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National HIV Testing Day and New Testing Recommendations

June 27 marks the 20th annual observance of National HIV Testing Day, which promotes testing as an important first step in a strategy to detect, treat, and prevent human immunodeficiency virus (HIV) infection. HIV testing is entering a new era in the United States because of Food and Drug Administration approval of 1) combination tests that detect both HIV antigen and antibody, and 2) tests that accurately differentiate HIV-1 from HIV-2 antibodies. As a result, CDC has issued new guidelines, now available online, for HIV testing of serum or plasma specimens: *Laboratory Testing for the Diagnosis of HIV Infection: Updated Recommendations*.* Testing begins with a combination immunoassay that detects HIV-1 and HIV-2 antibodies and HIV-1 p24 antigen. All specimens reactive on this initial assay undergo supplemental testing with an immunoassay that differentiates HIV-1 from HIV-2 antibodies. Specimens that are reactive on the initial immunoassay and nonreactive or indeterminate on the antibody differentiation assay proceed to HIV-1 nucleic acid testing for resolution.

The updated recommendations allow detection of acute HIV infections that would be missed by antibody tests alone and can expedite entry of patients into care because of reduced turnaround time for test results. This issue of *MMWR* describes HIV screening programs in an urban health center in New York and an emergency department in New Orleans that used novel approaches to increase the number of patients screened for HIV. Both programs identified previously undiagnosed HIV infections. Use of the new testing algorithm allowed the New Orleans program to identify antibody-negative acute infections in five (6%) of the 77 patients with newly diagnosed HIV.

Additional information on HIV testing for health professionals and the public is available at http://www.cdc.gov/hiv/testing.

* Available at http://www.cdc.gov/hiv/testing/lab/guidelines.

Routine HIV Screening in Two Health-Care Settings — New York City and New Orleans, 2011–2013

Xia Lin, PhD[1,2], Patricia M. Dietz, DrPH[2], Vanessa Rodriguez[3], Deborah Lester[3], Paloma Hernandez, MPH[3], Lisa Moreno-Walton, MD[4], Grant Johnson, MPH[4], Michelle M. Van Handel, MPH[2], Jacek Skarbinski, MD[2], Christine L. Mattson, PhD[2], Dale Stratford, PhD[2], Lisa Belcher, PhD[2], Bernard M. Branson, MD[2]
(Author affiliations at end of text)

Approximately 16% of the estimated 1.1 million persons living with human immunodeficiency virus (HIV) in the United States are unaware of their infection and thus unable to benefit from effective treatment that improves health and reduces transmission risk (*1,2*). Since 2006, CDC has recommended that health-care providers screen for HIV all patients aged 13–64 years unless prevalence of undiagnosed HIV infection in their patients has been documented to be <0.1% (*3*). This report describes novel HIV screening programs at the Urban Health Plan (UHP), Inc. in New York City and the Interim Louisiana Hospital (ILH) in New Orleans. Data were provided by the two programs. UHP screened a monthly average of 986 patients for HIV during

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January 2011–September 2013. Of the 32,534 patients screened, 148 (0.45%) tested HIV-positive, of whom 147 (99%) received their test result and 43 (29%) were newly diagnosed. None of the 148 patients with HIV infection were previously receiving medical care, and 120 (81%) were linked to HIV medical care. The ILH emergency department (ED) and the urgent-care center (UCC) screened a monthly average of 1,323 patients from mid-March to December 2013. Of the 12,568 patients screened, 102 (0.81%) tested HIV-positive, of whom 100 (98%) received their test result, 77 (75%) were newly diagnosed, and five (5%) had acute HIV infection. Linkage to HIV medical care was successful for 67 (74%) of 91 patients not already in care. Routine HIV screening identified patients with new and previously diagnosed HIV infection and facilitated their linkage to medical care. The two HIV screening programs highlighted in this report can serve as models that could be adapted by other health-care settings.

UHP, a federally qualified health center network of eight practice sites and eight school-based health centers, serves approximately 60,000 unique patients each year. ILH, a public hospital, serves approximately 76,000 unique patients in its ED and UCC each year. Both received startup funding from Gilead Sciences' HIV on the Frontlines of Communities in the United States (FOCUS)* program to implement routine HIV screening based on four principles: 1) institutional policy change reflecting an organization-wide commitment to routine HIV testing and diagnosis; 2) integration of HIV testing into existing clinical workflows to promote its normalization and sustainability; 3) use of electronic health records (EHR) to prompt testing, automate laboratory orders, and track performance; and 4) required staff education on best HIV testing practices and outcomes.

Before FOCUS, UHP counselors conducted risk-based, point-of-care rapid or laboratory HIV tests. With the new routine supported by FOCUS at UHP from January 2011 to September 2013, a medical assistant provides HIV information required by New York state, offers an HIV test to all patients aged 13–64 years with no documented HIV test within 12 months, and documents the offer in the EHR. The EHR prompts the health-care provider to confirm the patient's agreement, and the health-care provider orders an HIV laboratory test. Negative test results are provided at the patient's next visit or by letter. The program coordinator contacts patients who test positive and schedules an appointment to receive their test results and follow-up at the center that provides primary HIV medical care. The UHP commercial laboratory uses an HIV antibody assay and Western blot that detects established but not acute HIV infection, the highly infectious stage before antibodies to HIV develop that contributes disproportionately to HIV transmission (*4*).

Before March 2013, when support from FOCUS began, ILH conducted opt-in HIV screening with point-of-care rapid

*FOCUS supports routine HIV screening programs with partners at 65 community health centers and 54 hospitals in 12 cities that account for 45% of persons of living with HIV/acquired immunodeficiency syndrome (AIDS) in the United States. Additional information is available at http://www.gilead.com/responsibility/hiv-focus-program.

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tests 70 hours a week using staff dedicated only to HIV testing and counseling. Now the EHR prompts an HIV test offer at triage to all ED and UCC patients aged ≥13 years who have had no documented HIV test within 6 months. Unless the patient declines, the HIV test is ordered and processed in the hospital laboratory 24 hours a day, 7 days a week. Test results are delivered during the same visit. Patients who test positive receive CD4+ T-lymphocyte cell count and HIV viral load tests, meet with a navigator, and are linked to local HIV care facilities. The ILH laboratory uses an HIV antigen/antibody combination assay and, if necessary, a nucleic acid test to detect acute or established HIV infection.

Each program provided data on the testing outcomes before and after the new screening programs, which were collected from EHRs (last updated in March 2014). At UHP, new diagnosis and linkage to care[†] were based on patient report and chart review. ILH defined a new HIV diagnosis as one not previously reported to the HIV surveillance system; linkage to care was based on chart review.

At UHP, the percentage of patients tested for HIV increased from 8% during calendar year 2010 to 56% during January 2011–September 2013. The monthly average number of patients screened increased from 188 during 2007–2010 to 986 during the routine screening period. Of the 3,358 patients screened in 2010, 19 (0.57%) tested HIV-positive, of whom three (16%) were newly diagnosed. Of the 32,534 patients screened during January 2011–September 2013, 148 (0.45%) tested HIV-positive, of whom 147 (99%) received their test result and 43 (29%) were newly diagnosed. The prevalence of newly diagnosed HIV infection was higher among males (0.25%) than females (0.08%), non-Hispanics (0.23%) than Hispanics (0.12%), and persons aged ≥31 years (0.18%–0.19%) than persons aged ≤30 years (0.08%) (Table 1). None of the 148 patients diagnosed with HIV were previously receiving medical care, and 120 (81%) were subsequently linked to HIV medical care.

At ILH, the HIV screening program increased the percentage of patients tested from 17% (ED) and 3% (UCC) during calendar year 2012 to 26% (ED) and 17% (UCC) from mid-March to December 2013. The monthly average number of patients screened increased from 821 during 2010–2012 to 1,323 in the 2013 period. Of the 11,257 patients screened in 2012, 106 (0.94%) tested HIV-positive, of whom 54 (51%) were newly diagnosed. Of the 12,568 patients screened from mid-March to December 2013, 102 (0.81%) tested HIV-positive, of whom 100 (98%) received their test result, 77 (75%) were newly diagnosed, and five (5%) had acute HIV infection. The prevalence of newly diagnosed HIV infection was higher among males (0.89%) than females (0.28%), blacks (0.63%) than whites (0.49%), Hispanics (1.00%) than non-Hispanics (0.60%), and persons aged 23–30 years (0.92%) than in age groups <23 (0.68%) and >30 years (0.32%–0.71%) (Table 2). Among the 102 patients testing HIV-positive, 91 (89%) were not previously receiving medical care; 67 (74%) of these 91 patients, including the five patients with acute HIV infection, were linked to HIV medical care.

[†] Linkage to care was defined as attendance at first medical appointment within 1 month of diagnosis.

What is already known on this topic?

In 2006, CDC issued recommendations for routine human immunodeficiency virus (HIV) screening of adults, adolescents, and pregnant women in health-care settings. However, many clinical settings have not adopted routine screening. Routine screening promotes the linkage of HIV-infected persons into medical care. This allows them to benefit from effective treatment, which improves their health and reduces HIV transmission.

What is added by this report?

Electronic health record prompts, staff education, and shift from point-of-care rapid testing to laboratory testing were features that made routine HIV screening programs successful at the Urban Health Plan in New York City and the Interim Louisiana Hospital in New Orleans. This allowed integration of HIV screening into clinic workflow, scalability (i.e., the ability to expand the number of patients screened), and sustainability. In addition to identifying patients newly diagnosed with HIV infection, routine screening also identified patients previously diagnosed but not in care, and actively linked these patients to care.

What are the implications for public health practice?

These programs made HIV screening more scalable, and linked patients to HIV care. The design is being sustained without external support at the Urban Health Plan and is being replicated in other clinics. These two programs can serve as models that could be adapted by other health-care settings.

Discussion

The findings of both FOCUS programs demonstrate that routine HIV screening using existing clinical staff increased the numbers of patients tested and diagnosed with HIV infection. The prevalence of undiagnosed HIV infection at both programs exceeded CDC's recommended threshold (≥0.1%) for routine screening (*3*), and most persons previously diagnosed with HIV infection at both programs were not receiving medical care. UHP and ILH identified patients with undiagnosed and previously diagnosed HIV infections and successfully linked the majority to HIV medical care. Active linkage is an essential element of a routine screening program to ensure that HIV-infected persons receive HIV care and services. These integrated routine HIV screening programs can serve as models for other emergency and primary health-care settings.

TABLE 1. Selected characteristics of persons screened for and diagnosed with HIV infection — Urban Health Plan, New York City, January 2011–September 2013

Characteristic	Screened for HIV (n = 32,534)		Diagnosed with HIV (n = 148)		Previously diagnosed with HIV (n = 105)		Newly diagnosed with HIV (n = 43)		
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	% of total screened
Sex									
Male	10,080	(31)	94	(64)	69	(66)	25	(58)	0.25
Female	22,454	(69)	54	(36)	36	(34)	18	(42)	0.08
Race									
White	385	(1)	1	(1)	0	—	1	(2)	0.26
Black	4,129	(13)	57	(39)	47	(45)	10	(23)	0.24
Asian	58	(<1)	0	—	0	—	0	—	—
AI/AN	18	(<1)	0	—	0	—	0	—	—
NHOPI	155	(<1)	1	(1)	1	(1)	0	—	—
Biracial or multiracial	15,998	(49)	86	(58)	54	(51)	32	(74)	0.2
Unknown*	11,791	(36)	3	(2)	3	(3)	0	—	—
Ethnicity†									
Hispanic	27,005	(83)	89	(60)	57	(54)	32	(74)	0.12
Non-Hispanic	4,854	(15)	56	(38)	45	(43)	11	(26)	0.23
Unknown*	675	(2)	3	(2)	3	(3)	0	—	—
Age group (yrs)									
13–22	7,606	(23)	9	(6)	3	(3)	6	(14)	0.08
23–30	8,358	(26)	19	(13)	12	(11)	7	(16)	0.08
31–40	7,353	(23)	28	(19)	15	(14)	13	(30)	0.18
41–50	5,240	(16)	52	(35)	42	(40)	10	(23)	0.19
≥51	3,978	(12)	40	(27)	33	(31)	7	(16)	0.18

Abbreviations: HIV = human immunodeficiency virus; AI/AN = American Indian/Alaska Native; NHOPI = Native Hawaiian or Other Pacific Islander.
* "Unknown" includes missing, "don't know," and "declined to answer."
† Ethnicity was defined irrespective of race.

TABLE 2. Selected characteristics of persons screened for and diagnosed with HIV infection — Interim Louisiana Hospital, New Orleans, March 2013–December 2013

Characteristic	Screened for HIV (n = 12,568)		Diagnosed with HIV (n = 102)		Previously diagnosed with HIV (n = 25)		Newly diagnosed with HIV (n = 77)		
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	% of total screened
Sex									
Male	6,883	(55)	77	(75)	16	(64)	61	(79)	0.89
Female	5,685	(45)	25	(25)	9	(36)	16	(21)	0.28
Race									
White	2,666	(21)	18	(18)	5	(20)	13	(17)	0.49
Black	8,828	(70)	74	(73)	18	(72)	56	(73)	0.63
Asian	98	(1)	0	—	0	—	0	—	—
AI/AN	12	(<1)	0	—	0	—	0	—	—
NHOPI	8	(<1)	0	—	0	—	0	—	—
Biracial or multiracial	824	(7)	10	(10)	2	(8)	8	(10)	0.97
Unknown*	132	(1)	0	—	0	—	0	—	—
Ethnicity†									
Hispanic	697	(6)	10	(10)	3	(12)	7	(9)	1.00
Non-Hispanic	11,675	(93)	92	(90)	22	(88)	70	(91)	0.60
Unknown*	196	(2)	0	—	0	—	0	—	—
Age group (yrs)									
13–22	1,031	(8)	7	(7)	0	—	7	(9)	0.68
23–30	2,386	(19)	25	(25)	3	(12)	22	(29)	0.92
31–40	2,552	(20)	23	(23)	5	(20)	18	(23)	0.71
41–50	2,795	(22)	29	(28)	11	(44)	18	(23)	0.64
≥51	3,804	(30)	18	(18)	6	(24)	12	(16)	0.32

Abbreviations: HIV = human immunodeficiency virus; AI/AN = American Indian/Alaska Native; NHOPI = Native Hawaiian or Other Pacific Islander.
* "Unknown" includes missing, "don't know," and "declined to answer."
† Ethnicity was defined irrespective of race.

Several factors associated with the FOCUS principles, including supportive institutional policy changes, EHR prompts, staff education, and conventional laboratory testing for HIV, contributed to these sustainable and scalable routine HIV screening programs. Similar EHR prompts, provider training, and periodic feedback led to immediate and sustained increases in HIV testing in Veterans Healthcare Administration facilities during 2009–2011 (*5*). New laboratory testing methods can reduce turnaround time for test results, are more sensitive during early infection, and can detect acute HIV infections. The transition from point-of-care rapid testing to laboratory testing reduced staff time (*6*) and costs (*7*), increased feasibility to test larger numbers of patients, and allowed ILH to detect acute HIV infections. Almost all patients who tested HIV-positive received their test results. UHP received FOCUS support in the first 2 years but has continued the HIV screening program without external funding. Replication of the FOCUS model has begun; UHP staff trained five federally qualified health centers in New York City in 2013 to implement routine HIV screening.

The findings in this report are subject to at least four limitations. First, it was not possible to assess how much each factor of the new screening strategy individually contributed to the increase in screening. Second, the findings from this study might not be generalizable to other clinic settings with different HIV prevalence. Third, UHP might have underestimated HIV infections because its laboratory testing was unable to detect acute HIV infection. Finally, linkage to care might be underreported if it occurred at a different care facility.

Routine HIV screening with an active linkage element reduces the number of persons unaware of their HIV infection and links patients to medical care. These patients are then able to benefit from effective treatment to improve health and reduce transmission risk (*2*). The two programs highlighted in this report screened more patients for HIV by using EHR prompts, conventional laboratory testing, and provider training and feedback. Combined, these techniques identified more patients with HIV infection and linked them to care by adopting practices that other health-care settings might choose to replicate.

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[1]EIS officer, CDC; [2]Division of HIV/AIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, CDC; [3]Urban Health Plan, Inc., New York, New York; [4]Section of Emergency Medicine, Louisiana State University Health Sciences Center (Corresponding author: Xia Lin, xmlin@cdc.gov, 404-639-5296)

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Tobacco Product Use Among Adults — United States, 2012–2013

Israel T. Agaku, DMD[1,2], Brian A. King, PhD[1], Corinne G. Husten, MD[3], Rebecca Bunnell, ScD[1], Bridget K. Ambrose, PhD[3], S. Sean Hu, MD[1], Enver Holder-Hayes, MPH[3], Hannah R. Day, PhD[3] (Author affiliations at end of text)

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Despite significant declines in cigarette smoking among U.S. adults over the past five decades, progress has slowed in recent years, and the prevalence of use of other tobacco products such as cigars and smokeless tobacco has not changed (*1,2*). Additionally, the prevalence of use of emerging products, including electronic cigarettes (e-cigarettes), has rapidly increased (*3*). This report provides the most recent national estimates of tobacco use among adults aged ≥18 years, using data from the 2012–2013 National Adult Tobacco Survey (NATS). The findings indicate that 21.3% of U.S. adults used a tobacco product every day or some days, and 25.2% used a tobacco product every day, some days, or rarely. Population-level interventions focused on the diversity of tobacco product use, including tobacco price increases, high-impact antitobacco mass media campaigns, comprehensive smoke-free laws, and enhanced access to help quitting, in conjunction with Food and Drug Administration (FDA) regulation of tobacco products, are critical to reducing tobacco-related diseases and deaths in the United States (*4*).

The 2012–2013 NATS is a stratified, national random-digit–dialed landline and cellular telephone survey of 60,192 noninstitutionalized U.S. adults aged ≥18 years. The response rate to the survey was 44.9% (landline = 47.2%, cellular = 36.3%). The survey assessed use of the following tobacco product types: cigarettes, cigars/cigarillos/filtered little cigars, regular pipes, water pipes/hookah, e-cigarettes; chewing tobacco/snuff/dip, snus, and dissolvable tobacco products. Based on documented differences in the patterns of tobacco product use (*1*), NATS assessed varying thresholds of lifetime use to separate established users from experimenters and nonusers. Usage thresholds for the different tobacco product types were as follows: cigarettes (≥100 times), cigars/cigarillos/filtered little cigars (≥50 times), regular pipes (≥50 times), water pipes/hookahs (≥1 time), chewing tobacco/snuff/dip (≥20 times), e-cigarettes (≥1 time), snus (≥1 time), and dissolvable tobacco products (≥1 time). Respondents who met the respective thresholds were then asked if they now used the product "every day," "some days," or "not at all." A response option of "rarely" was also provided for all tobacco products other than cigarettes based on cognitive testing suggesting that some users of these other products did not consider "some days" or "not at all" to accurately reflect their use pattern. Because of limited sample size, all smokeless tobacco products (chewing tobacco/snuff/dip, snus, and dissolvable tobacco products) were aggregated into a single category.

Data were weighted to provide nationally representative estimates. Two definitions were used to assess the effect of occasional tobacco use on estimates of current tobacco use: 1) every day or some days, and 2) every day, some days, or rarely. Any tobacco product use was defined as use of at least one tobacco product type.* Any combustible tobacco product use was defined as use of at least one of the following tobacco product types: cigarettes, cigars/cigarillos/filtered little cigars, regular pipes, or water pipes/hookah. Tobacco use prevalence estimates were calculated overall and by sex, age, race/ethnicity, U.S. Census region,† education, annual household income, and sexual orientation. Prevalence estimates with a relative standard error ≥30% were omitted. Differences between groups were assessed using chi-squared statistics ($p<0.05$).

The percentages of all respondents who had ever met the threshold for each product type (i.e., current and former users), were as follows: cigarettes, 43.1%; cigars/cigarillos/filtered little cigars, 12.6%; regular pipes, 5.0%; water pipes/hookahs, 12.3%; e-cigarettes, 14.1%; chewing tobacco/snuff/dip, 9.6%; dissolvable tobacco products, 0.4%; and snus, 5.4%.

During 2012–2013, an estimated 21.3% of U.S. adults used any tobacco product every day or some days (73.4% of these used ≥1 tobacco products daily), and 19.2% used any combustible tobacco product every day or some days (72.1% of these used ≥1 combustible tobacco products daily) (Table 1). Prevalence of every day or some days use of specific tobacco products was as follows: cigarettes, 18.0%; cigars/cigarillos/filtered little cigars, 2.0%; regular pipes, 0.3%; water pipes/hookah, 0.5%; e-cigarettes, 1.9%; smokeless tobacco, 2.6%. An estimated 25.2% of U.S. adults reported now using any tobacco product every day, some days, or rarely (62.7% of these used ≥1 tobacco products daily), and 22.9% used any combustible tobacco product every day, some days, or rarely (60.6% of these used ≥1 combustible tobacco products daily) (Table 2). Prevalence of every day, some days, or rarely use was

* Participants with missing responses for any of the assessed tobacco products (1.6% of respondents) were excluded.

† *Northeast*: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. *Midwest*: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. *South*: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. *West*: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

TABLE 1. Percentage of persons aged ≥18 years who were "every day" or "some day" tobacco users among those who met established thresholds, by tobacco product and selected characteristics — National Adult Tobacco Survey, United States, 2012–2013

Characteristics	Any tobacco product*		Any combustible tobacco product†		Cigarettes§		Cigars/ Cigarillos/ Filtered little cigars**		Regular pipe††		Waterpipe/ hookah§§		Electronic cigarettes¶¶		Smokeless tobacco***	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Overall	**21.3**	**(20.8–21.8)**	**19.2**	**(18.7–19.7)**	**18.0**	**(17.5–18.5)**	**2.0**	**(1.8–2.2)**	**0.3**	**(0.2–0.4)**	**0.5**	**(0.4–0.6)**	**1.9**	**(1.8–2.1)**	**2.6**	**(2.4–2.7)**
Sex																
Men	26.2	(25.4–27.0)	22.6	(21.8–23.4)	20.0	(19.8–21.4)	3.2	(2.8–3.5)	0.5	(0.4–0.6)	0.6	(0.5–0.8)	2.2	(1.9–2.5)	4.8	(4.4–5.2)
Women	15.4	(14.8–16.0)	14.9	(14.3–15.5)	14.5	(13.9–15.1)	0.7	(0.6–0.9)	—¶		0.4	(0.2–0.5)	1.6	(1.4–1.8)	0.3	(0.2–0.3)
Age group (yrs)																
18–24	24.0	(22.3–25.7)	21.3	(19.7–23.0)	18.5	(16.9–20.0)	3.4	(2.6–4.2)	0.5	(0.3–0.7)	2.5	(1.9–3.2)	2.4	(1.8–3.0)	4.4	(3.7–5.1)
25–44	25.2	(24.2–26.2)	23.0	(22.0–23.9)	21.8	(20.9–22.8)	2.3	(1.9–2.6)	0.3	(0.2–0.4)	0.5	(0.3–0.6)	2.4	(2.0–2.7)	3.1	(2.7–3.5)
45–64	22.3	(21.5–23.0)	20.2	(19.4–20.9)	19.2	(18.5–19.9)	1.7	(1.5–1.9)	0.2	(0.2–0.3)	—¶		2.0	(1.7–2.2)	2.1	(1.9–2.4)
≥65	9.5	(9.0–10.1)	8.6	(8.0–9.1)	7.8	(7.3–8.3)	0.9	(0.7–1.1)	0.3	(0.2–0.4)	—¶		0.6	(0.5–0.8)	1.0	(0.8–1.2)
Race/Ethnicity																
White, Non-Hispanic	20.7	(20.1–21.3)	18.2	(17.7–18.8)	17.2	(16.6–17.7)	1.6	(1.4–1.8)	0.3	(0.2–0.4)	0.4	(0.3–0.6)	2.1	(1.9–2.3)	3.0	(2.8–3.3)
Black, Non-Hispanic	22.5	(20.7–24.3)	21.6	(19.9–23.4)	19.7	(18.0–21.4)	3.7	(2.8–4.6)	—¶		—¶		0.8	(0.5–1.2)	1.0	(0.6–1.3)
Asian, Non-Hispanic	8.8	(6.2–11.3)	8.6	(6.1–11.2)	7.6	(5.3–10.0)	—¶		—¶		—¶		—¶		—¶	
Other, Non-Hispanic	33.0	(30.8–35.2)	29.8	(27.6–32.0)	27.9	(25.7–30.0)	3.7	(2.8–4.6)	0.8	(0.4–1.2)	0.9	(0.5–1.3)	3.8	(2.9–4.8)	4.4	(3.4–5.3)
Hispanic	15.9	(14.6–17.3)	15.4	(14.1–16.8)	14.6	(13.2–15.9)	1.4	(0.9–1.9)	—¶		0.6	(0.3–0.9)	1.1	(0.8–1.4)	0.6	(0.4–0.9)
U.S. Census region†††																
Northeast	19.7	(18.4–21.0)	18.0	(16.7–19.2)	16.0	(15.5–17.9)	1.8	(1.3–2.3)	0.5	(0.2–0.7)	0.7	(0.4–1.0)	1.8	(1.3–2.2)	1.9	(1.5–2.3)
Midwest	23.9	(22.7–25.0)	20.9	(19.8–22.0)	19.4	(18.3–20.5)	2.4	(1.9–2.8)	0.4	(0.2–0.5)	0.5	(0.3–0.7)	2.2	(1.8–2.7)	3.9	(3.3–4.5)
South	22.9	(22.0–23.8)	20.7	(19.8–21.6)	19.5	(18.6–20.3)	2.3	(2.0–2.7)	0.3	(0.2–0.3)	0.5	(0.3–0.6)	2.0	(1.7–2.3)	2.8	(2.5–3.2)
West	19.0	(18.2–19.9)	17.5	(16.7–18.3)	16.4	(15.6–17.2)	1.5	(1.3–1.8)	0.2	(0.2–0.3)	0.6	(0.4–0.7)	1.8	(1.5–2.0)	1.9	(1.7–2.2)
Education																
0–12 years (no diploma)	28.2	(26.3–30.1)	26.5	(24.6–28.3)	25.6	(23.7–27.4)	2.5	(1.8–3.2)	0.2	(0.1–0.3)	—¶		1.6	(1.1–2.0)	2.7	(2.1–3.3)
GED	43.8	(39.5–48.1)	42.0	(37.7–46.3)	41.0	(36.7–45.3)	3.8	(1.9–5.6)	—¶		—¶		3.1	(1.5–4.6)	3.3	(1.8–4.7)
High school diploma	24.2	(23.1–25.3)	21.4	(20.4–22.5)	20.2	(19.2–21.2)	2.2	(1.8–2.6)	0.3	(0.2–0.4)	0.7	(0.4–0.9)	2.4	(2.0–2.8)	3.5	(3.1–4.0)
Some college, no diploma	23.6	(22.4–24.9)	21.5	(20.4–22.7)	20.0	(18.8–21.1)	2.2	(1.8–2.7)	0.5	(0.2–0.7)	1.0	(0.6–1.3)	2.5	(2.0–2.9)	2.3	(1.9–2.8)
Associate degree	21.4	(20.2–22.6)	19.2	(18.0–20.4)	18.0	(16.8–19.1)	1.8	(1.4–2.3)	0.3	(0.1–0.5)	—¶		2.5	(2.0–2.9)	2.5	(2.0–2.9)
Undergraduate degree	10.9	(10.2–11.6)	9.2	(8.6–9.9)	8.2	(7.6–8.8)	1.1	(0.9–1.3)	0.2	(0.1–0.4)	0.3	(0.1–0.4)	1.0	(0.8–1.2)	1.8	(1.4–2.1)
Graduate degree	6.3	(5.7–6.9)	5.7	(5.1–6.2)	4.9	(4.3–5.4)	0.7	(0.5–0.9)	0.1	(0.1–0.2)	—¶		0.5	(0.3–0.6)	0.7	(0.4–0.9)
Annual household income ($)																
<20,000	29.8	(28.0–31.5)	27.9	(26.1–29.6)	26.4	(24.7–28.1)	3.8	(3.0–4.5)	0.4	(0.2–0.6)	0.6	(0.3–0.9)	2.5	(1.9–3.1)	2.2	(1.7–2.7)
20,000–49,999	25.6	(24.5–26.6)	23.7	(22.7–24.8)	22.6	(21.6–23.6)	1.9	(1.6–2.3)	0.2	(0.1–0.3)	0.5	(0.4–0.7)	1.9	(1.6–2.2)	2.5	(2.2–2.9)
50,000–99,999	19.3	(18.3–20.2)	16.9	(16.0–17.8)	15.7	(14.8–16.6)	1.6	(1.3–2.0)	0.3	(0.1–0.4)	0.5	(0.3–0.7)	2.3	(1.9–2.7)	2.8	(2.4–3.2)
≥100,000	12.8	(11.9–13.7)	10.6	(9.8–11.5)	9.3	(8.5–10.1)	1.7	(1.3–2.1)	0.2	(0.1–0.3)	0.4	(0.2–0.6)	1.4	(1.0–1.7)	2.8	(2.3–3.3)
Unspecified	20.9	(19.7–22.0)	19.0	(18.1–20.3)	18.0	(16.9–19.1)	1.8	(1.4–2.2)	0.4	(0.3–0.6)	0.6	(0.4–0.9)	1.6	(1.2–1.9)	2.2	(1.8–2.6)
Sexual orientation																
Heterosexual/straight	20.5	(20.0–21.1)	18.5	(18.0–19.0)	17.3	(16.8–17.8)	1.9	(1.7–2.1)	0.2	(0.2–0.3)	0.4	(0.3–0.5)	1.9	(1.7–2.1)	2.6	(2.4–2.8)
LGBT	30.8	(27.7–34.0)	29.4	(26.3–32.5)	27.7	(24.7–30.7)	3.0	(1.6–4.3)	—¶		—¶		4.5	(3.0–5.9)	1.9	(0.9–2.9)
Unspecified	24.0	(22.3–25.6)	21.9	(20.3–23.5)	20.4	(18.9–22.0)	2.6	(2.0–3.2)	0.7	(0.5–1.0)	1.1	(0.6–1.5)	1.5	(1.1–2.0)	2.7	(2.1–3.3)

Abbreviations: CI = confidence interval; GED = General Education Development certificate; LGBT = lesbian, gay, bisexual, or transgender.

* Any tobacco use was defined as "every day" or "some days" use of cigarettes; cigars, cigarillos, or filtered little cigars; pipes; water pipes/hookah; electronic cigarettes; or smokeless tobacco (snus, dissolvable tobacco products, snuff, chewing tobacco, or dip).

† Any combustible tobacco use was defined as "every day" or "some days" use of cigarettes; cigars, cigarillos, or filtered little cigars; pipes; or water pipes/hookah.

§ Reported smoking at least 100 cigarettes during their lifetime and now smoked "every day" or "some days."

¶ Estimate not presented because relative standard error ≥30%.

** Reported smoking at least 50 cigars, cigarillos, or filtered little cigars during their lifetime and now smoked "every day" or "some days."

†† Reported smoking a regular pipe filled with tobacco at least 50 times during their lifetime and now smoked "every day" or "some days."

§§ Reported smoking tobacco in a hookah at least once during their lifetime and now smoked "every day" or "some days."

¶¶ Reported smoking electronic cigarettes at least once during their lifetime and now smoked "every day" or "some days."

*** Smokeless tobacco users were defined using three product types: 1) chewing tobacco, snuff, or dip; 2) snus; and 3) dissolvable tobacco products. Chewing tobacco, snuff, or dip users were respondents who reported using the product at least 20 times during their lifetime and now used it "every day" or "some days." Snus or dissolvable tobacco product users were respondents who reported using each respective product at least once during their lifetime and now used it "every day" or "some days."

††† *Northeast*: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. *Midwest*: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. *South*: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. *West*: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

TABLE 2. Percentage of persons aged ≥18 years who were "every day," "someday," or "rarely" tobacco users among those who met established thresholds, by tobacco product and selected characteristics — National Adult Tobacco Survey, United States, 2012–2013

Characteristics	Any tobacco product*		Any combustible tobacco product†		Cigars/Cigarillos/ Filtered little cigars§		Regular pipe**		Water pipe/ Hookah††		Electronic cigarettes§§		Smokeless tobacco¶¶	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Overall	**25.2**	**(24.7–25.7)**	**22.9**	**(22.4–23.4)**	**5.8**	**(5.5–6.1)**	**0.9**	**(0.8–1.0)**	**3.9**	**(3.6–4.1)**	**4.2**	**(3.9–4.5)**	**3.8**	**(3.6–4.0)**
Sex														
Men	31.8	(31.0–32.6)	27.9	(27.1–28.8)	10.1	(9.5–10.7)	1.6	(1.4–1.8)	4.8	(4.4–5.2)	4.7	(4.3–5.1)	7.1	(6.6–7.5)
Women	17.5	(16.9–18.2)	16.8	(16.2–17.4)	1.5	(1.3–1.7)	0.2	(0.1–0.2)	2.7	(2.4–3.1)	3.6	(3.3–3.9)	0.4	(0.3–0.5)
Age group (years)														
18-24	35.2	(33.3–37.1)	32.2	(30.3–34.1)	8.9	(7.8–10.1)	1.2	(0.8–1.5)	18.2	(16.7–19.7)	8.3	(7.2–9.4)	6.6	(5.7–7.5)
25-44	29.5	(28.5–30.5)	27.0	(26.0–28.0)	7.4	(6.8–8.0)	1.0	(0.8–1.3)	3.9	(3.5–4.3)	5.0	(4.5–5.5)	5.1	(4.6–5.6)
45-64	24.5	(23.7–25.3)	22.1	(21.4–22.9)	4.9	(4.5–5.3)	0.7	(0.6–0.9)	0.4	(0.3–0.5)	3.4	(3.1–3.8)	2.7	(2.4–3.0)
≥65	10.6	(10.0–11.2)	9.4	(8.8–10.0)	2.0	(1.7–2.3)	0.6	(0.5–0.7)	—¶		1.1	(0.9–1.3)	1.2	(1.0–1.4)
Race/Ethnicity														
White, Non-Hispanic	24.6	(23.9–25.2)	21.8	(21.2–22.4)	5.6	(5.2–5.9)	0.9	(0.7–1.0)	3.6	(3.3–3.9)	4.4	(4.1–4.8)	4.4	(4.0–4.7)
Black, Non-Hispanic	25.5	(23.6–27.3)	24.4	(22.5–26.2)	6.5	(5.3–7.6)	—¶		2.0	(1.4–2.7)	1.8	(1.2–2.4)	1.3	(0.9–1.8)
Asian, Non-Hispanic	12.5	(9.7–15.3)	12.3	(9.4–15.1)	2.1	(0.9–3.3)	—¶		5.0	(3.1–7.0)	1.8	(0.7–2.9)	0.2	(0.1–0.4)
Other, Non-Hispanic	36.7	(34.4–39.0)	33.3	(31.0–35.5)	9.6	(8.1–11.0)	2.7	(1.9–3.5)	5.6	(4.4–6.8)	7.4	(6.2–8.7)	6.3	(5.1–7.5)
Hispanic	20.2	(18.7–21.7)	19.3	(17.8–20.8)	4.4	(3.6–5.2)	0.4	(0.2–0.7)	4.6	(3.8–5.4)	3.3	(2.6–4.0)	1.7	(1.2–2.1)
U.S. Census region* **														
Northeast	23.7	(22.4–25.1)	21.6	(20.3–22.9)	5.8	(5.0–6.6)	1.1	(0.7–1.4)	3.9	(3.1–4.6)	3.9	(3.2–4.6)	3.1	(2.5–3.7)
Midwest	27.7	(26.4–28.9)	24.6	(23.5–25.8)	6.4	(5.7–7.1)	1.2	(0.9–1.5)	4.0	(3.4–4.6)	4.7	(4.1–5.3)	5.4	(4.8–6.1)
South	26.4	(25.5–27.4)	24.0	(23.1–24.9)	6.2	(5.7–6.7)	0.9	(0.7–1.1)	3.5	(3.0–3.9)	4.5	(4.0–4.9)	4.2	(3.7–4.6)
West	23.3	(22.4–24.1)	21.4	(20.5–22.3)	5.1	(4.6–5.6)	0.7	(0.5–0.9)	4.3	(3.8–4.8)	3.9	(3.5–4.3)	2.9	(2.6–3.2)
Education														
0–12 years (no diploma)	30.1	(28.2–32.0)	28.0	(26.1–29.8)	5.9	(4.9–6.9)	1.2	(0.8–1.6)	2.1	(1.4–2.9)	4.0	(3.1–4.8)	3.6	(2.9–4.3)
GED	47.3	(43.0–51.6)	45.0	(40.7–49.4)	10.1	(7.0–13.2)	—¶		3.9	(2.0–5.8)	8.1	(5.5–10.7)	6.7	(4.5–8.9)
High School diploma	27.8	(26.6–28.9)	24.8	(23.7–25.9)	6.2	(5.6–6.9)	0.7	(0.5–0.9)	4.0	(3.4–4.6)	5.0	(4.5–5.6)	4.9	(4.4–5.5)
Some college, no diploma	28.5	(27.2–29.8)	26.5	(25.2–27.7)	6.8	(6.0–7.6)	1.1	(0.8–1.4)	6.4	(5.6–7.2)	5.4	(4.7–6.1)	3.8	(3.2–4.4)
Associate degree	24.9	(23.6–26.2)	22.3	(21.0–23.6)	5.5	(4.8–6.2)	0.8	(0.6–1.1)	3.1	(2.5–3.7)	5.1	(4.4–5.8)	3.7	(3.1–4.3)
Undergraduate degree	16.0	(15.2–16.9)	14.1	(13.3–14.9)	4.5	(4.0–5.0)	0.7	(0.5–0.9)	3.7	(3.2–4.2)	2.2	(1.8–2.5)	2.7	(2.3–3.1)
Graduate degree	10.2	(9.4–11.0)	9.2	(8.5–10.0)	3.4	(2.9–3.9)	0.5	(0.3–0.7)	2.0	(1.5–2.4)	0.9	(0.7–1.2)	1.1	(0.8–1.4)
Annual household income ($)														
<20,000	32.7	(30.9–34.5)	30.4	(28.6–32.2)	7.4	(6.4–8.5)	1.4	(1.0–1.8)	3.4	(2.6–4.1)	5.4	(4.5–6.3)	3.2	(2.6–3.9)
20,000–49,999	28.5	(27.5–29.6)	26.4	(25.3–27.4)	5.7	(5.1–6.2)	0.7	(0.6–0.9)	3.6	(3.1–4.1)	4.6	(4.1–5.1)	3.8	(3.4–4.3)
50,000–99,999	23.5	(22.5–24.5)	20.8	(19.9–21.8)	5.4	(4.8–6.0)	1.0	(0.7–1.3)	3.9	(3.3–4.4)	4.5	(3.9–5)	4.3	(3.8–4.8)
≥100,000	18.2	(17.1–19.3)	15.8	(14.7–16.8)	6.3	(5.6–7.1)	0.6	(0.4–0.8)	3.9	(3.3–4.5)	3.1	(2.6–3.6)	3.7	(3.2–4.3)
Unspecified	24.8	(23.6–26.0)	23.0	(21.8–24.2)	5.1	(4.5–5.7)	0.9	(0.6–1.1)	4.6	(4.0–5.3)	3.8	(3.2–4.3)	3.4	(2.8–3.9)
Sexual orientation														
Heterosexual/straight	24.4	(23.8–25.0)	22.1	(21.5–22.6)	5.7	(5.4–6.0)	0.8	(0.7–0.9)	3.5	(3.2–3.8)	4.1	(3.8–4.3)	3.8	(3.5–4.0)
LGBT	35.8	(32.6–39.0)	34.3	(31.1–37.5)	7.3	(5.4–9.1)	—¶		10.7	(8.5–12.9)	9.7	(7.6–11.8)	2.7	(1.6–3.9)
Unspecified	28.0	(26.3–29.7)	25.6	(23.9–27.3)	6.2	(5.2–7.1)	1.4	(1.0–1.8)	4.8	(3.9–5.6)	3.7	(3.0–4.5)	4.1	(3.3–4.9)

Abbreviations: CI = confidence interval; GED = General Education Development certificate; LGBT = lesbian, gay, bisexual, or transgender.

* Any tobacco use was defined as "every day" or "some days" use of cigarettes; and/or "every day," "some days," or "rarely" use of cigars, cigarillos, or filtered little cigars; pipes; water-pipes/hookahs; electronic cigarettes; smokeless tobacco (snus, dissolvable tobacco products, or snuff, chewing tobacco or dip). Cigarettes not presented separately because the questionnaire only assessed "every day" or "some days" cigarette smoking. Cigarette users included in the "any tobacco product" measure includes those who reported smoking at least 100 cigarettes during their lifetime and now smoked "every day" or "some days."

† Any combustible tobacco use was defined as "every day" or "some days" use of cigarettes; and/or "every day," "some days," or "rarely" use of cigars, cigarillos, or filtered little cigars; pipes; or water pipes/hookahs. Cigarette users included in the "any combustible tobacco product" measure include those who reported smoking at least 100 cigarettes during their lifetime and now smoked "every day" or "some days."

§ Reported smoking at least 50 cigars, cigarillos, or filtered little cigars during their lifetime and now smoked "every day" or "some days" or "rarely."

¶ Estimate not presented because relative standard error ≥30%.

** Reported smoking a regular pipe filled with tobacco at least 50 times during their lifetime and now smoked "every day" or "some days" or "rarely."

†† Reported smoking tobacco in a hookah at least once during their lifetime and now smoked "every day" or "some days" or "rarely."

§§ Reported smoking electronic cigarettes at least once during their lifetime and now smoked "every day" or "some days" or "rarely."

¶¶ Smokeless tobacco users were defined using three product types: 1) chewing tobacco, snuff, or dip; 2) snus; and 3) dissolvable tobacco products. Chewing tobacco, snuff, or dip users were respondents who reported using the product at least 20 times during their lifetime and now used it "every day," "some days," or "rarely." Snus or dissolvable tobacco product users were respondents who reported using each respective product at least once during their lifetime and now used it "every day" or "some days" or "rarely."

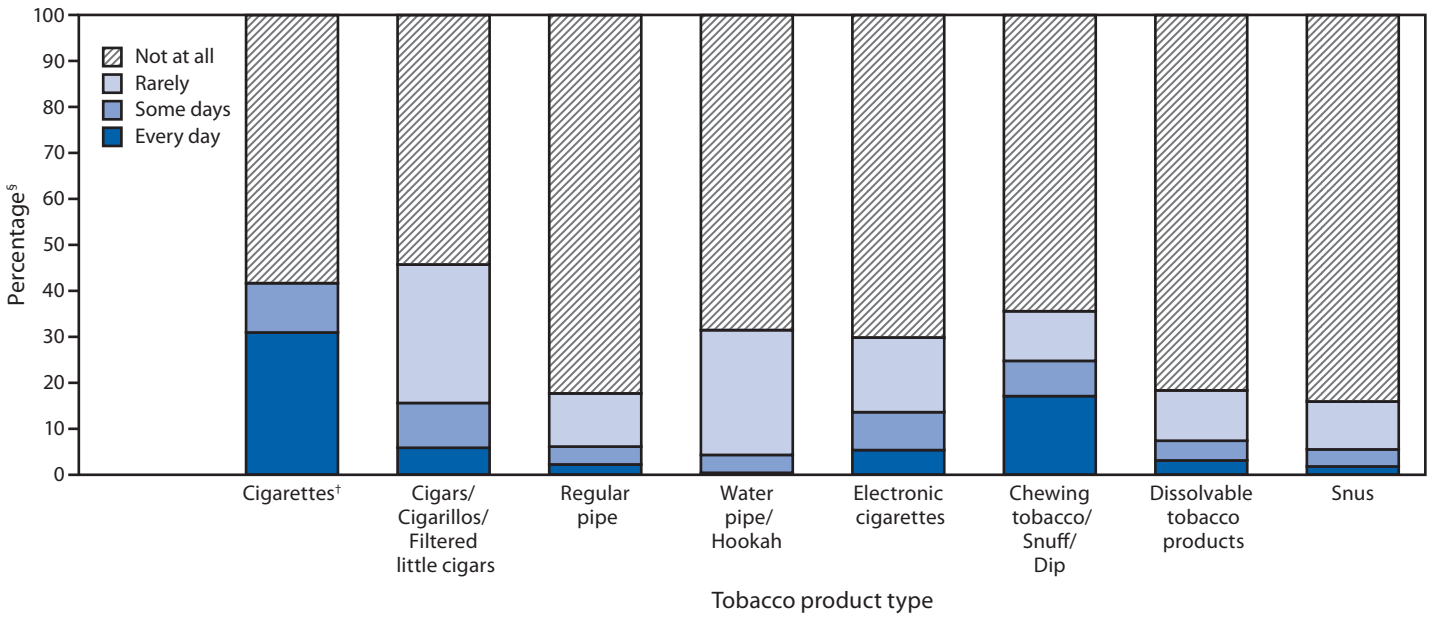
*** *Northeast:* Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. *Midwest:* Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. *South:* Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. *West:* Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

as follows: cigars/cigarillos/filtered little cigars, 5.8%; regular pipes, 0.9%; water pipes/hookah, 3.9%; e-cigarettes, 4.2%; smokeless tobacco, 3.8%. Prevalence of every day, some days, or rarely use was significantly higher than every day or some day use for any tobacco product use, cigars/cigarillos/filtered little cigars, regular pipes, water pipes/hookah, e-cigarettes, and smokeless tobacco ($p<0.05$).

Among respondents who had ever met the threshold for each product type (i.e., current and former users), current everyday use was as follows: cigarettes, 30.9%; cigars/cigarillos/filtered little cigars, 5.8%; regular pipes, 2.2%; water pipes/hookahs, 0.4%; e-cigarettes, 5.3%; chewing tobacco/snuff/dip, 17.1%; dissolvable tobacco products, 3.1%; and snus, 1.8% (Figure). Among respondents who had ever met the threshold for each product type and who now used the product (i.e., current users only), current everyday use was as follows: cigarettes, 74.2%; cigars/cigarillos/filtered little cigars, 12.8%; regular pipes, 12.6%; water pipes/hookahs, 1.2%; e-cigarettes, 17.9%; chewing tobacco/snuff/dip, 48.1%; dissolvable tobacco products, 16.8%; and snus, 11.3%.

By sex, prevalence of any tobacco use every day or some days was higher among men (26.2%) than women (15.4%) (Table 1). By age, prevalence was highest among those aged 25–44 years (25.2%) and lowest among those aged ≥65 years (9.5%). By race/ethnicity, prevalence was highest among adults categorized as "other, non-Hispanic" (33.0%) and lowest among non-Hispanic Asians (8.8%). By region, prevalence was highest in the Midwest (23.9%) and lowest in the West (19.0%). Prevalence by education was highest among adults with a General Education Development certificate (43.8%) and lowest among those with a graduate degree (6.3%). Prevalence was highest among adults with annual household income of <$20,000 (29.8%) and lowest among those with income ≥$100,000 (12.8%). By sexual orientation, prevalence was higher among lesbian, gay, bisexual, or transgender (LGBT) adults (30.8%) than heterosexual/straight adults (20.5%).

FIGURE. Percentage of persons who used selected tobacco products among those who met established thresholds,* by product type and frequency of use — National Adult Tobacco Survey, United States, 2012–2013



Note: Denominator for each product included respondents who had ever reached the threshold for the specified product (including current and former users).

* Thresholds for the respective products were determined by asking the respondents if they had used the product a specified number of times. Frequency of cigarette smoking was determined among respondents who reported smoking ≥100 cigarettes during their lifetime (n = 26,381); frequency of cigar/cigarillos/ filtered little cigar smoking was determined among respondents who reported smoking the product ≥50 times during their lifetime (n = 6,687); frequency of regular pipe smoking was determined among respondents who reported smoking the product ≥50 times during their lifetime (n = 3,813); frequency of chewing tobacco, snuff, or dip use was determined among respondents who reported using the products ≥20 times during their lifetime (n = 5,004); frequency of water pipe/hookah (n = 4,924), electronic cigarettes (n = 5,905), snus (n = 2,337), and dissolvable tobacco products (n = 152) was determined among respondents who reported using these products at least one time during their lifetime.

† Cigarettes were the only tobacco product type for which frequency of use was assessed with the response options "every day," "some days," or "not at all." All other tobacco product types were assessed with four response options: "every day," "some days," "rarely," or "not at all."

§ The frequency distribution of cigarette usage at the time of the survey among those who had ever met the threshold was as follows: everyday (30.9%), some days (10.8%), or not at all (58.3%). For all other tobacco products, frequency distribution of usage at the time of the survey for everyday, some days, rarely, or not at all, respectively, among those who had ever met the respective thresholds was as follows: cigars/cigarillos/filtered little cigars (5.8%, 9.8%, 30.1%, and 54.3%), regular pipes (2.2%, 3.9%, 11.6%, and 82.3%), water pipes/hookahs (0.4%, 3.9%, 27.1%, and 68.6%), electronic cigarettes (5.3%, 8.3%, 16.2%, and 70.2%), chewing tobacco/ snuff/dip (17.1%, 7.7%, 10.8%, and 64.5%), dissolvable tobacco products (3.1%, 4.3%, 10.9%, and 81.7%), and snus (1.8%, 3.7%, 10.4%, and 84.1%).

What is already known on this topic?

Despite declines in cigarette smoking among U.S. adults, the use of other tobacco products (e.g., cigars and smokeless tobacco) has not changed. Additionally, the use of emerging products, including electronic cigarettes, has rapidly increased.

What is added by this report?

During 2012–2013, an estimated 21.3% of U.S. adults (50 million persons) reported use of any tobacco product every day or some days, and 25.2% (60 million persons) reported use every day, some days, or rarely. Variations in any tobacco use were observed across population groups; prevalence was greater among men, younger adults, non-Hispanic other adults, those living in the Midwest and South, those with less education and income, and lesbian, gay, bisexual, or transgender adults.

What are the implications for public health practice?

The findings in this report underscore the importance of continued implementation of proven population-based interventions focused on the diversity of tobacco product use in the United States. Such interventions include increasing tobacco product prices, implementing and enforcing comprehensive smoke-free laws, warning about the dangers of tobacco use through high-impact antitobacco mass media campaigns, and increasing access to help quitting, in conjunction with Food and Drug Administration regulation of tobacco products. Sustained, comprehensive state tobacco control programs funded at CDC-recommended levels can accelerate progress toward reducing tobacco-related diseases and deaths in the United States.

Discussion

During 2012–2013, an estimated one in five U.S. adults (50 million persons) currently used any tobacco product every day or some days, and an estimated one in four (60 million persons) used tobacco products every day, some days, or rarely. Any tobacco use was greater among men, younger adults, non-Hispanic other adults, those living in the Midwest and South, those with less education and income, and LGBT adults. Continued implementation of proven population-based interventions, including increasing tobacco product prices, implementing and enforcing comprehensive smoke-free laws, warning about the dangers of tobacco use through high-impact mass media campaigns, and increasing access to help quitting, can help reduce tobacco use (*1,4,5*). Additionally, regulatory authority over the manufacture, marketing, and sales of tobacco products are powerful tools to further reduce tobacco-related disease and deaths in the United States.[§] In April 2014, FDA proposed to extend its authority to additional tobacco products, including e-cigarettes, cigars, pipes, and water pipes/hookahs.[¶] This proposed rule would set a national minimum age for sales; require health warnings, tobacco ingredient reporting, and listing of harmful and potentially harmful constituents; ensure FDA premarket review of new and changed tobacco products and all marketing of reduced risk products; and enable future rulemaking regarding product manufacture, marketing, and sales.

Although the prevalence of every day or some day cigarette smoking (18.0%) was significantly lower than the prevalence observed in the 2009–2010 NATS (19.5%) (*6*), cigarettes and other combustible products (e.g., cigars, pipes, and hookahs) remained the most prevalent forms of adult tobacco use. The 50th anniversary Surgeon General's report on the health consequences of smoking concluded that disease and deaths from tobacco use are overwhelmingly caused by cigarettes and other combusted products, and that rapid elimination of their use will dramatically reduce this burden (*1*). Additionally, the use of emerging tobacco products (e.g., e-cigarettes and water pipes/hookahs) was also evident and could be attributed to lower price relative to cigarettes; an increase in marketing, availability, and visibility; and the perception that they might be safer alternatives to cigarettes (*1*). Taken together, these findings underscore the importance of continued implementation of proven population-based interventions to address all forms of tobacco use, especially combustible products that currently account for the greatest public health burden.

Accounting for respondents who reported rarely using each respective tobacco product resulted in higher prevalence estimates among all population subgroups, especially young adults. A sensitivity analysis using NATS data showed that young adults were more likely to report using any tobacco products rarely. However, it cannot be determined from these data whether this represents early initiation that will escalate to established use. Furthermore, omitting the lifetime thresholds used to identify established users yielded higher estimates for certain products, including cigars/cigarillos/filtered little cigars. For example, overall use of cigars/cigarillos/filtered little cigars every day, some days, or rarely was 5.8% using the 50 lifetime cigar threshold and 7.4% without. Hence, intensified efforts are warranted to monitor occasional tobacco use in population-level surveys and to enhance the accuracy and sensitivity of tobacco use measures, particularly among young adults.

The findings in this report are subject to at least four limitations. First, self-reported tobacco use might have resulted in misreporting; however, self-reported cigarette smoking correlates highly with serum cotinine levels (*7*). Second, small sample sizes for certain subgroups resulted in less precise estimates. Third, the response rate of 44.9% might have resulted in nonresponse bias, even after adjustment for nonresponse. Fourth, the established thresholds and current use measures varied by tobacco product type. Although not a

[§] Additional information available at http://www.fda.gov/tobaccoproducts/guidancecomplianceregulatoryinformation/ucm246129.htm.

[¶] Additional information available at http://www.fda.gov/aboutfda/reportsmanualsforms/reports/economicanalyses/ucm394922.htm.

limitation, it is important to note that these estimates might differ from those derived from other surveillance systems. For example, although estimates of cigarette smoking from NATS were comparable with the National Health Interview Survey (NHIS) (*8*), the National Survey on Drug Use and Health (NSDUH) consistently yields higher estimates than NATS and NHIS (*9*). These differences might be explained, in part, by varying survey methodologies and tobacco use definitions. For example, NSDUH is conducted completely in-person, uses a self-administered survey mode, and provides incentives to participants (*10*).

Sustained, comprehensive state tobacco control programs funded at CDC-recommended levels can accelerate progress toward reducing tobacco-related diseases and deaths in the United States (*4*). However, during 2014, despite combined revenue of more than $25 billion from settlement payments and tobacco taxes for all states, states will spend only $481.2 million (1.9%) on comprehensive tobacco control programs,** representing <15% of the CDC-recommended level of funding for all states combined (*4*). Full implementation of comprehensive tobacco control programs at CDC-recommended funding levels, in conjunction with FDA regulation of tobacco products, could reduce tobacco use and change social norms regarding the acceptability of tobacco use in the United States (*1,4,5*).

** Additional information available at http://www.tobaccofreekids.org/what_we_do/state_local/tobacco_settlement.

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[1]Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, CDC; [2]EIS officer, CDC; [3]Center for Tobacco Products, Food and Drug Administration (Corresponding author: Brian King, baking@cdc.gov, 770-488-5107)

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Ebola Viral Disease Outbreak — West Africa, 2014

Meredith G. Dixon, MD[1,2], Ilana J. Schafer, DVM[1,2] (Author affiliations at end of text)

On June 24, 2014, this report was posted as an MMWR *Early Release on the* MMWR *website (http://www.cdc.gov/mmwr).*

On March 21, 2014, the Guinea Ministry of Health reported the outbreak of an illness characterized by fever, severe diarrhea, vomiting, and a high case-fatality rate (59%) among 49 persons (*1*). Specimens from 15 of 20 persons tested at Institut Pasteur in Lyon, France, were positive for an Ebola virus by polymerase chain reaction (*2*). Viral sequencing identified Ebola virus (species *Zaïre ebolavirus*), one of five viruses in the genus *Ebolavirus*, as the cause (*2*). Cases of Ebola viral disease (EVD) were initially reported in three southeastern districts (Gueckedou, Macenta, and Kissidougou) of Guinea and in the capital city of Conakry. By March 30, cases had been reported in Foya district in neighboring Liberia (*1*), and in May, the first cases identified in Sierra Leone were reported. As of June 18, the outbreak was the largest EVD outbreak ever documented, with a combined total of 528 cases (including laboratory-confirmed, probable, and suspected cases) and 337 deaths (case-fatality rate = 64%) reported in the three countries. The largest previous outbreak occurred in Uganda during 2000–2001, when 425 cases were reported with 224 deaths (case-fatality rate = 53%) (*3*). The current outbreak also represents the first outbreak of EVD in West Africa (a single case caused by Taï Forest virus was reported in Côte d'Ivoire in 1994 [*3*]) and marks the first time that Ebola virus transmission has been reported in a capital city.

Characteristics of EVD

EVD is characterized by the sudden onset of fever and malaise, accompanied by other nonspecific signs and symptoms such as myalgia, headache, vomiting, and diarrhea. Among EVD patients, 30%–50% experience hemorrhagic symptoms (*4*). In severe and fatal forms, multiorgan dysfunction, including hepatic damage, renal failure, and central nervous system involvement occur, leading to shock and death. The first two *Ebolavirus* species were initially recognized in 1976 during simultaneous outbreaks in Sudan (*Sudan ebolavirus*) and Zaïre (now Democratic Republic of the Congo) (*Zaïre ebolavirus*) (*5*). Since 1976, there have been more than 20 EVD outbreaks across Central Africa, with the majority caused by Ebola virus (species *Zaïre ebolavirus*), which historically has demonstrated the highest case-fatality rate (up to 90%) (*3*).

The wildlife reservoir has not been definitively ascertained; however, evidence supports fruit bats as one reservoir (*6*). The virus initially is spread to the human population after contact with infected wildlife and is then spread person-to-person through direct contact with body fluids such as, but not limited to, blood, urine, sweat, semen, and breast milk. The incubation period is 2–21 days. Patients can transmit the virus while febrile and through later stages of disease, as well as postmortem, when persons contact the body during funeral preparations. Additionally, the virus has been isolated in semen for as many as 61 days after illness onset.

Diagnosis is made most commonly through detection of Ebola virus RNA or Ebola virus antibodies in blood (*5*). Testing in this outbreak is being performed by Institut Pasteur, the European Mobile Laboratory, and CDC in Guinea; by the Kenema Government Hospital Viral Hemorrhagic Fever Laboratory in Sierra Leone; and by the Liberia Institute of Biomedical Research. Patient care is supportive; there is no approved treatment known to be effective against Ebola virus. Clinical support consists of aggressive volume and electrolyte management, oral and intravenous nutrition, and medications to control fever and gastrointestinal distress, as well as to treat pain, anxiety, and agitation (*4,5*). Diagnosis and treatment of concomitant infections and superinfections, including malaria and typhoid, also are important aspects of patient care (*4*).

Keys to controlling EVD outbreaks include 1) active case identification and isolation of patients from the community to prevent continued virus spread; 2) identifying contacts of ill or deceased persons and tracking the contacts daily for the entire incubation period of 21 days; 3) investigation of retrospective and current cases to document all historic and ongoing chains of virus transmission; 4) identifying deaths in the community and using safe burial practices; and 5) daily reporting of cases (*4,7,8*). Education of health-care workers regarding safe infection-control practices, including appropriate use of personal protective equipment, is essential to protect them and their patients because health-care–associated transmission has played a part in transmission during previous outbreaks (*4,9*).

Efforts to Control the Current Outbreak

To implement prevention and control measures in both Guinea and Liberia, ministries of health with assistance from Médecins Sans Frontières, the World Health Organization, and others, put in place Ebola treatment centers to provide better patient care and interrupt virus transmission. Teams from CDC traveled to Guinea and Liberia at the end of March as part of a response by the Global Outbreak Alert and Response Network to assist the respective ministries of health in characterizing and controlling the outbreak through collection of case reports,

interviewing of patients and family members, coordination of contact tracing, and consolidation of data into centralized databases. Cases are categorized into one of three case definitions: suspected (alive or dead person with fever and at least three additional symptoms, or fever and a history of contact with a person with hemorrhagic fever or a dead or sick animal, or unexplained bleeding); probable (meets the suspected case definition and has an epidemiologic link to a confirmed or probable case); confirmed (suspected or probable case that also has laboratory confirmation).*

In late April, it appeared that the outbreak was slowing when Liberia did not report new cases for several weeks after April 9, and the number of new reported cases in Guinea decreased to nine for the week of April 27 (Figure 1). Since then, however, the EVD outbreak has resurged, with neighboring Sierra Leone reporting its first laboratory-confirmed case on May 24, Liberia reporting a new case on May 29 that originated in Sierra Leone, and Guinea reporting a new high of 38 cases for the week of May 25.

As of June 18, the total EVD case count reported for all three countries combined was 528, including 364 laboratory-confirmed, 99 probable, and 65 suspected cases, with 337 deaths (case-fatality rate = 64%). Guinea had reported 398 cases (254 laboratory-confirmed, 88 probable, and 56 suspected) with 264 deaths (case-fatality rate = 66%) across nine districts (Figure 1). Sierra Leone had reported 97 cases (92 laboratory-confirmed, three probable, and two suspected) with 49 deaths (case-fatality rate = 51%) across five districts and the capital, Freetown. Liberia had reported 33 cases (18 confirmed, eight probable, and seven suspected) with 24 deaths (case-fatality rate = 73%) across four districts.

Major challenges faced by all partners in the efforts to control the outbreak include its wide geographic spread (Figure 2), weak health-care infrastructures, and community mistrust and resistance (*10*). Retrospective case investigation has indicated that the first case of EVD might have occurred as early as December 2013 (Figure 1) (*2*). To control the outbreak, additional strategies such as involving community leaders in response efforts are needed to alleviate concerns of hesitant and fearful populations so that health-care workers can care for patients in treatment centers and thorough contact tracing can be performed. Enhancing communication across borders with respect to disease surveillance will assist in the control and prevention of more cases in this EVD outbreak.

In June 2014, the World Health Organization, via the Global Outbreak Alert and Response Network, requested additional support from CDC and other partners, necessitating the deployment of additional staff members to Guinea and Sierra Leone to further coordinate efforts aimed at halting and preventing virus transmission. Persistence of the outbreak necessitates high-level, regional and international coordination to bolster response efforts among involved and neighboring nations and other response partners in order to expeditiously end this outbreak.

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The West Africa Ebola national and international response teams, including the ministries of health of Guinea, Liberia, and Sierra Leone; the World Health Organization; Médecins Sans Frontières; CDC response teams; the United Nations Children's Fund; the International Federation of Red Cross; Institut Pasteur; the European Mobile Laboratory; the Kenema Government Hospital Viral Hemorrhagic Fever Laboratory; the Liberia Institute of Biomedical Research; African Field Epidemiology Network; Elizabeth Ervin, Viral Special Pathogens Branch, National Center for Emerging and Zoonotic Infectious Diseases, CDC.

[1]EIS officer, CDC; [2]Viral Special Pathogens Branch, National Center for Emerging and Zoonotic Infectious Diseases, CDC (Corresponding author: Meredith G. Dixon, mgdixon@cdc.gov, 617-320-2220)

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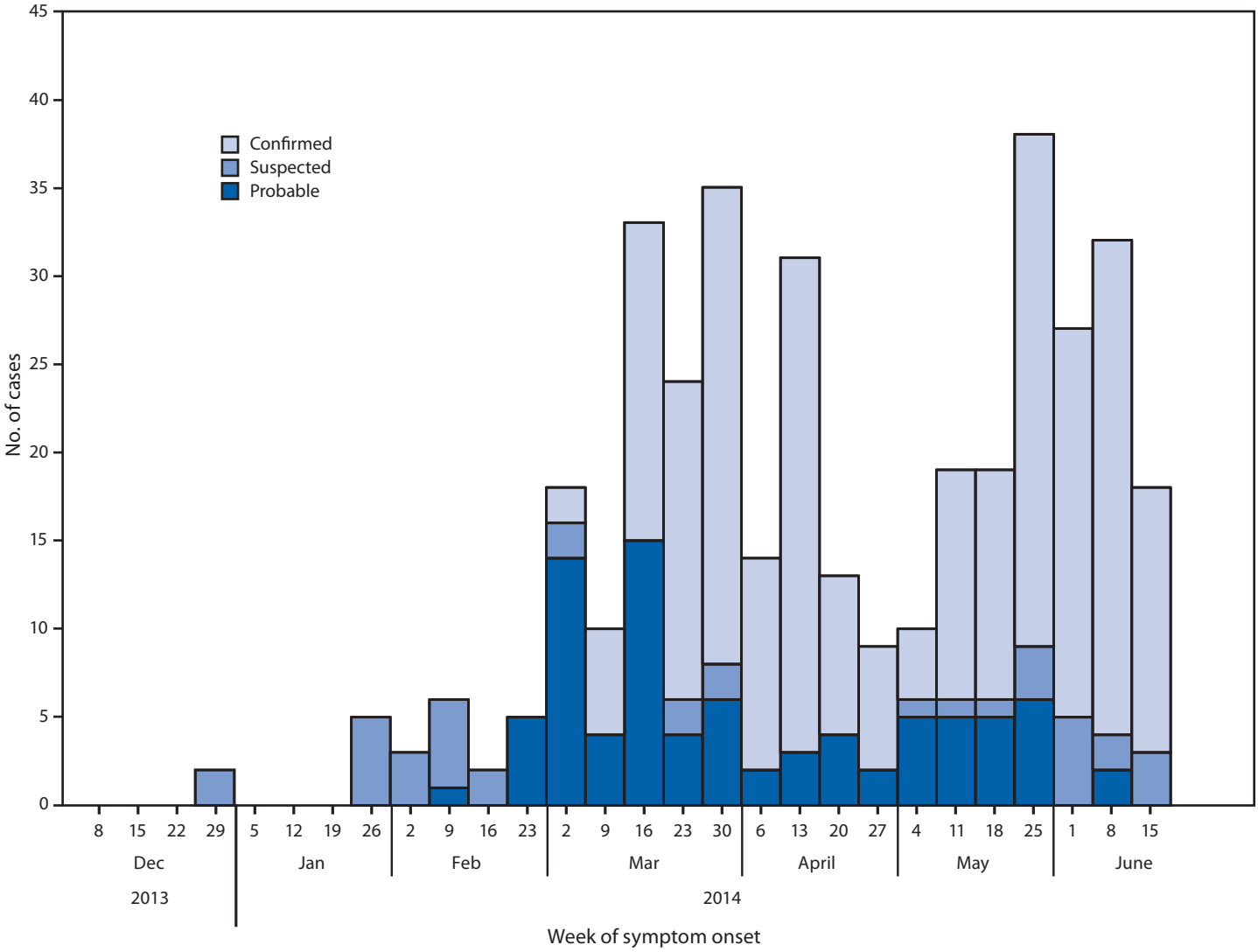
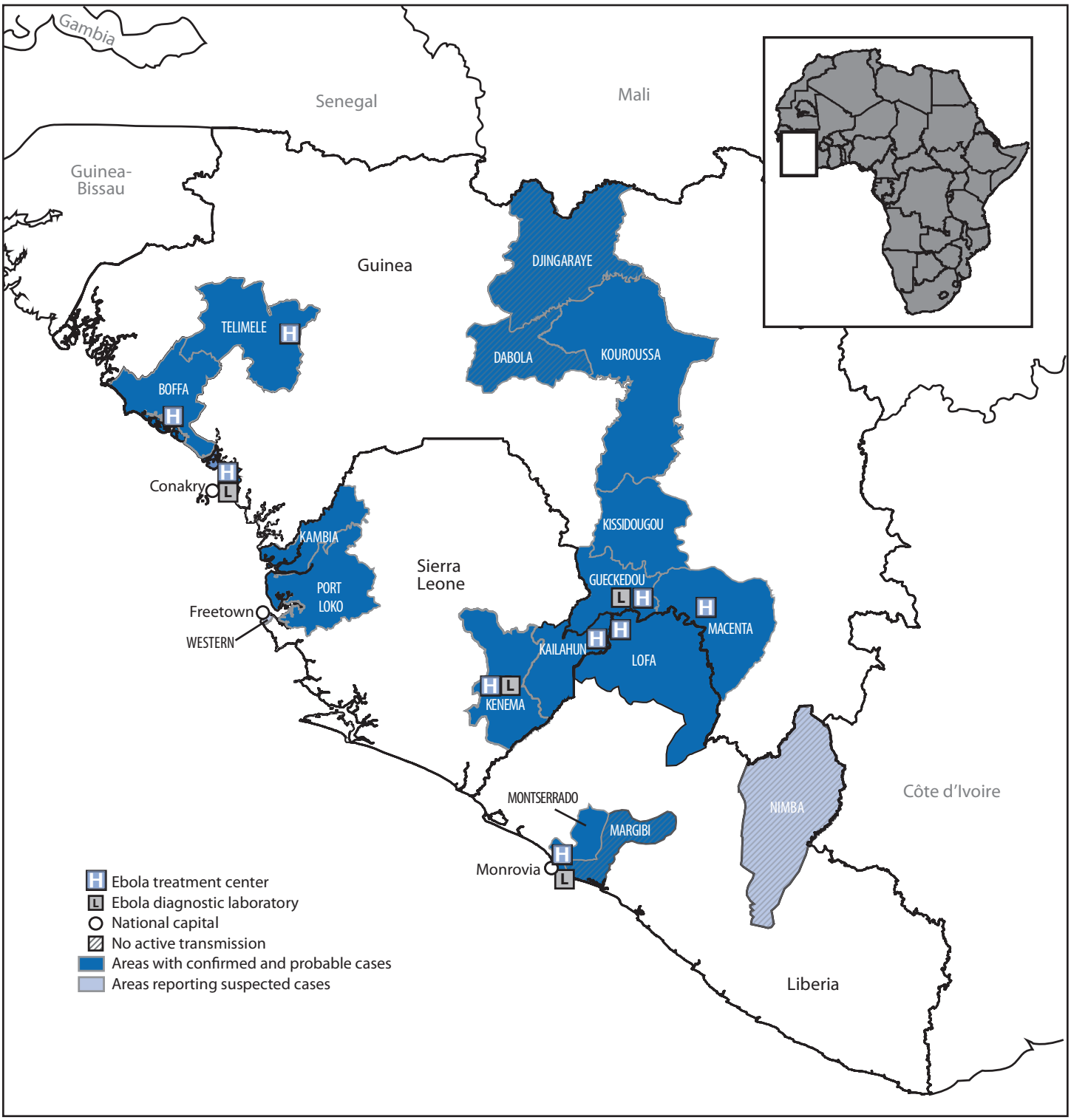
*Case definitions were modified from those available at http://who.int/csr/resources/publications/ebola/ebola-case-definition-contact-en.pdf.

FIGURE 1. Number of cases of Ebola viral disease (n = 398*), by week of symptom onset — Guinea, 2014



* Cases reported as of June 18, 2014.

FIGURE 2. Location of cases of Ebola viral disease* — West Africa, 2014



* Cases reported as of June 18, 2014.

Notes from the Field

Outbreak of *Vibrio cholerae* Serogroup O1, Serotype Ogawa, Biotype El Tor Strain — La Huasteca Region, Mexico, 2013

Alberto Díaz-Quiñonez, PhD[1], Irma Hernández-Monroy[1], Norma Montes-Colima[1], Asunción Moreno-Pérez[1], Adriana Galicia-Nicolás[1], Hugo Martínez-Rojano, PhD[1], Concepción Carmona-Ramos, MD[2], Miroslava Sánchez-Mendoza, PhD[2], José Cruz Rodríguez-Martínez[3], Lorena Suárez-Idueta, MD[3], María Eugenia Jiménez-Corona, PhD[3], Cuitláhuac Ruiz-Matus, MD[3], Pablo Kuri-Morales, MD[4] (Author affiliations at end of text)

On September 2 and 6, 2013, Mexico's National System of Epidemiological Surveillance identified two cases of cholera in Mexico City. Rectal swab cultures from both patients were confirmed as toxigenic *Vibrio cholerae* serogroup O1, serotype Ogawa, biotype El Tor. Pulsed-field gel electrophoresis and virulence gene amplification (*ctxA*, *ctxB*, *zot,* and *ace*) demonstrated that the strains were identical to one another but different from strains circulating in Mexico previously. The strains were indistinguishable from the strain that has caused outbreaks in Haiti, the Dominican Republic, and Cuba (*1*,*2*). The strain was susceptible to doxycycline, had intermediate susceptibility to ampicillin and chloramphenicol, was less than fully susceptible to ciprofloxacin, and was resistant to furazolidone and trimethoprim-sulfamethoxazole. An investigation failed to identify a common source of infection, additional cases, or any epidemiologic link between the cases. Both patients were treated with a single, 300-mg dose of doxycycline, and their symptoms resolved.

On September 12 and 13, four cases of cholera were identified by the Hidalgo Public Health Laboratory among residents of La Huasteca region, located approximately 75 miles (121 km) east of Mexico City and inhabited mainly by Otomi and Nahuatl speakers. During September 19–December 15, 2013, a total of 175 cases of cholera were confirmed in La Huasteca (159 in Hidalgo, 14 in Veracruz, and two in San Luis Potosí). Cases were defined according to World Health Organization (WHO) guidelines (*3*). A case of cholera was suspected if, in an area where the disease is not known to be present, a patient aged ≥5 years developed severe dehydration or died from acute watery diarrhea (*3*). All cases were laboratory-confirmed at the Instituto de Diagnóstico y Referencia Epidemiológicos as toxigenic *V. cholerae*, serogroup O1, serotype Ogawa, biotype El Tor, identical to the Mexico City isolates and indistinguishable from the strain circulating in the Caribbean. All of the cases have been reported to WHO by Mexico's International Health Regulations Focal Point (*4*).

Among the 175 cases, 86 (49%) were in females, and the median age of patients was 32 years (range = 3 months–83 years). Only 40 (23%) patients required hospitalization, with an average hospital stay of 36 hours. All patients had acute and watery diarrhea, and 46 (26%) passed "rice-water" stool; 63 (36%) had fewer than five bowel movements per 24 hours, 86 (49%) had vomiting, and 30 (17%) had cramps. Some degree of dehydration was noted in 75 (43%) patients; 37 (21%) suffered mild dehydration (<5% loss of body weight), 32 (18%) moderate dehydration (6%–9% loss), and five (3%) severe dehydration (≥10% loss). One patient died, a woman aged 67 years with a history of diabetes and chronic renal failure. The spectrum of disease seen in this outbreak differed from that of outbreaks in the Caribbean; the proportion of infected persons, incidence of dehydration, mortality rate, and numbers of hospitalizations and complications were smaller in La Huasteca than in the Caribbean (*5*).

Three quarters of patients were residents of areas neighboring El Tecoluco and El Chinguiñoso streams flowing into the Panuco River. *V. cholerae* isolates recovered from both streams were identical to the outbreak strain. Samples obtained from municipal sewers, fish vendors, restaurants, and drinking water sources were tested to identify potential outbreak sources.

In Mexico, during 1991–2001, a total of 45,062 confirmed cases of cholera occurred, with a 1.1% case-fatality rate. Cases of infection by *V. cholerae* serogroup O1 have occurred sporadically since the end of that epidemic; regular, active surveillance allowed the identification of one case in 2010, one in 2011, and two in 2012, all in the northwestern state of Sinaloa. The first two cases were caused by toxigenic *V. cholerae* O1 serotype Inaba, and the other two by toxigenic *V. cholerae* O1 serotype Ogawa. All of the isolate strains were characterized by Instituto de Diagnóstico y Referencia Epidemiológicos and were identical to the strains circulating in Mexico during 1991–2001 (*6*).

Health professionals at different levels of the health-care system in Mexico are being trained in cholera prevention, treatment, and control. Public awareness campaigns to safeguard food and water quality, including national radio messages on the prevention of diarrhea, are being carried out in Spanish, Nahuatl, and Otomi languages. Health authorities continue to increase epidemiologic capacity at the national level, ensure the availability of adequate medical management, increase sanitation and access to potable water at the community level, and monitor chlorine levels in drinking water. In addition, continuous microbiologic surveillance for cases of *V. cholerae* infection and *V. cholerae* contamination of reservoirs is in place to promptly detect strains with pathogenic potential.

As a result of these actions, the outbreak in La Huasteca, in which samples from 88% of the cases were collected, was controlled within the first 13 weeks. A mobile microbiology laboratory was used in this area to quickly diagnose and treat patients and to interrupt transmission. Ongoing and continuous microbiologic surveillance of area reservoirs and laboratory investigation of all cases of acute diarrhea have not detected any new cases of cholera since December 17, 2013.

[1]Instituto de Diagnóstico y Referencia Epidemiológicos "Manuel Martínez Báez"; [2]Laboratorio Estatal de Salud Pública de Hidalgo; [3]Dirección General de Epidemiología; [4]Subsecretaría de Prevención y Promoción de la Salud (Corresponding author: Alberto Díaz-Quiñonez, alberto.diaz@salud.gob.mx, 555-062-1600)

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Announcement

Recommendation Regarding Universal Motorcycle Helmet Laws — Community Preventive Services Task Force

The Community Preventive Services Task Force recently posted new information on its website: "Use of Motorcycle Helmets: Universal Helmet Laws." The task force recommends universal motorcycle helmet laws (laws that apply to all motorcycle operators and passengers) based on strong evidence of effectiveness. Evidence indicates that universal helmet laws increase helmet use, decrease motorcycle-related fatal and nonfatal injuries, and are substantially more effective than no law or only partial motorcycle helmet laws. This information is available at http://www.thecommunityguide.org/mvoi/motorcyclehelmets/helmetlaws.html.

Established in 1996 by the U.S. Department of Health and Human Services, the task force is an independent, nonfederal, uncompensated panel of public health and prevention experts whose members are appointed by the Director of CDC. The task force provides information for a wide range of decision makers on programs, services, and policies aimed at improving population health. Although CDC provides administrative, research, and technical support for the task force, the recommendations developed are those of the task force and do not undergo review or approval by CDC.

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Erratum

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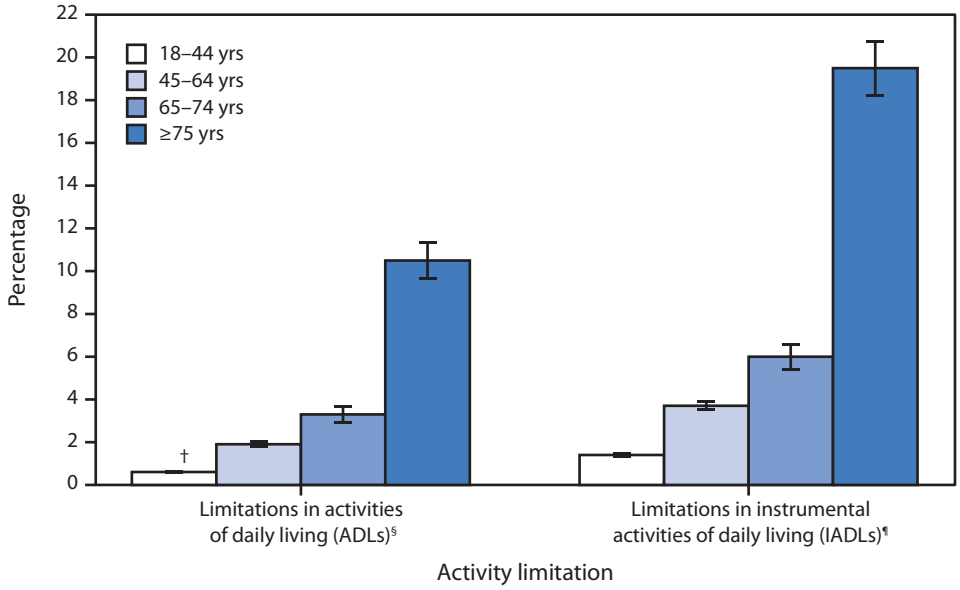
In the report "First Confirmed Cases of Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Infection in the United States, Updated Information on the Epidemiology of MERS-CoV Infection, and Guidance for the Public, Clinicians, and Public Health Authorities — May 2014," the arrow in Figure 2 showing travel from Saudi Arabia to the Philippines should instead show travel from the United Arab Emirates (UAE) to the Philippines.

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Percentage of Adults with Activity Limitations, by Age Group and Type of Limitation — National Health Interview Survey,* United States, 2012



* Estimates are based on household interviews of a sample of the civilian noninstitutionalized U.S. population. Persons with unknown limitation status were excluded from the denominators.
† 95% confidence interval.
§ Limitations in ADLs are based on response to the question, "Because of a physical, mental, or emotional problem, does [person] need the help of other persons with personal care needs, such as eating, bathing, dressing, or getting around inside this home?" Respondents were asked to answer regarding themselves and other family members living in the same household.
¶ Limitations in IADLs are based on response to the question, "Because of a physical, mental, or emotional problem, does [person] need the help of other persons in handling routine needs, such as everyday household chores, doing necessary business, shopping, or getting around for other purposes?" Respondents were asked to answer regarding themselves and other family members living in the same household.

In 2012, the percentages of adults with limitations in activities of daily living (ADLs) and limitations in instrumental activities of daily living (IADLs) increased with age. Adults aged ≥75 years were the most likely to require the help of another person with ADLs and with IADLs.

Source: Adams PF, Kirzinger WK, Martinez ME. Summary health statistics for the U.S. population: National Health Interview Survey, 2012. Vital Health Stat 2013;10(259). Available at http://www.cdc.gov/nchs/data/series/sr_10/sr10_259.pdf.

Reported by: Patricia F. Adams, pfa1@cdc.gov, 301-458-4063; Michael E. Martinez, MPH, MHSA; Whitney K. Kirzinger, MPH.

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