findings in this report indicate that most female and male respondents in the NHIS reported receiving the first dose of HPV vaccine at age ≥13 years (i.e., at ages 13–18 years). Only 2% of females and about 9% of males reported receiving the first dose at the target ages of 11 or 12 years. Some respondents also indicated the first HPV vaccination dose was received before HPV vaccine was licensed for use in 2006 suggesting inaccurate recall. In 2013, white women reported higher HPV coverage than black, Hispanic, or Asian women. The finding for Hispanic women is in contrast to data on HPV vaccination of adolescent girls aged 13–17 years reported in the 2013 National Immunization Survey – Teen (NIS-Teen) (*7*). In the 2013 NIS-Teen, among females, ≥1, ≥2, and ≥3 HPV dose coverage was higher among Hispanic compared with white adolescents. HPV vaccination coverage for ≥1 and ≥2 doses was higher for females living below poverty level compared with those living at or above the poverty level. The higher coverage in NIS-Teen among Hispanic females and those living below poverty level might be partly attributable to the continued effectiveness of the Vaccines for Children program, which provides recommended vaccines at no cost to eligible children through age 18 years (*7*). Although vaccination coverage among persons aged 13–17 years has increased since a licensed HPV vaccine has been available and recommended by ACIP, many adolescent and young adult females remain unvaccinated and vulnerable to develop cancers that HPV vaccines can prevent. Until HPV vaccination increases among adolescents, a high proportion of young women eligible for HPV vaccination will be expected. Results from studies of the cost-effectiveness of HPV vaccination of young women have suggested that catch-up vaccination could reduce the amount of time needed to achieve population level impacts of vaccination (*8,9*). Findings from initial studies of vaccination impact in settings where catch-up vaccination programs were successful in achieving high coverage rates among young women are consistent with these cost-effectiveness studies (*9*). Continued efforts are needed to ensure coverage among members of the primary target group for HPV vaccine, girls and boys aged 11 or 12 years, and among all racial/ethnic groups. Efforts are also needed to improve catch-up vaccination among those who have not started or completed their vaccinations.

What is already known on this topic?

During 2008–2012, National Health Interview Survey (NHIS) data indicated that coverage with routinely recommended vaccinations among U.S. adults aged ≥19 years remained low.

What is added by this report?

Based on 2013 NHIS data, compared with 2012, modest gains occurred in tetanus and diphtheria toxoid with acellular pertussis vaccine (Tdap) vaccination among adults aged ≥19 years (a 2.9 percentage point increase to 17.2%), herpes zoster vaccination among adults aged ≥60 years (a 4.1 percentage point increase to 24.2%), and human papillomavirus vaccination coverage among males aged 19–26 years (a 3.6 percentage point increase to 5.9%). Coverage for other vaccines and risk groups did not improve, and racial/ethnic disparities persisted for routinely recommended adult vaccines. Coverage for all vaccines for adults remained low.

What are the implications for public health practice?

Wider use of practices shown to improve adult vaccination is needed, including assessment of patients' vaccination needs by health care providers and routine recommendation and offer of needed vaccines to adults, implementing reminder-recall systems, use of standing order programs for vaccination, and assessment of practice-level vaccination rates with feedback to staff members.

The findings in this report are subject to at least five limitations. First, the NHIS sample excludes persons in the military and those residing in institutions, which might result in underestimation or overestimation of vaccination coverage levels. Second, the response rate was 61.2%. A low response rate can result in nonresponse bias if respondents and nonrespondents differ in their vaccination rates. Third, the determination of vaccination status and identification of high-risk conditions in the NHIS were not validated by medical records. Fourth, self-report of vaccination might be subject to recall bias. Adult self-reported vaccination status has been shown to be sensitive for all six vaccines in this report and specific for all except tetanus vaccination (*10*). Finally, the Tdap estimate is subject to considerable uncertainty. Respondents who reported a tetanus vaccination but were unable to say whether Td or Tdap was used during 2005–2013 were excluded from estimations of Tdap coverage, creating a potential for bias. Sensitivity calculations were conducted to assess the magnitude of potential bias. Depending on what proportion of excluded respondents actually received Tdap, actual Tdap coverage could fall within the range of 13.0%–42.4% for adults aged 19–64 years and 8.7%–35.3% for adults aged ≥65 years. Comparisons of Tdap coverage across years within subgroups might be affected by bias resulting from excluding persons who did not report the type of tetanus vaccine they received.

Vaccination coverage levels among adults are low. Improvement in adult vaccination is needed to reduce the health consequences of vaccine-preventable diseases among adults. Successful vaccination programs combine 1) education of potential vaccine recipients and publicity to promote vaccination, 2) increased access to vaccination services in health care settings, and 3) use of practices shown to improve vaccination coverage, including reminder-recall systems, efforts to remove administrative and financial barriers to vaccination, use of standing order programs for vaccination, and assessment of practice-level vaccination rates with feedback to staff members (*4*). Health care provider recommendations for vaccination are associated with patients' receipt of vaccines.*** Routine assessment of adult patient vaccination needs, recommendation, and offer of needed vaccinations for adults should be incorporated into routine clinical care of adults (*4,5*). The adult immunization schedule (*2*), updated annually, provides current recommendations for vaccinating adults and a ready resource for persons who provide health care services for adults in various settings.

*** Additional information on provider recommendations for vaccination available at http://onlinelibrary.wiley.com/doi/10.1111/j.1532-5415.2005.00585.x/pdf.

[1]Immunization Services Division, National Center for Immunization and Respiratory Diseases, CDC; [2]Division of Bacterial Diseases, National Center for Immunization and Respiratory Diseases, CDC; [3]Division of Viral Diseases, National Center for Immunization and Respiratory Diseases, CDC; [4]Division of Sexually Transmitted Disease Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention; CDC (Corresponding author: Walter W. Williams, www1@cdc.gov, 404-718-8734)

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Vital Signs: Disparities in Nonsmokers' Exposure to Secondhand Smoke — United States, 1999–2012

David M. Homa, PhD[1], Linda J. Neff, PhD[1], Brian A. King, PhD[1], Ralph S. Caraballo, PhD[1], Rebecca E. Bunnell, PhD[1], Stephen D. Babb, MPH[1], Bridgette E. Garrett, PhD[1], Connie S. Sosnoff, MA[2], Lanqing Wang, PhD[2] (Author affiliations at end of text)

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ABSTRACT

Background: Exposure to secondhand smoke (SHS) from burning tobacco causes disease and death in nonsmoking children and adults. No risk-free level of SHS exposure exists.

Methods: National Health and Nutrition Examination Survey (NHANES) data from 1999–2012 were used to examine SHS exposure among the nonsmoking population aged ≥3 years. SHS exposure among nonsmokers was defined as a serum cotinine level (a metabolite of nicotine) of 0.05–10 ng/mL. SHS exposure was assessed overall and by age, sex, race/ethnicity, poverty level, education, and whether the respondent owned or rented their housing.

Results: Prevalence of SHS exposure in nonsmokers declined from 52.5% during 1999–2000 to 25.3% during 2011–2012. During this period, declines were observed for all population subgroups, but disparities exist. During 2011–2012, SHS was highest among: children aged 3–11 years (40.6%), non-Hispanic blacks (46.8%), persons living below the poverty level (43.2%), and persons living in rental housing (36.8%). Among children aged 3–11 years, 67.9% of non-Hispanic blacks were exposed to SHS compared with 37.2% of non-Hispanic whites and 29.9% of Mexican Americans.

Conclusion: Overall, SHS exposure in the United States has been reduced by half since 1999–2000. However, 58 million persons were still exposed to SHS during 2011–2012, and exposure remains higher among children, non-Hispanic blacks, those living in poverty, and those who rent their housing.

Implications for Public Health Practice: Eliminating smoking in indoor spaces fully protects nonsmokers from SHS exposure; separating smokers from nonsmokers, cleaning the air and ventilating buildings cannot completely eliminate exposure. Continued efforts to promote implementation of comprehensive statewide laws prohibiting smoking in workplaces and public places, smoke-free policies in multiunit housing, and voluntary smoke-free home and vehicle rules are critical to protect nonsmokers from this preventable health hazard in the places they live, work, and gather.

Introduction

Exposure to secondhand smoke (SHS) from burning tobacco products causes sudden infant death syndrome (SIDS), respiratory infections, ear infections, and asthma attacks in infants and children, and coronary heart disease, stroke, and lung cancer in adult nonsmokers (*1,2*). No risk-free level of SHS exposure exists (*2*). SHS exposure causes more than 41,000 deaths among nonsmoking adults and 400 deaths in infants each year, and approximately $5.6 billion annually in lost productivity (*1,3*). Although population exposure to SHS has declined over the past 2 decades (*3,4*), many nonsmokers remain exposed to SHS in workplaces, public places, homes, and vehicles (*5*).

Methods

Data from the 1999–2012 National Health and Nutrition Examination Survey (NHANES) were analyzed to assess the most recent trends and correlates of SHS exposure among nonsmokers aged ≥3 years. NHANES is a complex, multistage survey representative of the noninstitutionalized U.S. population. Since 1999, NHANES has been conducted in continuous 2-year cycles. NHANES includes a home interview, physical examination at a mobile examination center where biologic specimens are collected, and laboratory specimen testing, including serum cotinine analysis, for participants aged ≥3 years.* Interview response rates ranged from 72.6% (2011–2012) to 84.0% (2001–2002); examination response rates ranged from 69.5% (2011–2012) to 80.0% (2001–2002).†

SHS exposure was assessed using serum cotinine, a metabolite of nicotine that reflects recent exposure (*4,6*). Serum

* Available at http://www.cdc.gov/nchs/data/series/sr_01/sr01_056.pdf.
† Available at http://www.cdc.gov/nchs/nhanes/response_rates_cps.htm.

cotinine values are based on analysis of blood samples collected by venipuncture from consenting participants; laboratory analysis is performed using an isotope dilution liquid chromatography tandem mass spectrometry method (*4*). The limit of detection for serum cotinine initially was 0.05 ng/mL but changed to 0.015 ng/mL because of improvements in the method (*4*). Serum cotinine concentrations >10 ng/mL are associated with recent active smoking (*6*). Therefore, children aged 3–11 years were considered nonsmokers if their cotinine concentration was ≤10 ng/mL. Adolescents aged 12–19 years were considered nonsmokers if their cotinine concentration was ≤10 ng/mL and they did not report smoking within the preceding 30 days or using any nicotine-containing product within the preceding 5 days. Adults aged ≥20 years were considered nonsmokers if their cotinine concentration was ≤10 ng/mL and they did not report being a current smoker[§] or use of any nicotine-containing product within the preceding 5 days. The numbers of nonsmokers with serum cotinine data in each survey cycle ranged from 5,742 to 6,540.

For each survey cycle, the percentage of nonsmokers aged ≥3 years with serum cotinine levels of 0.05–10 ng/mL, an established standard for classifying SHS exposure (the lower cutpoint of 0.05 ng/mL allows for historical comparisons) (*3*), was computed overall and by sex, age, race/ethnicity,[¶] poverty status, and education; housing status (own or rent) was also assessed as a proxy for multiunit housing residency.[**] Wald 95% confidence limits were computed for all percentages, and differences were assessed using a two-sided Student's t-test ($p<0.05$). Data are presented for 1999–2000, 2003–2004, 2007–2008, and 2011–2012.[††] For 2011–2012, the most recent NHANES cycle, the estimated number of nonsmokers with serum cotinine levels 0.05–10 ng/mL was calculated by race/ethnicity and age group using midpoint population estimates from the 2011–2012 American Community Survey.[§§] Examination weights were used in analysis to account for the complex sample design and differential probability of sample selection, nonresponse, and noncoverage.

Results

The proportion of U.S. nonsmokers aged ≥3 years with serum cotinine levels 0.05–10 ng/mL declined from 52.5% during 1999–2000 to 25.3% during 2011–2012 (percentage change = 51.8%) (Table 1). By age, declines were least among children aged 3–11 years (percentage change = 37.4%) and greatest among adults aged ≥20 (percentage change = 55.6%). By race/ethnicity, declines in SHS exposure were least among non-Hispanic blacks (percentage change = 36.6%), followed by Mexican Americans (percentage change = 46.0%) and non-Hispanic whites (percentage change = 56.2%). By poverty level, declines in exposure were less among those living below the poverty level (percentage change = 39.7%) than those living at or above this level (percentage change = 56.6%). By education, lesser declines in SHS exposure were generally observed among those with lower levels of educational attainment. By housing status, a lesser decline in exposure was observed among those who rented their housing (percentage change = 46.0%) than those who owned their housing (percentage change = 58.5%).

During 2011–2012, prevalence of SHS exposure was higher among children aged 3–11 years (40.6%) and adolescents aged 12–19 years (33.8%) than adults aged ≥20 years (21.3%). By race/ethnicity, prevalence was higher among non-Hispanic blacks (46.8%) than Mexican Americans (23.9%) and non-Hispanic whites (21.8%). Prevalence was higher among persons living below the poverty level (43.2%) than persons living at or above the poverty level (21.2%). By education, prevalence was highest among persons with grade 11 or less education (27.6%) and lowest among persons with a college diploma or greater education (11.8%). By housing status, prevalence was higher among persons who rented their housing (36.8%) than persons who owned their housing (19.0%).

Among children aged 3–11 years, prevalence of SHS exposure declined comparably from 1999–2000 to 2011–2012 among non-Hispanic whites (percentage change = 41.2%) and Mexican Americans (percentage change = 39.0%); however, a lesser decline was observed among non-Hispanic blacks (percentage change = 19.8%) (Figure). During 2011–2012, SHS exposure among children aged 3–11 years was significantly higher among non-Hispanic blacks (67.9%) than non-Hispanic whites (37.2%; $p<0.05$) and Mexican Americans (29.9%; $p<0.05$) (Table 2). Among adolescents aged 12–19

[§] Adults aged ≥20 years were considered to be self-reported smokers if they reported smoking ≥100 cigarettes in their lifetime and that they were smoking every day or some days at the time of interview.

[¶] Because of the NHANES sample design, race/ethnicity analyses were limited to the three racial/ethnic populations available across all survey cycles: non-Hispanic whites, non-Hispanic blacks, and Mexican Americans. However, all race/ethnicity groups are included in the reported values for the total population, as well as the values presented by sex, age group, poverty level, education, and housing status (own or rent).

[**] From 1999–2000 to 2005–2006, NHANES included a variable describing whether a housing unit was attached (single-family house attached to one or more houses, apartment, or dormitory) or detached (mobile home or trailer, or single-family house detached from any other house). This variable was examined against own/rent status for 1999–2006, with the findings indicating that 65%–68% of renters lived in multiunit housing (defined as an attached single-family home, apartment, or dormitory).

[††] The 1999–2000 data cycle was chosen as the baseline data point for presentation because it precedes the period for when statewide comprehensive smoke-free laws were in effect. There were no statewide comprehensive smoke-free laws before 2002. Every other data cycle after 1999–2000 is presented (2003–2004, 2007–2008, and 2011–2012).

[§§] Available at http://www.cdc.gov/nchs/data/nhanes/response_rates_cps/acs_totals_1112.pdf.

TABLE 1. Percentage of nonsmokers with serum cotinine levels 0.05–10 ng/mL, by selected demographic characteristics — National Health and Nutrition Examination Survey, United States, 1999–2012

Characteristic	1999–2000		2003–2004		2007–2008		2011–2012		Relative % decline* (1999–2000 to 2011–2012)
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	
Total	**52.5**	**(47.1–57.9)**	**47.6**	**(40.4–54.9)**	**40.1**	**(35.0–45.3)**	**25.3**	**(22.5–28.1)**	**51.8**
Sex									
Male	58.5	(52.1–64.9)	51.9	(44.3–59.5)	43.5	(37.5–49.4)	27.7	(24.7–30.6)	52.6
Female	47.5	(42.5–52.5)	44.2	(36.8–51.6)	37.4	(32.6–42.2)	23.3	(20.4–26.3)	50.9
Age group (yrs)									
3–11	64.9	(56.0–73.9)	64.8	(55.5–74.2)	53.6	(46.2–61.0)	40.6	(34.0–47.2)	37.4
12–19	63.1	(56.4–69.7)	57.1	(50.3–63.9)	46.5	(38.3–54.8)	33.8	(28.2–39.4)	46.4
≥20	48.0	(42.6–53.4)	42.4	(35.1–49.8)	36.7	(32.0–41.3)	21.3	(18.6–24.0)	55.6
Race/Ethnicity†									
White, non-Hispanic	49.8	(42.9–56.7)	46.0	(36.8–55.3)	40.1	(32.2–48.0)	21.8	(18.6–24.9)	56.2
Black, non-Hispanic	73.8	(69.6–77.9)	68.0	(60.0–75.9)	55.9	(50.6–61.3)	46.8	(38.0–55.6)	36.6
Mexican American	44.3	(37.4–51.1)	34.0	(25.5–42.5)	28.5	(23.1–33.9)	23.9	(16.3–31.4)	46.0
Poverty status									
<Poverty level	71.6	(64.8–78.5)	63.6	(55.0–72.2)	60.5	(55.0–66.0)	43.2	(37.3–49.0)	39.7
≥Poverty level	48.8	(42.8–54.8)	44.8	(37.7–52.0)	36.9	(31.3–42.5)	21.2	(18.8–23.6)	56.6
Unspecified	53.5	(48.4–58.6)	50.5	(36.4–64.6)	39.6	(30.8–48.5)	31.7	(22.8–40.5)	40.7
Education (age ≥25 yrs)									
≤Grade 11	53.9	(48.7–59.0)	48.8	(42.9–54.8)	45.1	(39.3–50.9)	27.6	(23.0–32.2)	48.8
High school diploma or equivalent	51.6	(44.5–58.6)	50.1	(39.8–60.4)	41.4	(33.2–49.7)	27.5	(21.2–33.7)	46.7
Some college or associate degree	48.2	(40.8–55.6)	42.7	(32.1–53.4)	37.6	(30.9–44.2)	21.2	(17.5–24.9)	56.0
≥College diploma	35.2	(27.5–43.0)	29.8	(23.2–36.3)	22.0	(17.2–26.7)	11.8	(9.1–14.4)	66.5
Own or rent home									
Own	45.8	(39.3–52.3)	43.5	(35.4–51.6)	35.5	(29.4–41.6)	19.0	(16.1–22.0)	58.5
Rent	68.1	(61.6–74.6)	57.4	(50.8–64.0)	52.7	(48.7–56.7)	36.8	(32.3–41.3)	46.0

Abbreviation: CI = confidence interval.
* All declines statistically significant at p<0.05.
† Because of the sample design, analyses of data by race/ethnicity were limited to the three racial/ethnic populations available across all survey cycles (non-Hispanic whites, non-Hispanic blacks, and Mexican Americans).

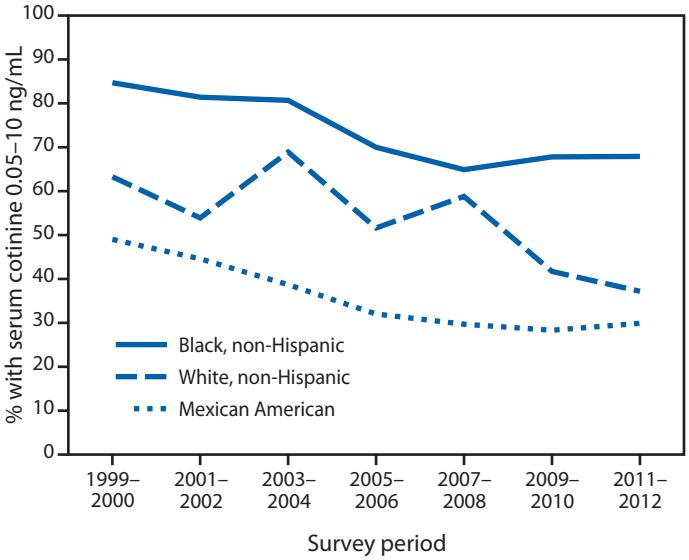
years and adults aged ≥20 years, prevalence was significantly higher among non-Hispanic blacks (54.6% and 39.6%) than non-Hispanic whites (35.8% and 17.9%; p<0.05) and Mexican Americans (16.9% and 23.8%; p<0.05).

During 2011–2012, an estimated 57.9 million nonsmokers aged ≥3 years were exposed to SHS (Table 3). Of these, approximately 15.1 million were aged 3–11 years, 9.6 million were aged 12–19 years, and 35.2 million were aged ≥20 years. By race/ethnicity, 31.3 million non-Hispanic white nonsmokers aged ≥3 years were exposed, including 7.2 million children aged 3–11 years; 12.4 million non-Hispanic black nonsmokers aged ≥3 years were exposed, including 3.4 million children aged 3–11 years; and 6.2 million Mexican American nonsmokers aged ≥3 years were exposed, including 1.9 million children aged 3–11 years.

Conclusions and Comment

From 1999–2000 to 2011–2012, SHS exposure among U.S. nonsmokers declined overall and among all population groups. However, during 2011–2012, an estimated one quarter of U.S. nonsmokers, or 58 million persons, were still exposed to SHS, including 15 million children aged 3–11 years. Moreover,

FIGURE. Percentage of nonsmoking children aged 3–11 years with serum cotinine levels 0.05–10 ng/mL, by race/ethnicity* — National Health and Nutrition Examination Survey, United States, 1999–2012



* Because of the sample design, analyses of data by race/ethnicity were limited to the three racial/ethnic populations available across all survey cycles (non-Hispanic whites, non-Hispanic blacks, and Mexican Americans).

TABLE 2. Percentage of nonsmokers with serum cotinine levels 0.05–10 ng/mL, by age group and race/ethnicity* — National Health and Nutrition Examination Survey, United States, 1999–2012

Characteristic	1999–2000		2003–2004		2007–2008		2011–2012		Relative % decline† (1999–2000 to 2011–2012)
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	
Aged 3–11 yrs									
White, non-Hispanic	63.3	(48.7–78.0)	68.9	(56.8–81.0)	58.8	(47.9–69.6)	37.2	(30.0–44.4)	41.2
Black, non-Hispanic	84.7	(79.2–90.3)	80.7	(70.2–91.2)	64.9	(53.0–76.7)	67.9	(57.1–78.6)	19.8
Mexican American	49.0	(39.1–58.9)	38.7	(28.9–48.6)	29.7	(20.2–39.1)	29.9	(20.4–39.4)	39.0
Aged 12–19 yrs									
White, non-Hispanic	61.8	(52.6–71.1)	56.9	(48.0–65.8)	47.9	(33.9–61.8)	35.8	(28.6–43.0)	42.1
Black, non-Hispanic	80.4	(76.0–84.7)	74.0	(67.7–80.4)	60.2	(51.6–68.8)	54.6	(43.0–66.2)	32.1
Mexican American	48.3	(40.8–55.8)	35.1	(26.6–43.6)	29.1	(18.3–39.9)	16.9	(7.0–26.9)	65.0
Aged ≥20 yrs									
White, non-Hispanic	45.7	(39.3–52.0)	40.7	(31.6–49.8)	36.3	(29.3–43.3)	17.9	(13.8–21.9)	60.8
Black, non-Hispanic	68.2	(62.5–73.8)	61.7	(52.9–70.5)	52.2	(46.6–57.9)	39.6	(32.6–46.6)	41.9
Mexican American	41.2	(34.0–48.4)	31.9	(22.6–41.1)	28.0	(23.2–32.7)	23.8	(16.2–31.4)	42.2

Abbreviation: CI = confidence interval.
* Because of the sample design, analyses of data by race/ethnicity were limited to the three racial/ethnic populations available across all survey cycles (non-Hispanic whites, non-Hispanic blacks, and Mexican Americans).
† All declines statistically significant at $p<0.05$.

declines in exposure over time have been slower, and prevalence of exposure remains higher, among children, non-Hispanic blacks, persons living in poverty, and persons who rent their housing. The Surgeon General has concluded that eliminating smoking in indoor spaces fully protects nonsmokers from SHS exposure (*2*). Continued efforts to promote comprehensive statewide laws prohibiting smoking in workplaces and public places, voluntary smoke-free rules prohibiting smoking in homes and vehicles at all times, and smoke-free policies in multiunit housing are critical to protect nonsmokers from this preventable health hazard in the places they live, work, and gather (*2,7,8*).

Several factors might have contributed to the declines in SHS exposure. First, over the past 25 years, almost 700 local municipalities have implemented comprehensive smoke-free laws that prohibit smoking in indoor areas of worksites, restaurants, and bars (*9*); additionally, 26 states and the District of Columbia have implemented such laws since 2002 (*10*). Almost half (49.3%) of U.S. residents are currently covered by comprehensive smoke-free laws at the state or local level.¶¶ Second, increasing numbers of households have adopted voluntary smoke-free home rules; the proportion of U.S. households with smoke-free rules increased from 43.0% during 1992–1993 to 83.0% during 2010–2011 (*11*). Third, substantial changes have occurred in social norms regarding the acceptability of smoking around nonsmokers (*2*). Finally, cigarette smoking prevalence has declined (*1,12*).

Despite this progress, millions of U.S. nonsmokers remain exposed to SHS, and disparities in exposure exist. During 2011–2012, prevalence was higher among children aged 3–11 years (40.6%) than all other age groups. This finding might reflect the recent slowing in the decline in adult smoking prevalence and the persistence of smoking in homes (*11,12*). The home is the primary source of exposure for children (*2*), and nearly all nonsmokers who live with someone who smokes inside their home are exposed to SHS (*5*). Exposure was also higher among non-Hispanic blacks, including nearly seven in 10 children. Non-Hispanic black nonsmokers historically have higher cotinine levels than nonsmokers of other race/ethnicities (*2,4,13*). The reasons for this difference are uncertain, but biologic evidence suggests that slower metabolism of cotinine might result in blacks having higher cotinine levels for a given level of exposure (*14*). Other possible reasons relate to racial/ethnic variations in smoke-free policy coverage in workplaces and public settings (*15*), as well as smoke-free rules in homes and vehicles (*16*); for example, among employed U.S. adults, workplace SHS exposure among non-Hispanic blacks (25.6%) was higher than that of their white counterparts (17.7%) (*15*). Similarly, among all U.S. adults, SHS exposure was higher among non-Hispanics blacks than whites in homes (11.4% versus 5.3%) and vehicles (13.6% versus 8.2%) (*16*). In U.S. households that included both children and smokers during 2006–2007, only 32.8% of non-Hispanic black households had complete home smoking restrictions, compared with 48.0% of non-Hispanic white households and 72.2% of Mexican American households (*17*). These findings underscore the importance of continued efforts to reduce SHS exposure in all settings to protect nonsmokers, particularly children. Based on evidence that SHS exposure is reduced among children whose parents have been informed about the harms of SHS, the American Academy of Pediatrics and the U.S. Public Health Service recommend that clinicians ask parents about

¶¶ Available at http://no-smoke.org/pdf/SummaryUSPopList.pdf.

TABLE 3. Estimated number of nonsmokers aged ≥3 years with serum cotinine levels 0.05–10 ng/mL, by race/ethnicity* and age group — National Health and Nutrition Examination Survey, United States, 2011–2012

Characteristic	No. of nonsmokers (millions)†	% with serum cotinine 0.05–10 ng/mL	No. with serum cotinine 0.05–10 ng/mL (millions)†	95% CI
Overall	**228.8**	**25.3**	**57.9**	**51.5–64.3**
3–19 yrs	64.9	37.3	24.2	20.7–27.7
3–11 yrs	37.1	40.6	15.1	12.6–17.5
12–19 yrs	28.4	33.8	9.6	8.0–11.2
≥20 yrs	165.3	21.3	35.2	30.8–39.7
20–39 yrs	56.3	27.9	15.7	12.8–18.5
40–59 yrs	60.1	19.3	11.6	10.0–13.2
≥60 yrs	49.1	16.2	7.9	5.9–10.0
White, non-Hispanic				
≥3 yrs	143.6	21.8	31.3	26.7–35.8
3–19 yrs	34.1	36.5	12.5	10.4–14.4
3–11 yrs	19.5	37.2	7.2	5.8–8.6
12–19 yrs	15.1	35.8	5.4	4.3–6.5
≥20 yrs	110.2	17.9	19.7	15.2–24.1
20–39 yrs	31.6	24.6	7.8	6.0–9.5
40–59 yrs	39.5	16.3	6.4	4.6–8.3
≥60 yrs	39.2	14.0	5.5	3.3–7.6
Black, non-Hispanic				
≥3 yrs	26.4	46.8	12.4	10.0–14.7
3–19 yrs	9.2	61.2	5.6	4.6–6.6
3–11 yrs	5.1	67.9	3.4	2.9–4.0
12–19 yrs	4.3	54.6	2.3	1.8–2.8
≥20 yrs	17.3	39.6	6.9	5.6–8.1
20–39 yrs	6.6	50.7	3.3	2.8–3.9
40–59 yrs	6.8	32.3	2.2	1.7–2.7
≥60 yrs	4.0	32.9	1.3	1.0–1.6
Mexican American				
≥3 yrs	25.9	23.9	6.2	4.2–8.1
3–19 yrs	10.6	24.0	2.5	1.6–3.5
3–11 yrs	6.3	29.9	1.9	1.3–2.5
12–19 yrs	4.4	16.9	0.7	0.3–1.2
≥20 yrs	15.4	23.8	3.7	2.5–4.8
20–39 yrs	8.3	24.2	2.0	1.1–3.0
40–59 yrs	5.3	24.9	1.3	1.0–1.7
≥60 yrs	1.8	16.6	0.3	0.2–0.4

Abbreviation: CI = confidence interval.
* Because of sample size design, analyses of data by race/ethnicity are limited to non-Hispanic whites, non-Hispanic blacks, and Mexican Americans; therefore, race/ethnicity totals do not add up to overall totals.
† Totals do not sum exactly because of rounding.

their smoking, advise them about the harms of SHS, and offer encouragement and help quitting (*18,19*).

Greater SHS exposure was observed among those who rent their housing, a proxy for multiunit housing residency and among those living below the poverty level. Disparities in smoking persist among smokers with low socioeconomic status, which might have contributed to these disparities in SHS exposure (*20*). Many persons with low socioeconomic status also live in multiunit housing, where SHS can infiltrate smoke-free living units from units and shared areas where smoking occurs; approximately 80 million U.S. residents live in multiunit housing, one quarter of whom live below the poverty level (*21*). The potential for SHS exposure in subsidized housing is particularly concerning because a large proportion of these units are occupied by persons who are especially sensitive to the effects of SHS, including children, the elderly, and the disabled (*22*). Prohibiting smoking in all U.S. subsidized housing, including public housing, would generate annual societal cost savings of approximately $500 million (*22*). The U.S. Department of Housing and Urban Development has encouraged public housing authorities and operators of multifamily housing rental assistance programs (e.g., Section 8), to implement smoke-free policies.*** As of October 2014, several hundred housing authorities had instituted such policies, including all 20 in Maine.††† Continued efforts to implement smoke-free policies in both subsidized and market-rate multiunit housing could further protect nonsmokers from SHS exposure in their homes.

Key Points

- There is no safe level of exposure to secondhand smoke (SHS). Eliminating smoking in indoor spaces fully protects nonsmokers from exposure to SHS; separating smokers from nonsmokers, cleaning the air, and ventilating buildings cannot completely eliminate exposure.
- From 1999–2000 to 2011–2012, SHS exposure among U.S. nonsmokers declined overall (from 52.5% to 25.3%) and among all population groups.
- During 2011–2012, one quarter of U.S. nonsmokers, or 58 million persons, were still exposed to SHS, including 15 million children ages 3–11 years.
- Declines in exposure over time have been smaller, and prevalence of exposure remains higher among children, non-Hispanic blacks, persons living in poverty, and persons who rent their housing.
- Continued efforts to promote comprehensive statewide laws prohibiting smoking in workplaces and public places, smoke-free policies in multiunit housing, and voluntary smoke-free home and vehicle rules are critical to protect nonsmokers from this preventable health hazard in the places they live, work, and gather.
- Additional information is available at http://www.cdc.gov/vitalsigns.

*** Available at http://portal.hud.gov/hudportal/documents/huddoc?id=12-25pihn.pdf and http://www.tcsg.org/sfelp/HUD-SFHsgImplemt091510.pdf.
††† Available at http://www.no-smoke.org/pdf/smokefreemuh.pdf.

The findings in this report are subject to at least five limitations. First, smoking status was based on self-report and serum cotinine levels. Some smokers misrepresent their smoking status in surveys (*23*); using serum cotinine levels to verify self-reported nonsmoking status should reduce this bias (*5*). Still, serum cotinine cutpoints can vary by race/ethnicity, age, and background SHS levels (*5,13*). However, the cutpoint (>10 ng/mL) used to define smokers is widely accepted (*5*). Second, the NHANES sample design prevented examination of trends among certain other racial/ethnic populations, such as Hispanic subgroups other than Mexican Americans, Asian-Pacific Islanders, American Indian/Alaska Natives, and lesbian/gay/bisexual/transgender persons. Third, NHANES did not directly measure multiunit housing status across all survey cycles; however, a secondary analysis demonstrated strong correlation between rental/own status and multiunit housing residency. Fourth, the prevalence estimates presented are likely conservative, because 0.05 ng/mL is used as the cutpoint defining exposure versus the current limit of detection of 0.015 ng/mL. Finally, nonresponse bias cannot be ruled out because interview response rates ranged from 72.6% to 84.0% and examination response rate ranged from 69.5% to 80.0%.

Although substantial progress has been made in reducing the prevalence of SHS exposure in the United States, disparities persist; 15 million children aged 3–11 years, including seven in 10 non-Hispanic black children, remain exposed to this preventable health hazard. Continued efforts are critical to further reduce SHS exposure, especially among vulnerable populations. Implementation of both comprehensive smoke-free laws in indoor public places and worksites and smoke-free policies in multiunit housing, together with continued adoption of voluntary smoke-free home and vehicle rules, can further reduce nonsmokers' exposure to SHS (*1,2,7,8*). Furthermore, continued education regarding the harms of SHS exposure, such as CDC's "Tips" campaign, can reinforce the benefits of smoke-free environments.[§§§]

[§§§] Available at http://www.cdc.gov/tobacco/campaign/tips/stories/nathan.html.

[1]Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, CDC; [2]Division of Laboratory Sciences, National Center for Environmental Health, CDC (Corresponding author: David Homa, dhoma@cdc.gov, 770-488-5493)

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Update: Ebola Virus Disease Epidemic — West Africa, January 2015

Incident Management System Ebola Epidemiology Team, CDC; Guinea Interministerial Committee for Response Against the Ebola Virus; World Health Organization; CDC Guinea Response Team; Liberia Ministry of Health and Social Welfare; CDC Liberia Response Team; Sierra Leone Ministry of Health and Sanitation; CDC Sierra Leone Response Team; Viral Special Pathogens Branch, National Center for Emerging and Zoonotic Infectious Diseases, CDC

On January 30, 2015, this report was posted as an MMWR *Early Release on the* MMWR *website (http://www.cdc.gov/mmwr).*

CDC is assisting ministries of health and working with other organizations to end the ongoing epidemic of Ebola virus disease (Ebola) in West Africa (*1*). The updated data in this report were compiled from situation reports from the Guinea Interministerial Committee for Response Against the Ebola Virus, the Liberia Ministry of Health and Social Welfare, the Sierra Leone Ministry of Health and Sanitation, and the World Health Organization.

According to the latest World Health Organization update on January 28, 2015 (*3*), a total of 22,092 confirmed, probable, and suspected cases of Ebola and 8,810 deaths had been reported as of January 25 from the three West African countries (Guinea, Liberia, and Sierra Leone) where transmission has been widespread and intense. Total case counts include all suspected, probable, and confirmed cases, which are defined similarly by each country (*2*). Because of improvements in laboratory diagnostics and surveillance, in recent weeks totals may overestimate the actual number of cases in some areas. The highest reported confirmed case counts were from Sierra Leone (7,968) and Liberia (3,138), followed by Guinea (2,569). During the week ending January 24, an average of 11 confirmed cases were reported from Sierra Leone, less than one from Liberia, and three from Guinea each day. The areas with the highest number of confirmed cases reported during January 5–25 were the Western Area and Port Loko, Sierra Leone (Figure).

Eight cases and six deaths were previously reported from Mali (*4,5*). No new confirmed cases have been reported from Mali since December 5, 2014. On January 18, 2015, the World Health Organization declared Mali free of Ebola (*6*).

The latest updates on the ongoing Ebola epidemic in West Africa, including case counts, are available at http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/index.html. The most up-to-date infection control and clinical guidelines for the Ebola epidemic in West Africa are available at http://www.cdc.gov/vhf/ebola/hcp/index.html.

Acknowledgments

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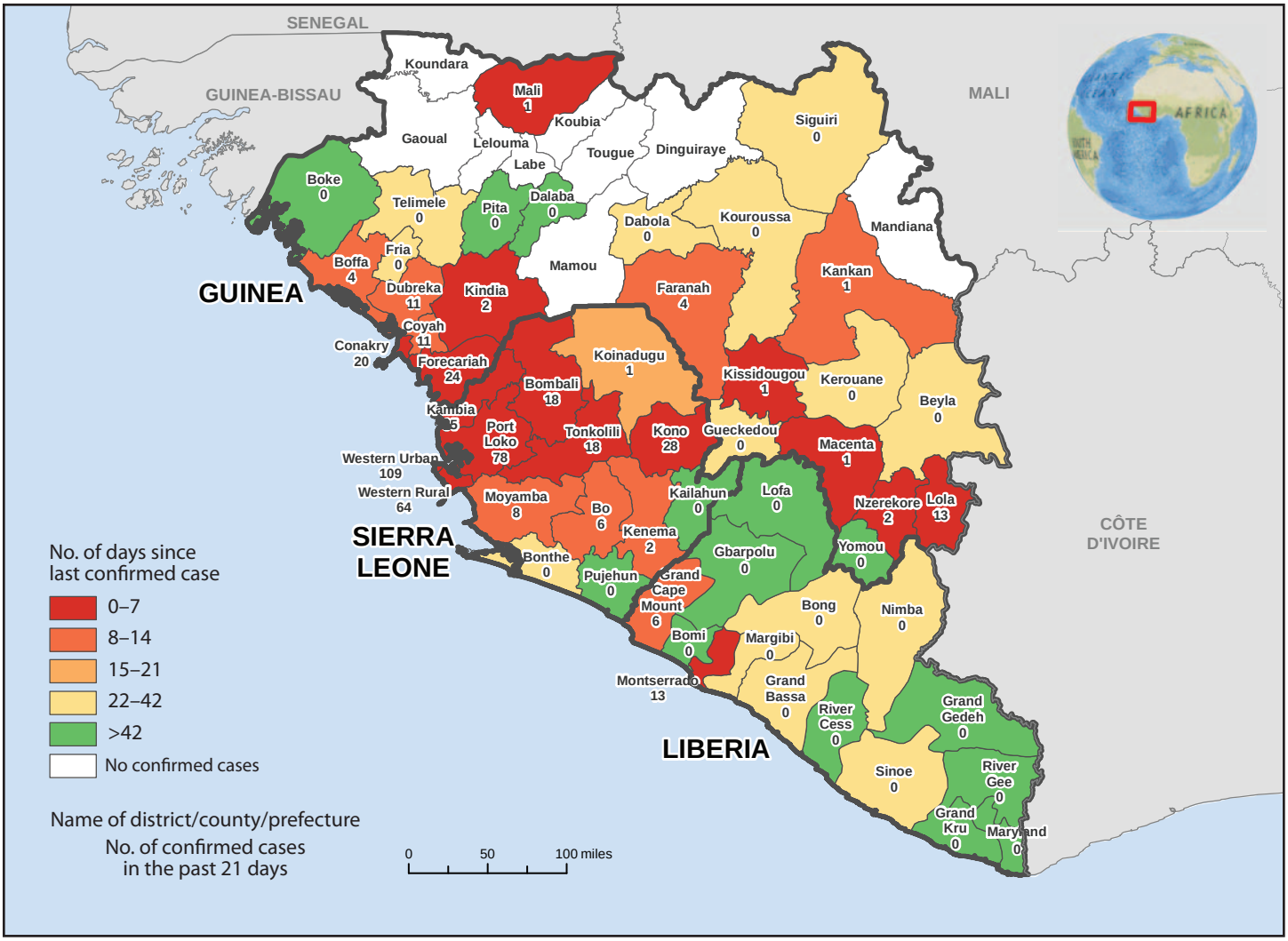
FIGURE. Number of days since last confirmed case of Ebola virus disease and number of confirmed cases in the past 21 days — Guinea, Liberia, and Sierra Leone, January 5–25, 2015*



Sources: Guinea Ministry of Health; Liberia Ministry of Health and Social Welfare; Sierra Leone Ministry of Health and Sanitation; World Health Organization.
* Data as of January 25, 2015.

Outbreaks of Avian Influenza A (H5N2), (H5N8), and (H5N1) Among Birds — United States, December 2014–January 2015

Michael A. Jhung, MD[1], Deborah I. Nelson, PhD[2] (Author affiliations at end of text)

On February 3, 2015, this report was posted as an MMWR *Early Release on the* MMWR *website (http://www.cdc.gov/mmwr).*

During December 15, 2014–January 16, 2015, the U.S. Department of Agriculture received 14 reports of birds infected with Asian-origin, highly pathogenic* avian influenza A (HPAI) (H5N2), (H5N8), and (H5N1)† viruses. These reports§ represent the first reported infections with these viruses in U.S. wild or domestic birds. Although these viruses are not known to have caused disease in humans, their appearance in North America might increase the likelihood of human infection in the United States. Human infection with other avian influenza viruses, such as HPAI (H5N1) and (H5N6) viruses and (H7N9) virus, has been associated with severe, sometimes fatal, disease (*1–3*), usually following contact with poultry.

The 14 HPAI H5 detections, seven (H5N2), six (H5N8), and one (H5N1), occurred in five northwestern states (California, Idaho, Oregon, Utah, and Washington). Outbreaks occurred in five domestic, backyard flocks, two captive wild birds, and seven wild aquatic birds. All backyard flocks were destroyed after identification of HPAI H5 virus. Of 24 persons reporting exposure to infected birds, one person developed influenza-like illness (ILI) after exposure but subsequently tested negative for influenza.

CDC has developed testing (http://www.cdc.gov/flu/avianflu/severe-potential.htm) and influenza antiviral prophylaxis (http://www.cdc.gov/flu/avianflu/guidance-exposed-persons.htm) guidance for persons exposed to birds possibly infected with HPAI H5 viruses. Until more is known about these viruses, CDC is taking a cautious approach, and recommendations are largely consistent with guidance for influenza viruses associated with severe disease in humans. Clinicians and public health workers should consider the possibility of infection with HPAI H5 viruses in patients with ILI who have had recent contact with sick or dead birds, especially in areas where these viruses have been identified. Persons exposed to birds infected with HPAI H5 should be monitored for ILI for 10 days after their last exposure, and influenza antiviral prophylaxis may be considered to prevent infection. Persons who develop ILI after exposure to HPAI H5-infected birds should be tested immediately for influenza by the state health department. State health departments are encouraged to investigate all possible human infections with HPAI H5 virus and should notify CDC promptly when testing for influenza in persons with ILI who have been exposed to birds possibly infected with these viruses.

* Highly pathogenic refers to the spectrum of illness seen in birds.

† The H5N1 virus isolated from a U.S. wild bird is a new mixed-origin virus (a reassortant) that is genetically different from the avian H5N1 viruses that have caused human infections with high mortality in several other countries (notably in Asia and Africa). No human infections with this new reassortant H5N1 virus have been reported.

§ Available at http://www.aphis.usda.gov/wps/portal/?urile=wcm:path:/aphis_content_library/sa_our_focus/sa_animal_health/sa_animal_disease_information/sa_avian_health.

[1]Influenza Division, National Center for Immunization and Respiratory Disease, CDC. [2]Animal and Plant Health Inspection Service, U.S. Department of Agriculture, Fort Collins, Colorado (Corresponding author: Michael A. Jhung, mjhung@cdc.gov, 404-639-3747)

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Announcements

Guidance Available for Implementing and Managing Contact Tracing for Ebola in Countries Without Ebola Outbreaks

CDC has posted on its website the guidance document, "CDC Methods for Implementing and Managing Contact Tracing for Ebola Virus Disease in Less-Affected Countries" (available at http://www.cdc.gov/vhf/ebola/pdf/contact-tracing-guidelines.pdf). With Ebola, the importance of contact tracing is twofold. First, closely following all contacts of an Ebola patient during the 21-day incubation period can prevent secondary transmission. Second, detection of secondary cases early in the disease course allows them to be isolated before further transmission can occur. Rigorous attention to contact tracing is a crucial step in the containment of Ebola; a single missed contact can result in ongoing transmission.

The guidance on the CDC website provides detailed information on how to practically accomplish the objectives of contact tracing. It outlines contact tracing preparation, implementation, and management to meet these objectives. Contact tracing preparation includes defining the roles and responsibilities within the contact tracing team, training personnel, and allocating funds and resources. Implementation of contact tracing includes identifying, listing, and enrolling persons as contacts, establishing contact follow-up processes, and discharging them after completion of monitoring. Management includes hiring and training of personnel, ensuring their health and safety, addressing stigma that might be associated with being a contact or contact tracing personnel, and establishing quality assurance measures (e.g., weekly active surveillance reports).

As the current Ebola outbreak continues, this document provides countries without Ebola outbreaks with guidance on preparing, implementing, and managing contact tracing to stop secondary Ebola transmissions in the event of an imported case. Among other public health measures, prompt and efficient contact tracing is crucial to terminate the transmission of Ebola.

American Heart Month — February 2015

February is American Heart Month. The leading cause of death in the United States continues to be cardiovascular disease (CVD), which includes heart disease, hypertension (high blood pressure), and stroke. Although the rate of death attributable to CVD is decreasing (*1,2*), too few U.S. adults exhibit measures of good cardiovascular health, including adequate physical activity, a healthy diet, and ideal blood pressure. Additionally, more than one in three U.S. adults have at least one type of CVD, and nearly one in three deaths are attributed to CVD (*1*).

CVD and its risk factors are not distributed evenly across the U.S. population. Certain groups, defined by age, sex, race, ethnicity, or geography, have higher levels than others (*1*). Disproportionately high rates of avoidable CVD deaths are found among black men and among adults aged 30–74 years living in the Southeast (*3*), highlighting the need for targeted efforts to alleviate disparities and improve health (*4*). Black men experience a death rate attributable to CVD that is about 2.7 times higher than that of the lowest rate, found among white women (*4*). The reduction of CVD disparities and CVD overall are goals CDC aims to achieve through increased use of clinical protocols (*5*), partnerships with national, state, and local organizations, and educating persons at risk for CVD.

In observance of American Heart Month 2015, CDC is focusing on increased targeted consumer and health care provider messaging, as well as providing resources specifically for black men. Additional information is available at http://www.cdc.gov/dhdsp/american_heart_month.htm and http://millionhearts.hhs.gov.

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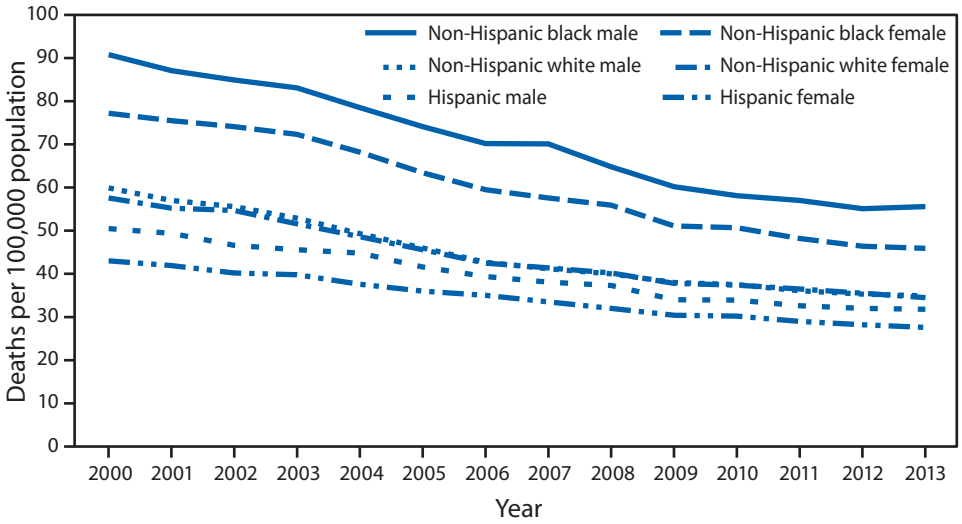
QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Age-Adjusted Death Rate* for Stroke,† by Hispanic Ethnicity, Race for Non-Hispanic Population, and Sex — United States, 2000–2013



* Per 100,000 standard population.
† As underlying cause of death, stroke is coded as I60–I69 in the *International Classification of Diseases, 10th Revision*.

During 2000–2013, age-adjusted death rates for stroke for all racial/ethnic groups decreased steadily. Non-Hispanic white males had the largest decline (41.7%), and Hispanic females had the smallest (35.8%). Throughout the period, the rate for non-Hispanic black was the highest among the racial/ethnic groups examined, followed by non-Hispanic white and Hispanic populations. The rate for males was higher than that for females in each racial/ethnic group.

Source: National Vital Statistics System. Mortality public use data files, 2000–2013. Available at http://www.cdc.gov/nchs/data_access/vitalstatsonline.htm.

Reported by: Jiaquan Xu, MD, jax4@cdc.gov, 301-458-4086.

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