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World No Tobacco Day — May 31, 2014

The global tobacco epidemic contributed to 100 million deaths worldwide during the 20th century and continues to kill nearly 6 million persons each year, including approximately 600,000 from secondhand smoke. If current trends persist, an estimated 500 million persons alive today will die from the use of tobacco products. By 2030, tobacco use will result in approximately 8 million deaths worldwide each year. About 80% of these preventable deaths will occur in low- and middle-income countries (*1,2*).

Sponsored by the World Health Organization and observed worldwide on May 31 each year, World No Tobacco Day highlights the health risks of tobacco use and promotes effective actions to reduce tobacco consumption. This year, World No Tobacco Day calls on countries to raise taxes on tobacco (*2*).

Increasing the price of tobacco products by raising tobacco taxes is one of the most powerful and cost-effective means to prevent and reduce tobacco use, but it is an underused strategy (*3,4*). Research shows that higher taxes can reduce the relative affordability of tobacco products, encourage smokers to quit, reduce cigarette consumption, and discourage young persons from smoking initiation. It also generates government revenues, which can be invested in effective tobacco control efforts that will further reduce tobacco use (*3,4*).

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Cigarette Prices and Smoking Prevalence After a Tobacco Tax Increase — Turkey, 2008 and 2012

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Raising the price of tobacco products has been shown to reduce tobacco consumption in the United States and other high-income countries, and evidence of this impact has been growing for low- and middle-income countries as well (*1,2*). Turkey is a middle-income country surveyed by the Global Adult Tobacco Survey (GATS) twice in a 4-year period, in 2008 and 2012. During this time, the country introduced a policy raising its Special Consumption Tax on Tobacco and implemented a comprehensive tobacco control program banning smoking in public places, banning advertising, and introducing graphic health warnings. The higher tobacco tax took effect in early 2010, allowing sufficient time for subsequent changes in prices and smoking to be observed by the time of the 2012 GATS. This report uses data from GATS Turkey to examine how cigarette prices changed after the 2010 tax increase, describe the temporally associated changes in smoking

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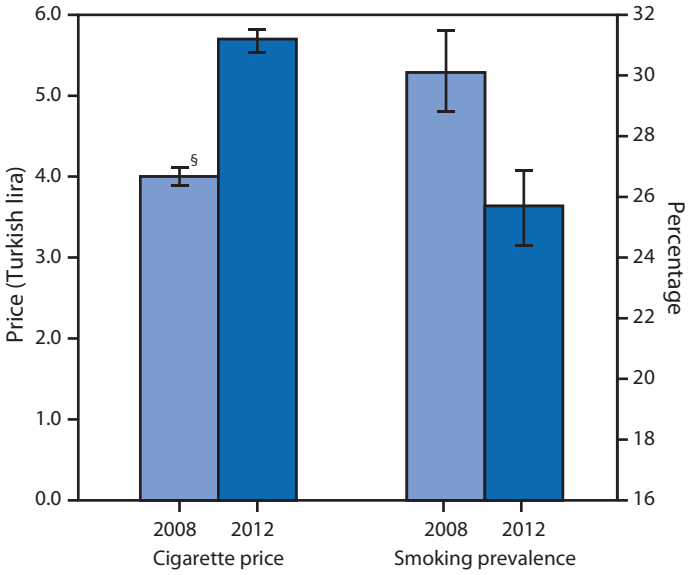
prevalence, and learn whether this smoking prevalence changed more in some demographic groups than others. From 2008 to 2012, the average price paid for cigarettes increased by 42.1%, cigarettes became less affordable, and smoking prevalence decreased by 14.6% (Figure). The largest reduction in smoking was observed among persons with lower socioeconomic status (SES), highlighting the potential role of tax policy in reducing health disparities across socioeconomic groups.

GATS is an ongoing, nationally representative household survey of noninstitutionalized adults aged ≥15 years. The survey uses a multistage geographically clustered sample design. The indicators described in this report were obtained by summarizing the individual responses of participants in GATS Turkey 2008 (9,030 completed interviews) and 2012 (9,851 completed interviews). Response rates for GATS Turkey were 90.1% in 2012 and 93.7% in 2008. Smoking prevalence estimates were based on self-reported current smoking, which included both daily and less-than-daily smoking. Prices paid per 20 cigarettes were calculated from the responses of current smokers of manufactured cigarettes, which provide data on amounts spent and quantities purchased during the most recent cigarette purchase. Price indicators for 2008 were adjusted for inflation to be comparable with 2012 values. The cigarette price indicators in this report are not brand-specific, but represent the average amount spent per 20 cigarettes across the range of brand choices in each year. The examined indicators and their relative change from 2008 to 2012 were stratified by demographic characteristics including sex, age, urbanicity, education, and wealth. The wealth index category for each respondent was created based on self-reported ownership of certain core household items in GATS (*3*).

FIGURE. Average cigarette prices* (in Turkish lira) and smoking prevalence† — Global Adult Tobacco Survey, Turkey, 2008 and 2012



* Average price paid per 20 manufactured cigarettes in constant 2012 Turkish lira.
† Prevalence of current smoking of manufactured cigarettes.
§ 95% confidence interval.

Changes in cigarette affordability during the study period were evaluated using the relative-income price of cigarettes, which represents prices adjusted for country income level (*4*).

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The relative-income price was calculated as the ratio of the average price paid per 2,000 cigarettes in each GATS year to that year's gross domestic product (GDP) per capita (*4*).

After adjusting for inflation, the average real price paid per 20 cigarettes in Turkey increased by 42.1% during 2008–2012, from 4.0 to 5.7 Turkish lira (Table 1). The increase in the purchasing price varied across demographic groups; for instance, it was estimated to be smaller among younger smokers and among smokers with less wealth. As the cost of cigarettes increased, the average smoking rate dropped by 14.6% during 2008–2012, from 30.1% to 25.7% (Table 2). The largest decrease in smoking occurred among persons of lower SES, who were in the lowest wealth and education categories (Table 2). The relative reduction in smoking among those in the bottom tercile of the wealth index (-30.3%) was twice as large as among those in the middle wealth tercile (-13.9%), and nearly three times larger than among those in the top wealth tercile (-11.1%).

On average, cigarettes in Turkey became less affordable during 2008–2012. Cigarette affordability, represented by the relative-income price, falls when the growth in cigarette prices outpaces the growth in GDP per capita. The relative-income price of cigarettes in Turkey increased by approximately 30% from 2008 to 2012 (Table 1), indicating that during this period cigarette prices in Turkey increased faster than the country's per capita income, corresponding to a significant reduction in affordability.

Discussion

After the 2010 increase in tobacco taxes in Turkey, the average price paid for cigarettes increased, cigarettes became less affordable, and a statistically significant drop in smoking rates occurred. The reduction in smoking was substantially larger among persons with lower SES. These findings document the presence of an inverse relationship between cigarette prices and smoking in Turkey, and confirm previous analytic findings that this relationship is especially strong in lower-income

TABLE 1. Average price (in Turkish lira) paid per 20 manufactured cigarettes, by selected demographic characteristics — Global Adult Tobacco Survey, Turkey, 2008 and 2012

	2008		2008 (inflation adjusted)*		2012		Relative change from 2008 (inflation adjusted)* to 2012	
Characteristic	**Price**	**(95% CI)**	**Price**	**(95% CI)**	**Price**	**(95% CI)**	**%**	**(95% CI)**
Overall	**3.3**	**(3.2–3.3)**	**4.0**	**(3.9–4.1)**	**5.7**	**(5.5–5.8)**	**42.1**	**(38.0–46.2)†**
Sex								
Male	3.3	(3.2–3.4)	4.0	(3.9–4.1)	5.7	(5.6–5.9)	42.1	(37.7–46.5)†
Female	3.1	(3.0–3.2)	3.8	(3.6–3.9)	5.4	(5.2–5.6)	43.9	(36.1–51.6)†
Age group (yrs)								
15–24	3.4	(3.2–3.5)	4.1	(3.9–4.3)	5.6	(5.3–5.9)	35.7	(26.4–45.1)†
25–44	3.4	(3.3–3.4)	4.1	(4.0–4.2)	5.7	(5.5–5.8)	38.5	(33.8–43.2)†
45–64	3.1	(3.0–3.2)	3.8	(3.6–3.9)	5.7	(5.5–6.0)	52.2	(44.2–60.3)†
≥65	2.7	(2.5–2.9)	3.3	(3.1–3.5)	5.2	(4.6–5.8)	57.7	(37.1–78.4)†
Residence								
Urban	3.3	(3.3–3.4)	4.1	(4.0–4.2)	5.7	(5.6–5.9)	40.7	(35.9–45.5)†
Rural	3.1	(3.0–3.2)	3.8	(3.6–3.9)	5.5	(5.3–5.6)	44.7	(37.8–51.7)†
Education								
Not graduated	2.8	(2.6–3.0)	3.4	(3.2–3.7)	4.8	(4.3–5.4)	39.7	(21.7–57.6)†
Primary	3.1	(3.0–3.2)	3.8	(3.7–3.9)	5.5	(5.3–5.7)	43.9	(37.8–49.9)†
Secondary	3.3	(3.1–3.4)	4.0	(3.8–4.2)	5.6	(5.4–5.8)	40.0	(32.5–47.6)†
High school	3.5	(3.4–3.6)	4.3	(4.2–4.5)	5.9	(5.7–6.2)	37.2	(30.3–44.1)†
University or higher	3.6	(3.4–3.8)	4.4	(4.2–4.7)	6.2	(5.9–6.5)	39.8	(30.4–49.3)†
Wealth index								
Bottom tercile	2.9	(2.8–3.0)	3.6	(3.4–3.7)	4.9	(4.6–5.2)	38.3	(28.2–48.4)†
Middle tercile	3.2	(3.2–3.3)	4.0	(3.9–4.1)	5.5	(5.3–5.7)	39.1	(33.7–44.5)†
Top tercile	3.6	(3.4–3.7)	4.3	(4.2–4.5)	6.1	(5.9–6.2)	39.5	(33.5–45.6)†
Unweighted no. of current smokers of manufactured cigarettes			2,384		2,218			
Affordability index (relative income price) (%)§			2.4		3.0		29.9†	

Abbreviation: CI = confidence interval.
* 2008 values were adjusted for inflation to represent constant 2012 Turkish lira.
† Statistically significant.
§ Calculated as the ratio of the average price paid per 2000 cigarettes to gross domestic product per capita.

TABLE 2. Prevalence of current manufactured cigarette smoking, by selected demographic characteristics — Global Adult Tobacco Survey, Turkey, 2008 and 2012

Characteristic	2008		2012		Relative change from 2008 to 2012	
	%	(95% CI)	%	(95% CI)	%	(95% CI)
Overall	**30.1**	**(28.8–31.4)**	**25.7**	**(24.5–27.0)**	**-14.6**	**(-20.1 to -9.0)***
Sex						
Male	45.8	(43.7–47.9)	39.2	(37.2–41.3)	-14.4	(-20.3 to -8.5)*
Female	14.9	(13.8–16.2)	12.6	(11.5–13.8)	-15.7	(-26.0 to -5.4)*
Age group (yrs)						
15–24	24.5	(21.5–27.8)	19.1	(16.6–22.0)	-22.0	(-36.8 to -7.2)*
25–44	38.8	(36.8–40.7)	34.4	(32.5–36.2)	-11.3	(-17.8 to -4.8)*
45–64	27.9	(25.9–30.1)	23.8	(21.8–25.9)	-14.8	(-24.5 to -5.2)*
≥65	9.2	(7.5–11.3)	8.0	(6.4–9.8)	-13.7	(-39.0 to 11.7)
Residence						
Urban	32.4	(30.7–34.0)	27.8	(26.2–29.4)	-14.1	(-20.7 to -7.6)*
Rural	24.8	(23.0–26.8)	20.3	(18.7–22.1)	-18.2	(-27.3 to -9.0)*
Education						
Not graduated	13.1	(10.7–16.0)	9.5	(7.7–11.8)	-27.2	(-48.6 to -5.8)*
Primary	32.7	(30.7–34.8)	27.8	(25.8–29.8)	-15.1	(-23.2 to -7.0)*
Secondary	30.3	(27.1–33.6)	26.0	(23.5–28.6)	-14.2	(-26.6 to -1.8)*
High school	39.9	(36.6–43.2)	32.7	(29.9–35.6)	-18.0	(-27.7 to -8.2)*
University or higher	31.3	(27.6–35.3)	26.5	(23.2–30.1)	-15.2	(-30.3 to -0.1)*
Wealth index						
Bottom tercile	25.7	(23.2–28.4)	17.9	(15.4–20.7)	-30.3	(-42.6 to -17.9)*
Middle tercile	31.9	(30.3–33.7)	27.5	(25.9–29.2)	-13.9	(-20.7 to -7.0)*
Top tercile	29.6	(27.2–32.0)	26.3	(24.5–28.1)	-11.1	(-20.4 to -1.7)*
Unweighted no. of respondents (total)	**9,030**		**9,851**			

Abbreviation: CI = confidence interval.
* Statistically significant.

populations (*5*). This underscores the potential of a tobacco price increase to reduce tobacco use and to help reduce health disparities by lowering smoking prevalence at a higher rate in vulnerable populations.

Although the average purchasing price of cigarettes increased for all demographic groups, it increased at a slightly lower rate among smokers in the lowest wealth tercile than among those at the middle or higher ends of the wealth spectrum. Similarly, younger smokers experienced a smaller increase in the average purchasing price than older smokers. These demographic differences indicate that smokers who are younger or low-income might be more likely to engage in price-minimizing behavior when facing a tax increase (examples of such behavior include switching to less expensive brands and buying in bulk).

The demographic breakdown of the 2008–2012 changes in purchasing price and smoking rates in Turkey shows that groups with relatively tighter income constraints, such as young adults or persons with a lower wealth index, reported smaller increases in cigarette prices paid and at the same time experienced the steepest declines in smoking prevalence. These findings have implications with respect to tax regressivity. An existing tax is regressive if it imposes a greater burden, relative to income, on those with lower wealth. However, a tobacco tax increase does not have regressivity characteristics. The increase in tobacco tax in Turkey was associated with a greater reduction in smoking among persons with the lowest wealth than among wealthier persons. This suggests that the tax increase did not have a regressive outcome, because smoking and its associated expense declined most among those who could least afford the habit.

Comparing the change in the average purchasing price of cigarettes with the concurrent increase in cigarette tax can help infer the tax pass-through, which is the extent to which the tax increase was reflected in the final consumer price. A full pass-through of the tax onto the final price is more likely to influence consumption than a partial pass-through, where the tax increase is partially absorbed by the producer and might not fully reach the consumer. In the case of Turkey, the tax pass-through appears to be complete, optimizing the potential tax impact. The cigarette tax level in Turkey, measured as the share of total tax to retail price, rose from 0.74 to 0.80 during 2008–2012 (Turkey Ministry of Finance, General Directorate of Revenue Policies, unpublished data, 2013). Applying these tax shares to the average cigarette price paid in each year, and comparing the change in the average tax amount with the change in the average price, it is estimated that the pass-through of the 2010 tax increase in Turkey was more than one-to-one. This indicates that the tax increase might have been accompanied by an additional price increase from the producer side, timed to coincide with the tax change. A producer-initiated

What is already known on this topic?

There is increasing evidence that raising the prices of tobacco products can reduce tobacco use in low- and middle-income countries, where most of the global tobacco-related disease burden is expected to occur. Turkey is a middle-income country with smoking rates that historically have been among the world's highest. In 2010, Turkey increased its Special Consumption Tax on Tobacco, increasing the price of cigarettes.

What is added by this report?

After the increase in tobacco tax, the average price paid for cigarettes in Turkey increased by 42% during 2008–2012, cigarettes became less affordable, and the average smoking prevalence declined by 15%. The largest reduction in smoking prevalence (30% relative change from 2008 to 2012) was observed among persons with the lowest socioeconomic status.

What are the implications for public health practice?

These survey results establish a link between a tobacco price increase and a decline in tobacco use, and show the potential of tobacco taxes and prices to help reduce health disparities by lowering smoking prevalence at a higher rate in vulnerable populations.

price increase that shadows a concurrent tax increase is a common pricing strategy in some markets. In markets perceived as tobacco use strongholds, such as Turkey, price increases that further augment the tax pass-through would be driven by a tobacco producer's anticipation of higher profits. This is in contrast to the United States, where a recent shift has occurred toward pricing strategies that reduce the tax pass-through, such as tobacco industry offering of discounts and coupons, which limit the full potential of taxes for reducing consumption (*6*).

The findings in this report are subject to at least three limitations. First, the examined indicators are based on self-reported individual answers to survey questions and therefore are subject to recall bias. Second, because of small sample sizes, important differences across demographic groups within each year sample might not be statistically significant. This affects especially the demographic breakdown of cigarette prices paid, which are based on a subsample of smokers. Finally, these data do not establish cause-and-effect relationships because of the observational nature of the report, which does not control for other tobacco control measures introduced at the same time as the tax increase.

Turkey's smoking rates historically have been among the world's highest. This report describes a considerable shift in smoking behavior, occurring even when the baseline levels of tobacco use and addiction in the population are relatively high. Turkey's experience with cigarette price change might be informative to policymakers in other low- and middle-income countries, where the majority of tobacco-related deaths are expected to occur in the near future (*7*).

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Million Hearts: Prevalence of Leading Cardiovascular Disease Risk Factors — United States, 2005–2012

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Each year, approximately 1.5 million U.S. adults have a heart attack or stroke, resulting in approximately 30 deaths every hour and, for nonfatal events, often leading to long-term disability (*1*). Overall, an estimated 14 million survivors of heart attacks and strokes are living in the United States (*1*). In 2011, the U.S. Department of Health and Human Services, in collaboration with nonprofit and private organizations, launched Million Hearts (http://www.millionhearts.hhs.gov), an initiative focused on implementing clinical and community-level evidence-based strategies to reduce cardiovascular disease (CVD) risk factors and prevent a total of 1 million heart attacks and strokes during the 5-year period 2012–2016 (*2,3*). From 2005–2006 to the period with the most current data, analysis of the Million Hearts four "ABCS" clinical measures (for aspirin, blood pressure, cholesterol, and smoking) showed 1) no statistically significant change in the prevalence of aspirin use for secondary prevention (53.8% in 2009–2010), 2) an increase to 51.9% in the prevalence of blood pressure control (in 2011–2012), 3) an increase to 42.8% in the prevalence of cholesterol management (in 2011–2012), and 4) no statistically significant change in the prevalence of smoking assessment and treatment (22.2% in 2009–2010). In addition, analysis of two community-level indicators found 1) a decrease in current tobacco product smoking (including cigarette, cigar, or pipe use) prevalence to 25.1% in 2011–2012 and 2) minimal change in mean daily sodium intake (3,594 mg/day in 2009–2010). Although trends in some measures are encouraging, further reductions of CVD risk factors will be needed to meet Million Hearts goals by 2017.

Data Sources

Data from the National Health and Nutrition Examination Survey (NHANES*) for 2005–2012 were used to calculate prevalence estimates for managed low-density lipoprotein cholesterol (LDL-C†) among hyperlipidemic adults aged ≥20 years and estimates for controlled blood pressure§ among hypertensive adults aged ≥18 years. The 2005–2010 NHANES data were the most recent available to estimate the mean daily sodium intake (mg/day¶) among adults aged ≥18 years. Data from the 2005–2010 National Ambulatory Medical Care Survey (NAMCS**) were combined into 2-year cycles to estimate the prevalence of office visits to primary care physicians and cardiologists where aspirin or other antiplatelet medication was prescribed to adults aged ≥18 years with ischemic vascular disease.†† Additionally, NAMCS data were used to estimate the prevalence of office visits where smoking treatment was prescribed among adults aged ≥18 years who were identified as

* NHANES is a complex survey of a multistage probability sample of the civilian, noninstitutionalized U.S. population that combines interviews and physical examinations. During 2005–2012, unweighted response rates ranged from 69.5% to 77.4%. Additional information is available at http://www.cdc.gov/nchs/nhanes.htm.

† Defined as LDL-C fasting values in line with the treatment goals established by the National Cholesterol Education Program (NCEP) Adult Treatment Panel-III (ATP-III) guidelines of <160 mg/dL, <130 mg/dL, and <100 mg/dL for low-, intermediate-, and high-risk groups, respectively. LDL-C was used because it is identified by NCEP as the primary target for lipid-lowering therapy. During 2005–2012, of the 21,858 adults aged ≥18 years interviewed for NHANES, 3,155 were included in the LDL-C analyses.

§ Defined as systolic blood pressure of <140 mm Hg and diastolic blood pressure of <90 mm Hg, based on the average of up to three measurements. Among the participants, approximately 95% had two or three blood pressure measurements during a single physical examination at the mobile examination center. For the 5% with only one blood pressure measurement, that single measurement was used in place of an average. During 2005–2012, of the 21,858 persons aged ≥18 years interviewed for NHANES, 7,591 were included in the blood pressure analyses.

¶ The statistics in this report are estimated from Day 1 dietary recall interviews. The data processing step of "adjusting sodium content for salt added during food preparation" was discontinued in 2009–2010; equivalent unadjusted estimates for the 2005–2006 and 2007–2008 cycles are based on the default sodium values in the United States Department of Agriculture's Food and Nutrient Databases for Dietary Studies (FNDDS) 3.0 and 4.1. Additional information is available at http://www.ars.usda.gov/ba/bhnrc/fsrg. During 2005–2012, of the 21,858 adults aged ≥18 years interviewed for NHANES, 16,643 were included in the sodium analyses.

** NAMCS is based on a nationally-representative sample of visits to non-federally employed office-based physicians who are primarily engaged in direct patient care. During 2005–2010, unweighted response rates ranged from 58.3% to 61.6%. Additional information available at http://www.cdc.gov/nchs/ahcd/about_ahcd.htm.

†† The percentage of physician office visits to primary care physicians and cardiologists by adult patients aged ≥18 years with ischemic vascular disease (i.e., history of myocardial infarction, angina, stroke, or other vascular diseases) where physicians had prescribed aspirin or other antiplatelet medication. Visits were excluded if the patient had a condition or medication that contraindicated use of antiplatelet medications. Also excluded were obstetrics and gynecology visits. During 2005–2010, of the 149,027 visits by persons aged ≥18 years included in the NAMCS population, 5,657 were included in the aspirin analyses.

current tobacco users.[§§] Data from the 2005–2012 National Survey on Drug Use and Health (NSDUH[¶¶]) were combined into 2-year cycles to estimate the prevalence of current tobacco product smoking[***] among adults aged ≥18 years. This newly adopted measure of current tobacco smoking has been included because it measures all combustible tobacco product use, which is a major CVD risk factor (*1*) and not just cigarette use, as was the case with previous measures.

Up to four survey cycles (2005–2006, 2007–2008, 2009–2010, and 2011–2012) were examined using sex-, age-, and race/ethnicity-adjusted linear trends analyses (p<0.05). Sex-, age-, and race/ethnicity-adjusted t-tests were used to examine 1) prevalence changes comparing the two most recent data cycles (p<0.05) and 2) differences between sex, age, and race-ethnicity groups within the most recent data cycle (p<0.05).

ABCS Clinical Measures

In 2009–2010, prevalence of recommended aspirin use was greater among men (58.5%) than women (48.0%) and greater among non-Hispanic whites (55.7%) compared with Hispanics (43.6%) (Table 1). The prevalence of blood pressure control improved from 43.4% in 2005–2006 to 51.9% in 2011–2012 (Figure 1); in 2011–2012, the prevalence was greater among women (54.6%) than men (48.9%) and greater among adults aged 45–64 years (56.3%) compared with those aged 18–44 (42.2%) and ≥75 years (41.7%).

The prevalence of cholesterol management increased from 33.0% in 2009–2010 to 42.8% in 2011–2012 (Figure 1); in 2011–2012, the prevalence was greater among adults aged 65–74 years (59.6%) and lower among those aged 20–44 (11.6%) compared with those aged 45–64 years (44.1%) (Table 1). Additionally, the prevalence was higher among non-Hispanic whites (47.4%) compared with non-Hispanic blacks (35.5%) and Hispanics (23.0%). In 2009–2010, the prevalence of smoking assessment and treatment (e.g., cessation medication or counseling) was greater among adults aged 45–64 years (25.3%) compared with those aged 18–44 (20.0%) and ≥65 years (18.9%).

[§§] The percentage of physician office visits by adult patients aged ≥18 years who screened positive for current tobacco use (i.e., currently smoke cigarettes/cigars or use snuff or chewing tobacco) where tobacco cessation counseling or cessation medications were ordered or provided. During 2005–2010, of the 149,027 visits by persons aged ≥18 years included in the NAMCS population, 17,631 were included in the smoking assessment and treatment analyses.

[¶¶] NSDUH is an annual nationwide survey among persons aged ≥12 years. During 2005–2012, weighted response rates ranged from 73.0% to 75.6%. Additional information is available at http://oas.samhsa.gov/nsduh.htm.

[***] The percentage of adults aged ≥18 years who reported smoking cigarettes on at least 1 day during the preceding 30 days and ≥100 cigarettes in their lifetime, or who reported smoking cigars or a pipe on at least 1 day during the preceding 30 days. During 2005–2012, of the 304,125 persons aged ≥18 years included in the NSDUH population, 303,523 were included in the current tobacco smoking analyses.

TABLE 1. Current prevalence of implementation of Million Hearts "ABCS" clinical strategies to prevent cardiovascular disease among adults — United States, 2009–2010, 2011–2012

Clinical strategy	%*	(95% CI)	p-value using adjusted t-test[†]
Aspirin use for secondary prevention (2009–2010)[§]			
Total	**53.8**	**(50.0–57.6)**	—
Men	58.5	(54.1–62.9)	referent
Women	48.0	(42.8–53.3)	0.001
Age group (yrs)			
18–44	38.5	(22.4–57.4)	0.213
45–64	54.1	(47.9–60.2)	referent
≥65	54.5	(50.5–58.5)	0.636
65–74	58.9	(52.4–65.0)	0.159
≥75	51.4	(46.6–56.2)	0.681
Race/Ethnicity			
White, non–Hispanic	55.7	(51.5–59.9)	referent
Black, non–Hispanic	50.4	(37.9–62.9)	0.700
Hispanic	43.6	(36.3–51.1)	0.012
Other	52.5	(41.3–63.5)	0.588
Blood pressure control (2011–2012)[¶]			
Total	**51.9**	**(47.1–56.6)**	—
Men	48.9	(44.4–53.5)	referent
Women	54.6	(48.5–60.5)	0.017
Age group (yrs)			
18–44	42.2	(32.0–53.2)	0.032
45–64	56.3	(49.6–62.8)	referent
≥65	50.1	(45.0–55.2)	0.032
65–74	57.9	(51.0–64.4)	0.802
≥75	41.7	(33.5–50.5)	0.001
Race/Ethnicity			
White, non–Hispanic	53.9	(47.6–60.1)	referent
Black, non–Hispanic	48.7	(43.1–54.3)	0.124
Hispanic	45.9	(38.6–53.4)	0.140
Other	46.0	(35.4–56.9)	0.324
Cholesterol management (2011–2012)**			
Total	**42.8**	**(38.0–47.7)**	—
Men	40.9	(35.4–46.8)	referent
Women	44.8	(37.9–51.9)	1.000
Age group (yrs)			
20–44	11.6	(6.0–21.0)	<0.001
45–64	44.1	(38.3–50.2)	referent
≥65	56.7	(49.8–63.4)	0.004
65–74	59.6	(48.3–69.9)	0.015
≥75	52.2	(38.2–65.8)	0.350
Race/Ethnicity			
White, non–Hispanic	47.4	(41.3–53.6)	referent
Black, non–Hispanic	35.5	(28.7–43.0)	0.034
Hispanic	23.0	(16.1–31.8)	0.001
Other	43.2	(29.2–58.4)	0.950

See table footnotes on page 464.

Community-Level Risk Factor Measures

Current tobacco product (cigarettes, cigars, or a pipe) smoking prevalence decreased from 28.2% in 2005–2006 to 25.1% in 2011–2012 (Figure 2). This 11% decline corresponded with a decrease of 11% in current cigarette smoking prevalence from 20.9% in 2005–2006 to 18.5% in 2011–2012, measured using

TABLE 1. (*Continued*) Current prevalence of implementation of Million Hearts "ABCS" clinical strategies to prevent cardiovascular disease among adults — United States, 2009–2010, 2011–2012

Clinical strategy	%*	(95% CI)	p-value using adjusted t-test†
Smoking assessment and treatment (2009–2010)††			
Total	**22.2**	**(20.2–24.4)**	—
Men	21.1	(18.8–23.6)	referent
Women	23.2	(20.4–26.2)	0.157
Age group (yrs)			
18–44	20.0	(17.1–23.3)	0.003
18–24	17.3	(12.6–23.3)	0.006
25–44	20.6	(17.6–24.0)	0.011
45–64	25.3	(22.5–28.3)	referent
≥65	18.9	(15.7–22.5)	0.002
65–74	20.0	(16.2–24.4)	0.025
≥75	16.5	(11.1–24.0)	0.031
Race/Ethnicity			
White, non–Hispanic	21.9	(19.6–24.4)	referent
Black, non–Hispanic	25.9	(19.7–33.3)	0.237
Hispanic	22.7	(16.7–30.1)	0.685
Other	15.0	(8.5–25.2)	0.190

Abbreviations: ABCS = aspirin use for secondary prevention, blood pressure control, cholesterol management, smoking assessment and treatment; CI = confidence interval.

* Weighted, unadjusted estimates.

† t-test for statistically significant differences among demographic subgroups, adjusted for sex, age group, and race/ethnicity, using linear/logistic regression.

§ Source: National Ambulatory Medical Care Survey (NAMCS). Includes office visits to primary care physicians and cardiologists by patients aged ≥18 years with ischemic vascular disease in which aspirin or other antiplatelet medications are prescribed. Excludes visits by patients with a contraindicated condition or medication and obstetric and gynecologic visits.

¶ Source: National Health and Nutrition Examination Survey (NHANES). Blood pressure (BP) control is defined as an average systolic BP <140 mmHg and an average diastolic BP <90 mmHg. Calculated among adults aged ≥18 years with hypertension. Hypertension defined as an average systolic BP ≥140 mmHg, or an average diastolic BP ≥90 mmHg, or self-reported current use of BP-lowering medication, defined as an answer of "yes" to the following questions: "Because of your high blood pressure/hypertension, have you ever been told to take prescribed medicine?" and "Are you currently taking medication to lower your blood pressure?" Excludes pregnant women.

** Source: NHANES. Cholesterol control is defined as a fasting low-density lipoprotein cholesterol (LDL-C) value among adults aged ≥20 years below the target levels (<100 mg/dL for the high risk group, <130 mg/dL for the intermediate risk group, and <160 mg/dL for the low risk group). Calculated among those with LDL-C dyslipidemia, defined using National Cholesterol Education Program's Adult Treatment Panel III risk categories based on the risk for developing coronary heart disease in the next 10 years. Additional information available at http://www.nhlbi.nih.gov/guidelines/cholesterol/index.htm. Current use of cholesterol-lowering medication is defined as an answer of "yes" to the following questions: "To lower your blood cholesterol have you ever been told by a doctor or other health professional to take prescribed medicine?" and "Are you now following this advice to take prescribed medicine?" Excludes pregnant women.

†† Source: NAMCS. Includes physician office visits by persons aged ≥18 years who screened positive for current tobacco use during which tobacco cessation counseling or cessation medications were provided. Additional stratification provided for adults aged 18–24 and 25–44 years because of higher prevalence of tobacco use among these age groups.

National Health Interview Survey data.††† In 2011–2012, current tobacco product smoking was greater among men (30.3%) than women (20.4%), adults aged 18–44 years (30.5%) compared with those aged 45–64 (24.6%) or ≥65 years (11.4%), and non-Hispanic whites (27.1%) compared with non-Hispanic blacks (26.2%) and Hispanics (18.1%) (Table 2).

The mean daily sodium intake decreased slightly from 3,619 mg/day in 2005–2006 to 3,594 mg/day in 2009–2010 (Figure 2). The most current data show mean daily sodium intake was greater among men (4,225 mg) than among women (2,976 mg), greater among adults aged 18–44 years (3,770 mg) compared with those aged 45–64 (3,640 mg) and ≥65 years (2,992 mg), and greater among non-Hispanic whites (3,631 mg) compared with non-Hispanic blacks (3,352 mg) and Hispanics (3,431 mg) (Table 2).

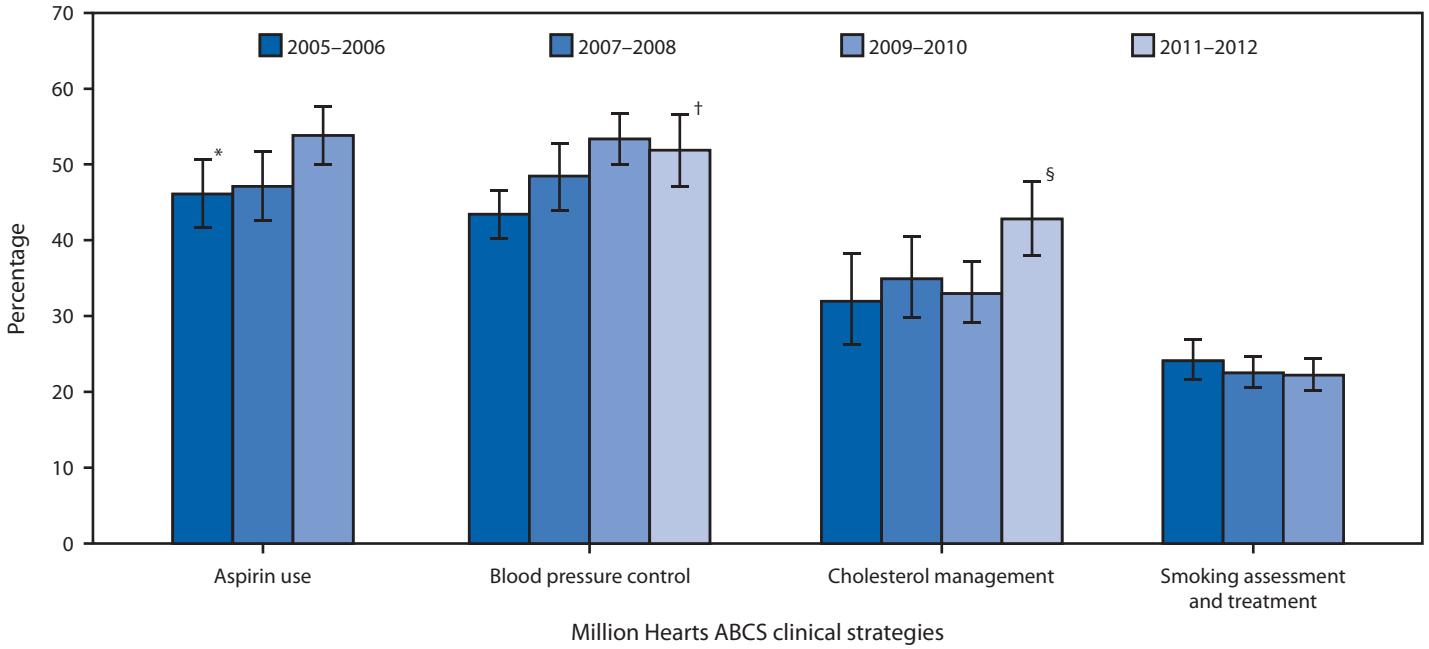
Discussion

To reach the goal of preventing 1 million heart attacks and strokes during 2012–2016, Million Hearts set population-level goals of achieving ≥65% prevalence for each ABCS clinical measure as well as a 20% reduction in sodium intake (to approximately 2,900 mg/day) and a 10% reduction in current tobacco product smoking prevalence (to approximately 23.6%) (*2*). A goal to decrease mean daily trans-fatty acid intake is still being promoted (e.g., by supporting ongoing efforts to remove artificial trans-fats from the food supply); however, regular measurement has been deemphasized because of the considerable recent decreases in trans-fat consumption (*4*) and the cost of regularly obtaining population estimates of consumption. Million Hearts has focused on improving performance in specific clinical and community-level CVD risk factors because interventions in these areas have been shown to be effective ways to greatly decrease CVD morbidity and mortality (*2*).

Current estimates from 2005–2012 for certain Million Hearts measures serve as baseline values for achieving the initiative's 2017 goals. Additional progress needs to be made in all reported measures important to cardiovascular health, especially among those groups with the smallest prevalence of desired characteristics. For example, the most recently available data show that, compared with those aged ≥45 years, younger adults were more likely to have uncontrolled blood pressure and poorly managed cholesterol, and to smoke tobacco products; younger adults were less likely to receive smoking assessment and treatment, and had greater mean daily sodium intakes. These differences place younger adults at considerable risk

††† Current smokers were defined as those adults aged ≥18 years who had smoked at least 100 cigarettes in their lifetime and now smoke every day or some days. Additional information available at http://www.cdc.gov/nchs/nhis/tobacco/tobacco_statistics.htm.

FIGURE 1. Prevalence of Million Hearts "ABCS" clinical strategies to prevent cardiovascular disease among adults — United States, 2005–2006 to 2011–2012



Abbreviation: ABCS = aspirin use for secondary prevention, blood pressure control, cholesterol management, smoking assessment and treatment.
* 95% confidence interval.
† Linear trend adjusted for sex, age group, and race/ethnicity was statistically significant from 2005–2006 through 2011–2012 ($p<0.05$).
§ Difference between 2009–2010 and 2011–2012 is statistically significant ($p<0.05$).

for developing CVD and suffering a CVD-related event during their lifetime; persons with two or more major CVD risk factors by age 50 years have more than 10 times the risk for developing atherosclerotic CVD compared with those who are free from major CVD risk factors at that age (*5*).

The findings in this report are subject to at least seven limitations. First, new cholesterol management guidelines recently released by the American College of Cardiology (ACC) and American Heart Association (AHA) focus on providing treatment with appropriate types and doses of cholesterol-lowering medications (statins) rather than routine treatment to cholesterol targets (*6*). The cholesterol management rates reported here are based on the previous guidelines in place when the data were collected and the initiative was launched. Second, debate continues over what population-level thresholds should be used to demonstrate adequate blood pressure control, particularly among older adults (*7*). This report uses the thresholds recommended for the general population by the Seventh Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, because the recommendations remain endorsed by organizations including the ACC, AHA, and the National Institutes of Health and aligns

What is already known on this topic?

Approximately 1.5 million U.S. adults have a heart attack or stroke each year. These events often lead to long-term disability or death. In 2011, the U.S. Department of Health and Human Services, in collaboration with other key partners, launched Million Hearts, an initiative focused on implementing clinical and community evidence-based strategies to prevent 1 million heart attacks and strokes for the 5-year period 2012–2016.

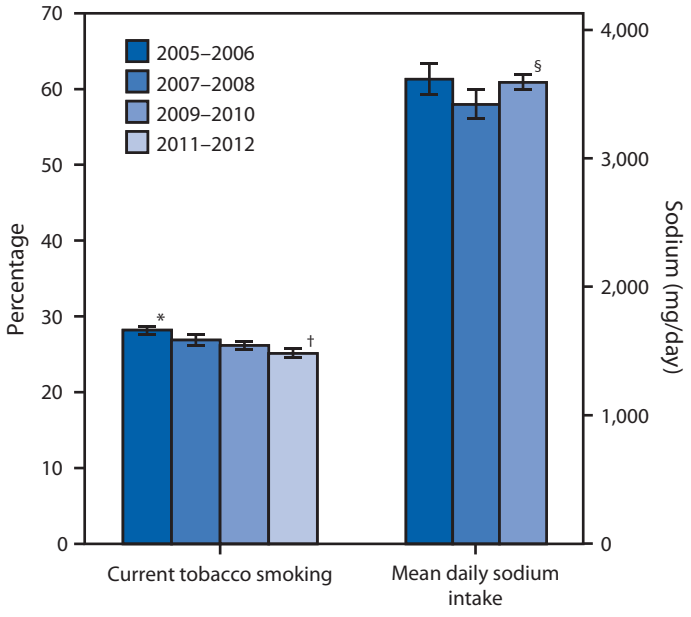
What is added by this report?

From 2005–2006 to the period with the most current data, prevalence of the Million Hearts "ABCS" of clinical care showed no significant change for aspirin use for secondary prevention (53.8% in 2009–2010), improved to 51.9% for blood pressure control and to 42.8% for cholesterol management (in 2011–2012), and showed no significant change for smoking assessment and treatment (22.2% in 2009–2010). Analysis of two community-level indicators found a decrease in current tobacco product (cigarettes, cigars, or a pipe) smoking prevalence to 25.1% (in 2011–2012) and minimal change in mean daily sodium intake (3,594 mg/day in 2009–2010).

What are the implications for public health practice?

Although trends in some measures are encouraging, additional efforts to reduce cardiovascular risk factors are needed to meet the 2017 Million Hearts goals.

FIGURE 2. Values for Million Hearts community-level risk factors for cardiovascular disease among adults — United States, 2005–2006 to 2011–2012



* 95% confidence interval.
† Linear trend adjusted for sex, age group, and race/ethnicity was statistically significant from 2005–2006 through 2011–2012 (p<0.05).
§ Linear trend adjusted for sex, age group, and race/ethnicity was statistically significant from 2005–2006 through 2009–2010 (p<0.05).

with *Healthy People 2020* measures. Third, response rates for the three different surveys ranged from 58.3% to 77.4%, and the results might be subject to nonresponse bias. Fourth, each survey used excludes certain population segments. For example, NHANES surveys include only the noninstitutionalized U.S. population and do not include military personnel. Fifth, one of the smoking cessation medications, bupropion, has multiple indications; however, all bupropion prescriptions were considered as cessation treatment, representing approximately 10% of all documented cessation interventions. Sixth, NAMCS-based visit estimates rely on health-care providers' intervention documentation, for which the quality might vary over time, thereby affecting trend analyses. Finally, the aspirin measure describes the health-care provider's recommended use of aspirin or other antiplatelet medication at a visit and not actual medication use; the indication for use is also not collected. Measures of patient-reported aspirin use are being explored.

Million Hearts strategies (*2,3,8*) that address these CVD risk factors include promoting use of standardized hypertension treatment protocols (*9*), effective use of health information technology (*2*), and self-measured blood pressure monitoring

TABLE 2. Current values for Million Hearts community-level risk factors for cardiovascular disease among adults — United States, 2009–2010, 2011–2012

Community-level risk factor	(%*)	(95% CI)	p-value using adjusted t-test†
Current tobacco product smoking (2011–2012)§			
Total	**25.1**	**(24.6–25.7)**	—
Men	30.3	(29.4–31.1)	referent
Women	20.4	(19.7–21.0)	<0.001
Age group (yrs)			
18–44	30.5	(29.3–31.1)	<0.001
18–24	31.2	(30.5–31.9)	<0.001
25–44	30.2	(29.5–31.0)	<0.001
45–64	24.6	(27.5–25.5)	referent
≥65	11.4	(10.4–12.5)	<0.001
65–74	15.3	(13.8–16.9)	<0.001
≥75	5.7	(4.6–7.1)	<0.001
Race/Ethnicity			
White, non-Hispanic	27.1	(26.4–27.9)	referent
Black, non-Hispanic	26.2	(24.7–27.8)	0.004
Hispanic	18.1	(16.9–19.2)	<0.001
Other	19.2	(17.5–21.1)	<0.001

Community-level risk factor	(Mean*)	(95% CI)	p-value using adjusted t-test
Daily sodium intake (mg/day) (2009–2010)¶			
Total	**3,594**	**(3,537–3,651)**	—
Men	4,255	(4,167–4,342)	referent
Women	2,976	(2,920–3,032)	<0.001
Age group (yrs)			
18–44	3,770	(3,702–3,837)	0.025
18–24	3,749	(3,559–3,940)	0.320
25–44	3,777	(3,688–3,866)	0.033
45–64	3,640	(3,542–3,739)	referent
≥65	2,992	(2,879–3,106)	<0.001
65–74	3,175	(3,061–3,289)	<0.001
≥75	2,741	(2,591–2,891)	<0.001
Race/Ethnicity			
White, non-Hispanic	3,631	(3,564–3,698)	referent
Black, non-Hispanic	3,352	(3,233–3,471)	0.001
Hispanic	3,431	(3,332–3,530)	<0.001
Other	3,994	(3,663–4,324)	0.054

Abbreviation: CI = confidence interval.
* Weighted, unadjusted estimates.
† t-test for statistically significant differences among demographic subgroups, adjusted for sex, age group, and race/ethnicity, using linear/logistic regression.
§ Source: National Survey on Drug Use and Health. Includes current use of combustible tobacco products (i.e., cigarettes, cigars, or pipes) among adults aged ≥18 years. Current cigarette smoking defined as an answer of "yes" to the question, "Have you smoked at least 100 cigarettes in your entire life?" and an answer of "Within the past 30 days" to the question "How long has it been since you last smoked part or all of a cigarette?" Current cigar smoking is defined as an answer of "Within the past 30 days" to the question, "How long has it been since you last smoked part or all of any type of cigar?" Current pipe smoking is defined as an answer of "yes" to the question, "During the past 30 days, have you smoked tobacco in a pipe, even once?"
¶ Sources: National Health and Nutrition Examination Survey and What We Eat in America, U.S. Department of Agriculture. Includes adults aged ≥18 years. The data are estimated from Day 1 dietary recall interviews. The data processing step of adjusting sodium content for salt added during food preparation was discontinued in 2009–2010; equivalent unadjusted estimates for the 2005–2006 and 2007–2008 cycles are based on the default sodium values in the U.S. Department of Agriculture's Food and Nutrient Databases for Dietary Studies 3.0 and 4.1.

with clinical support.[§§§] Other strategies that Million Hearts supports include the following: use of CVD-related clinical quality measures and their incorporation into quality reporting initiatives (*10*); supporting the Tips From Former Smokers campaign[¶¶¶]; comprehensive smoke-free policy adoption; implementation of The Community Preventive Services Task Force recommendations, including use of team-based care and reduction of out-of-pocket prescription medication costs[****]; and population dietary sodium reduction efforts.[††††] Additional focus on both clinical-level efforts that support consistent and coordinated patient care and community-level efforts that promote environments that encourage healthy behaviors and reduce unhealthy exposures is needed to continue progress towards meeting Million Hearts goals by 2017.

[§§§] Additional information available at http://millionhearts.hhs.gov/docs/mh_smbp.pdf.
[¶¶¶] Additional information available at http://www.cdc.gov/tobacco/campaign/tips/about/campaign-overview.html.
[****] Additional information available at http://www.thecommunityguide.org.
[††††] Additional information available at http://www.cdc.gov/vitalsigns/sodium.

Acknowledgments

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Progress Toward Polio Eradication — Worldwide, 2013–2014

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In 1988, the World Health Assembly of the World Health Organization (WHO) resolved to interrupt wild poliovirus (WPV) transmission worldwide, and in 2012, the World Health Assembly declared the completion of global polio eradication a programmatic emergency for public health (*1*). By 2013, the annual number of WPV cases had decreased by >99% since 1988, and only three countries remained that had never interrupted WPV transmission: Afghanistan, Nigeria, and Pakistan. This report summarizes global progress toward polio eradication during 2013–2014 and updates previous reports (*2*). In 2013, a total of 416 WPV cases were reported globally from eight countries, an 86% increase from the 223 WPV cases reported from five countries in 2012 (*3*). This upsurge in 2013 was caused by a 60% increase in WPV cases detected in Pakistan, and by outbreaks in five previously polio-free countries resulting from international spread of WPV. In 2014, as of May 20, a total of 82 WPV cases had been reported worldwide, compared with 34 cases during the same period in 2013. Polio cases caused by circulating vaccine-derived poliovirus (cVDPV) were detected in eight countries in 2013 and in two countries so far in 2014 (*4*). To achieve polio eradication in the near future, further efforts are needed to 1) address health worker safety concerns in areas of armed conflict in priority countries, 2) to prevent further spread of WPV and new outbreaks after importation into polio-free countries, and 3) to strengthen surveillance globally. Based on the international spread of WPV to date in 2014, the WHO Director General has issued temporary recommendations to reduce further international exportation of WPV through vaccination of persons traveling from currently polio-affected countries (*5*).

Routine Vaccination Coverage

During 2012, the latest year for which complete data are available, global coverage of infants by age 12 months with 3 doses of polio vaccine (Pol3) through routine vaccination was estimated at 84%. Pol3 coverage estimates by WHO region were 77% in the African Region (AFR), 74% in the South-East Asia Region (SEAR), 82% in the Eastern Mediterranean Region (EMR), 93% in the Region of the Americas (AMR), 96% in the European Region (EUR), and 97% in the Western Pacific Region (WPR). Among the countries where polio is endemic, estimated national Pol3 coverage was 59% in Nigeria, 71% in Afghanistan, and 75% in Pakistan. However, substantial variability in coverage exists within these countries (*6*).

Supplementary Immunization Activities

In 2013, 265 supplementary immunization activities (SIAs) using oral poliovirus vaccine (OPV) were conducted in 42 countries, 52% (137) in AFR and 45% (118) in EMR. These included 113 national immunization days, 134 subnational immunization days, 13 child health days, and five large-scale mop-up rounds. About 2.24 billion doses of OPV were administered over the year to a target population of mostly children aged <5 years; of these doses, 995 million were trivalent, 1.2 billion were bivalent (types 1 and 3) and 8 million were type 1 monovalent OPV. Short-interval additional dose SIAs (*7*) were implemented in Afghanistan to boost population immunity using monovalent OPV and/or bivalent OPV in hard-to-reach areas. An extensive set of outbreak response and preventive SIAs have been planned and conducted in the Middle East to respond to the WPV type 1 (WPV1) outbreak in Syria (Table 1).

Poliovirus Surveillance

Polio cases caused by WPV or by cVDPV are detected through surveillance for acute flaccid paralysis (AFP) cases and testing of stool specimens at WHO-accredited laboratories of the Global Polio Laboratory Network (*8*). Of the 12 countries reporting WPV and/or cVDPV cases during 2012–2013, the two main AFP surveillance performance indicators* were met at the national level in five countries (42%). All EMR countries met surveillance performance indicators, except Syria. Surveillance quality indicators in several high-risk countries with recent outbreaks deteriorated during 2013, compared with 2012. In only four (33%) of the 12 countries polio-affected during 2012–2013 was ≥80% of the population living in sub-national areas where both indicators were met during 2013 (Afghanistan, Nigeria, Pakistan, and Somalia). Despite this, virologic evidence showed surveillance gaps in each of these four countries (*8*).

* Standard performance indicators include 1) the rate of nonpolio AFP cases (target = ≥1 case per 100,000 population aged <15 years for countries in WHO regions certified as polio-free; all other countries should achieve annual rates of ≥2), and 2) the proportion of AFP cases with adequate stool specimens (target = ≥80%).

TABLE 1. Number of supplemental immunization activities (SIAs) conducted and number of oral poliovirus vaccine doses administered, by country/area — worldwide, 2013 and 2014

	2013		2014	
Country/Area	SIAs	Doses	SIAs	Doses
Afghanistan	19	37,410,609	16	36,783,744
Angola	3	14,769,565	1	7,583,041
Bangladesh	1	30,105,022		
Benin	4	3,808,701	2	3,911,445
Burkina Faso	5	9,326,642	2	14,943,494
Cameroon	8	10,489,620	8	17,939,541
Central African Republic	4	1,273,793	3	1,047,098
Chad	13	18,837,112	3	6,633,913
Cote d'Ivoire	3	18,195,078	1	8,836,776
Democratic Republic of the Congo	7	32,591,315	6	20,713,377
Djibouti	3	302,453		
Egypt	5	38,670,031	1	15,596,691
Equatorial Guinea			4	545,015
Eritrea	2	692,235		
Ethiopia	13	34,460,757	5	17,827,430
Gabon			1	382,904
Gambia	2	507,025		
Ghana	2	6,119,545		
Guinea	3	7,508,602	1	3,932,186
Guinea-Bissau	2	345,067		
India	6	320,043,470	5	567,008,989
Iran	4	2,320,111	4	1,241,781
Iraq	8	23,579,384	4	16,191,343
Jordan	5	2,907,026	1	1,117,898
Kenya	15	28,025,788	6	26,738,433
Laos	1	361,446		
Lebanon	3	996,160	2	856,179
Liberia	3	1,128,688		
Mali	6	20,779,108	2	15,838,686
Mauritania	2	769,707		
Nepal			1	5,786,332
Niger	10	22,724,996	3	16,807,958
Nigeria	22	379,934,093	11	200,698,979
Pakistan	19	219,575,821	22	171,011,355
Philippines			2	32,827,615
Senegal	2	6,545,177		
Sierra Leone	4	1,716,577		
Somalia	28	37,473,206	11	10,402,708
South Sudan	6	13,895,568	2	6,913,709
Sudan	4	25,608,309	2	13,106,801
Syria	6	12,369,813	5	9,520,753
Turkey	2	3,118,271	3	1,418,787
Uganda	2	6,434,132		
West Bank and Gaza Strip	1		1	
Yemen	7	29,258,816	1	5,797,919
Total	**265**	**1,424,978,839**	**142**	**1,259,962,880**

* Data as of April 29, 2014.

Reported WPV Cases

All 416 WPV cases reported in 2013 were WPV1. Of these, 22% were cases detected in Pakistan and 62% were cases in new outbreaks after WPV1 importations into previously polio-free countries. As of May 20, during January–April 2014, the low transmission season for poliovirus, 82 WPV1 cases were reported globally from eight countries, an increase from 34 WPV1 cases reported from three countries during the same period in 2013 (Table 2). During 2014, as of May 20, WPV1 has already spread internationally from three countries: in central Asia (from Pakistan to Afghanistan), the Middle East (Syria to Iraq), and in Central Africa (Cameroon to Equatorial Guinea). WPV type 3 (WPV3) cases have not been detected in Pakistan since April 2012 and in Nigeria since November 2012. No WPV type 2 cases have been detected anywhere in the world since 1999.

TABLE 2. Number of reported wild poliovirus cases, by country and serotype —worldwide, January–April 2013 and 2014*

		January–April	
Country	2013	2013	2014
With endemic polio			
Afghanistan	14	2	4
Nigeria	53	22	3
Pakistan	93	8	66
With polio outbreaks			
Iraq	0	0	1
Equatorial Guinea	0	0	3
Cameroon	4	0	3
Somalia	194	1	0
Syria	35	0	1
Ethiopia	9	0	1
Kenya	14	1	0
Niger	0	0	0
Total	**416**	**34**	**82**
Total endemic	**160**	**32**	**73**
Total in outbreak	**256**	**0**	**9**

* Data as of May 20, 2014.

Afghanistan. In 2013, a total of 14 WPV1 cases were reported in 10 districts, a 62% decrease from 37 cases reported in 21 districts in 2012 and a 52% decrease in the number of affected districts. This is the lowest level of reported WPV since 2004; all but one case in 2013 and all cases in 2014 were reported from eastern Afghanistan and genetically linked to WPV importation from Pakistan. In 2013, only one case was reported from Helmand Province in southern Afghanistan, which had been the main region of Afghanistan where polio was endemic up to 2012. During January–April 2014, four WPV1 cases were reported, compared with two cases reported during the same period in 2013.

Nigeria. In 2013, 53 WPV1 cases were reported in 30 districts, a 57% reduction from the 122 WPV cases (109 WPV1 and 19 WPV3 cases) in 60 districts reported in 2012, and a 50% decrease in the number of affected districts. During January–April 2014, Nigeria reported three WPV1 cases, an 88% decrease compared with 16 cases reported during the same period in 2013. In 2013, SIAs were suspended temporarily in some areas of armed conflict in northeastern Nigeria.

Pakistan. In 2013, 93 WPV1 cases were reported in 23 districts, a 60% increase from 58 WPV cases (55 WPV1 cases, two

WPV3 cases, and one case with WPV1 and WPV3 coinfection) in 28 districts in 2012, and an 18% reduction in the number of affected districts. During January–April 2014, Pakistan reported 66 cases, compared with eight cases reported during the same period in 2013. Since mid-2012, local authorities have imposed a complete ban on conducting SIAs in North Waziristan, South Waziristan, and one part of northwestern Pakistan, and in 2013, SIAs were suspended temporarily in some areas of Pakistan because of risks for violence.

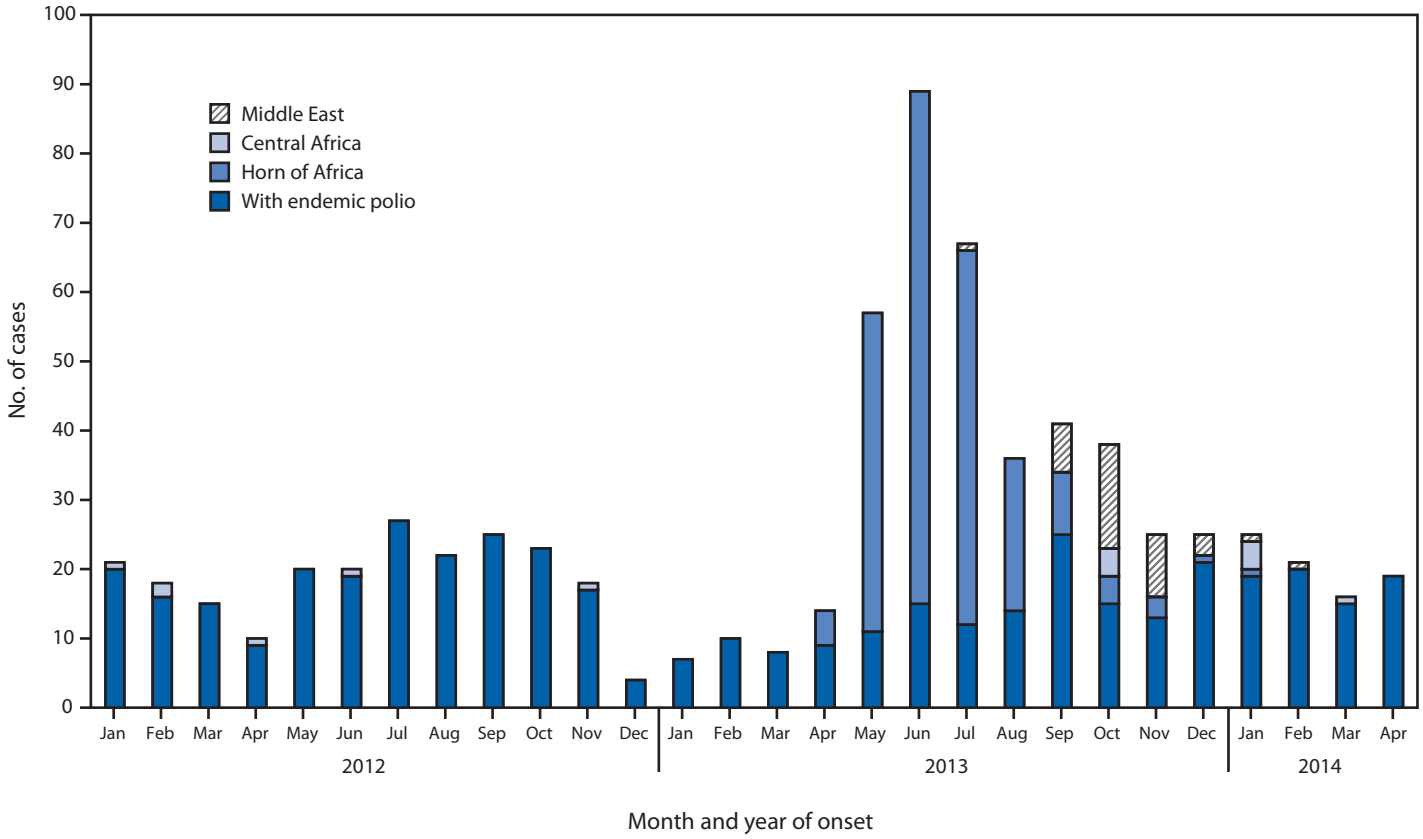
Countries with Polio Outbreaks

The number of WPV cases in outbreaks after WPV importation into previously polio-free countries increased from six cases in two countries (Chad and Niger) in 2012 to 256 cases in five countries in 2013 (Figure). Importation of WPV1 from Nigeria into the Horn of Africa resulted in 217 cases in 2013 (nine in Ethiopia, 14 in Kenya, and 194 Somalia); one outbreak case was reported by Ethiopia in 2014. Importation from Pakistan into Syria resulted in 35 cases in 2013 and one case in 2014; in 2014, a WPV case in Iraq resulted from WPV imported from Syria. Four WPV1 cases were reported in Cameroon in 2013 and three in 2014, and three cases were reported in Equatorial Guinea in the first quarter of 2014 (Table 2). On genomic sequence analysis, the isolates were of Nigerian origin most closely linked with WPV cases reported from Chad in 2012.

Discussion

Despite increases in cases since 2012, substantial progress toward polio eradication has occurred. No WPV3 case has been identified globally since November 2012 in Nigeria, raising the possibility that WPV3 transmission may have been interrupted globally. In March 2014, the WHO SEAR joined the WHO AMR, WPR and EUR as being certified free of indigenous wild poliovirus. With this achievement, 80% of the world's population now lives in WHO regions certified as polio-free. Indigenous WPV transmission within AFR and EMR, the two remaining WHO regions where polio is endemic, is now restricted to fewer geographical areas within each of the three remaining countries where polio is endemic than ever before. The decrease in the number of reported WPV cases and number of affected states and districts in Nigeria was associated with significantly improved SIA quality indicators during late

FIGURE. Number of wild poliovirus cases among countries with endemic polio and regions with recent polio outbreaks, by month and year of onset — January 2012–April 2014*



* Data as of May 20, 2014.

What is already known on this topic?

The Global Polio Eradication Initiative (GPEI) began in 1988. Wild poliovirus (WPV) transmission has decreased by >99% since then, and currently WPV transmission remains endemic only in Afghanistan, Nigeria, and Pakistan. Outbreaks caused by importation of WPV cases have been detected in previously polio-free countries, and in 2012, the World Health Assembly of the World Health Organization (WHO) declared the completion of polio eradication a global public health emergency.

What is added by this report?

Significant progress toward polio eradication has been achieved during 2012–2013; the WHO South-East Asia Region was certified polio-free, the geographic extent of WPV transmission has decreased within the countries where polio is endemic, and there is possible eradication of WPV type 3. An increase in the number of polio cases occurred because of ongoing outbreaks in Pakistan and outbreaks resulting from international spread of polioviruses into the Horn of Africa and the Middle East. Threats of physical violence in areas of conflict have emerged as a major risk for polio eradication efforts.

What are the implications for public health practice?

Current GPEI progress indicates that polio eradication is achievable. However, the occurrence of outbreaks in previously polio-free countries demonstrates that all countries and regions remain at risk so long as WPV transmission continues in any country. Strengthened AFP surveillance performance and improved supplementary immunization activity quality might prevent or further limit the spread of WPV.

2012 and early 2013 (*9*). Current WPV transmission in Nigeria appears to be restricted to Kano and Borno states, although gaps in surveillance quality remain.

During 2010–2012, the conflict in Afghanistan prevented vaccinators from safely accessing children in many areas of the southern region of Afghanistan. However, systematic negotiations greatly improved access to children in 2013, which, together with successful efforts to improve the quality of SIAs, substantially reduced transmission of endemic WPV (*7*). However, the success of global polio eradication is being challenged by major limitations in access and physical security within other countries.

In Pakistan, targeted attacks against polio workers and police officers assigned to protect them have seriously compromised the implementation of SIAs in parts of the Federally Administered Tribal Areas, Khyber Pakhtunkhwa province, and Karachi city. The continued ban on polio vaccination in North and South Waziristan, Federally Administered Tribal Areas where local leaders have prevented vaccination of >350,000 children since June 2012, is largely responsible for the increase in WPV cases in 2013 and 2014 in Pakistan and for recent WPV importation into Afghanistan and war-torn Syria. However, as of the end of April, 12 consecutive SIAs were carried out in 2014 already in Khyber Pakhtunkhwa province, demonstrating strong political commitment and engagement of local communities, religious leaders, and humanitarian organizations to reach unvaccinated children in these areas (*10*).

Terrorist acts by antigovernment elements in Nigeria have prevented vaccinators from visiting some areas of Borno state since early 2013; however, vaccination access has gradually improved, and 84% of children were accessible by March 2014.[†]

Limitations in access and physical security have also greatly affected the ability to promptly control and end outbreaks. Outbreak control has also been compromised by suboptimal SIA implementation, and incomplete understanding of outbreak dynamics resulting from variable AFP surveillance quality. The outbreak in the Horn of Africa has lasted >9 months after initial confirmation, partly caused by limitations in the quality of outbreak response in parts of Somalia not under government control and difficult-to-reach areas within Ethiopia. The ongoing circulation of WPV1 in Cameroon and Equatorial Guinea poses a risk for wider spread, including into populations affected by ongoing civil unrest in the Central African Republic; an aggressive outbreak response is being planned to include neighboring countries to limit further extension of transmission.

With further restriction of the geographic extent of WPV circulation in the countries where polio is endemic, and provided that outbreaks after importation into polio-free countries can be prevented or interrupted promptly, interruption of global transmission could be achieved in the near future. The GPEI has developed the Polio Eradication and Endgame Strategic Plan for 2013–2018[§] to 1) interrupt all poliovirus transmission, 2) progressively withdraw OPV and introduce inactivated poliovirus vaccine, 3) certify polio eradication, and 4) transition assets and infrastructure to routine immunization programs as part of GPEI legacy.

The Director General of WHO has declared the recent international spread of WPV a public health emergency of international concern (*5*) and issued temporary recommendations under the International Health Regulations (IHR 2005) to reduce international exportation of WPV through 1) ensuring that residents and long-term visitors traveling from Cameroon, Pakistan, and Syria receive vaccination before international travel, and 2) encouraging residents and long-term visitors

[†] Global Polio Eradication Initiative Status Report. Available at http://www.polioeradication.org/Portals/0/Document/Aboutus/Governance/IMB/10IMBMeeting/2.2_10IMB.pdf.

[§] The Polio Eradication and Endgame Strategic Plan 2013–2018, available at http://www.polioeradication.org/Portals/0/Document/Resources/StrategyWork/PEESP_EN_US.pdf, is a comprehensive, long-term strategy that addresses what is needed to deliver a polio-free world by 2018.

traveling from Afghanistan, Equatorial Guinea, Ethiopia, Iraq, Israel, Somalia, and Nigeria to receive vaccination before international travel and 3) ensuring that such travelers are provided an International Certificate of Vaccination documenting vaccination status.¶ At this stage in the GPEI, enhanced commitment by countries and GPEI partners in a coordinated international effort is crucial to maintaining current gains and to complete polio eradication.

¶ Additional information is available at http://wwwnc.cdc.gov/travel.

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Announcements

National Stroke Awareness Month — May 2014

May is National Stroke Awareness Month. Stroke is the fourth leading cause of death in the United States (*1*). National Stroke Awareness Month aims to save lives by increasing awareness and educating the public about cardiovascular health. On average, one stroke-related death occurs every 4 minutes, or nearly 130,000 deaths each year (*1*). Approximately 800,000 persons a year will experience a stroke (*2*).

Anyone can have a stroke at any age. A person's chances of having a stroke increase with certain risk factors, including high blood pressure, obesity, high cholesterol, a family history of stroke, age, and ethnicity. Risk for having a first stroke is nearly twice as high for blacks as for whites, and blacks are more likely to die after a stroke (*2*). Hispanics and American Indians/Alaska Natives also have a greater chance of having a stroke than do non-Hispanic whites or Asians (*2*).

During a stroke, every minute counts. Fast treatment can reduce the brain damage that stroke can cause. Signs of stroke include 1) sudden numbness or weakness in the face, arm, or leg, especially on one side of the body; 2) sudden confusion, trouble speaking, or difficulty understanding speech; 3) sudden trouble seeing in one or both eyes; 4) sudden trouble walking, dizziness, loss of balance, or lack of coordination; and 5) sudden severe headache with no known cause.

Persons should seek emergency care immediately if they or someone else has any of these symptoms (e.g., persons in the United States should immediately dial 9-1-1).

Stroke risk can be decreased by making healthy choices and managing health conditions. These behaviors include 1) eating a healthy diet; 2) maintaining a healthy weight; 3) getting enough physical activity; 4) not smoking; 5) limiting alcohol use; 6) getting blood pressure and cholesterol under control; and 7) taking medications as prescribed and working with a health-care team to prevent or treat the medical conditions that lead to stroke.

CDC's Division for Heart Disease and Stroke Prevention focuses on promoting cardiovascular health, improving quality of care for all, and eliminating disparities associated with heart disease and stroke. More information is available at http://www.cdc.gov/bloodpressure and http://www.cdc.gov/stroke.

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Recommendations Regarding Tobacco Use and Secondhand Smoke Exposure — Community Preventive Services Task Force

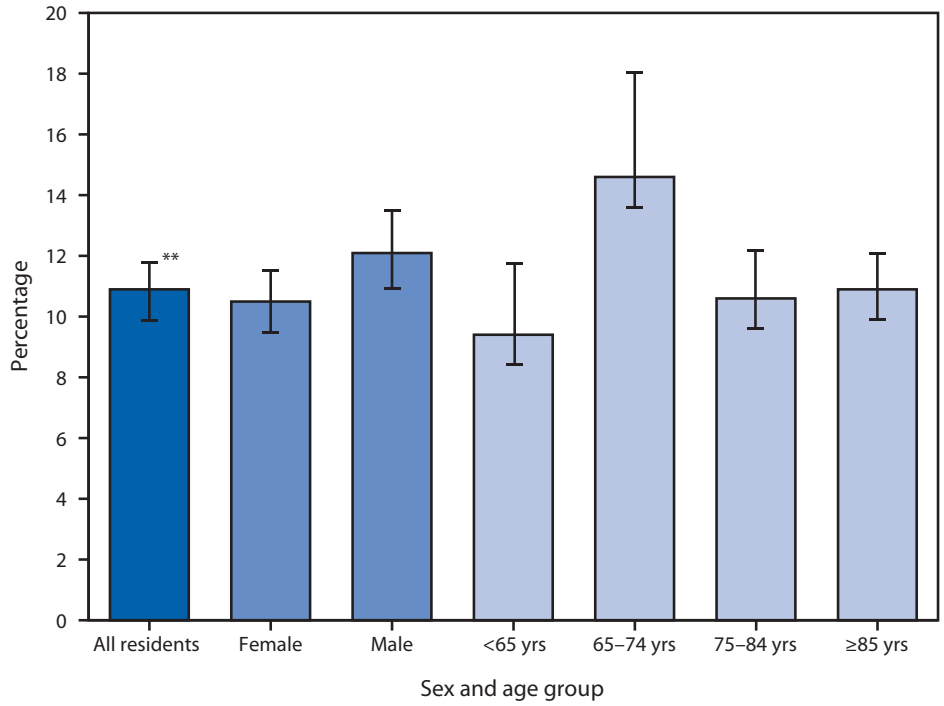
The Community Preventive Services Task Force recently posted new information regarding two recommendations: 1) "Reducing Tobacco Use and Secondhand Smoke Exposure: Interventions to Increase the Unit Price for Tobacco Products," available at http://www.thecommunityguide.org/tobacco/increasingunitprice.html, and 2) "Reducing Tobacco Use and Secondhand Smoke Exposure: Smoke-Free Policies," available at http://www.thecommunityguide.org/tobacco/smokefreepolicies.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.

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Prevalence of Stroke* Among Residential Care Residents,† by Sex§ and Age Group¶ — National Survey of Residential Care Facilities, United States, 2010



* Respondents, who typically were residential care community directors, were asked, "As far as you know, has a doctor or other health professional ever diagnosed this resident with a stroke?"
† Residential care residents refer to persons living in assisted living and similar places (e.g., personal care homes and adult care homes, board and care homes, and adult foster care) on any given day in 2010. Residents in nursing homes were excluded. Those with missing data for stroke (0.6%) were excluded.
§ Differences between female and male residents significant at $p<0.10$.
¶ Differences between residents aged 65–74 years and residents in the other three age groups were statistically significant at $p<0.05$.
** 95% confidence interval.

In 2010, approximately 11.0% of residential care residents had been diagnosed with a stroke. About 12.0% of male residents and 10.5% of female residents had been diagnosed with a stroke. Residents aged 65–74 years had the highest prevalence of stroke (14.6%) compared with the other age groups.

Source: National Survey of Residential Care Facilities, 2010. Available at http://www.cdc.gov/nchs/nsrcf.htm.

Reported by: Christine Caffrey, PhD, gwo9@cdc.gov, 301-458-4137; Manisha Sengupta, PhD.

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Data presented by the Notifiable Disease Data Team and 122 Cities Mortality Data Team in the weekly *MMWR* are provisional, based on weekly reports to CDC by state health departments. Address all inquiries about the *MMWR* Series, including material to be considered for publication, to Editor, *MMWR* Series, Mailstop E-90, CDC, 1600 Clifton Rd., N.E., Atlanta, GA 30329-4027 or to *mmwrq@cdc.gov.*

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