

## Suicide Among Adults Aged 35–64 Years — United States, 1999–2010

Suicide is an increasing public health concern. In 2009, the number of deaths from suicide surpassed the number of deaths from motor vehicle crashes in the United States (1). Traditionally, suicide prevention efforts have been focused mostly on youths and older adults, but recent evidence suggests that there have been substantial increases in suicide rates among middle-aged adults in the United States (2). To investigate trends in suicide rates among adults aged 35–64 years over the last decade, CDC analyzed National Vital Statistics System (NVSS) mortality data from 1999–2010. Trends in suicide rates were examined by sex, age group, race/ethnicity, state and region of residence, and mechanism of suicide. The results of this analysis indicated that the annual, age-adjusted suicide rate among persons aged 35–64 years increased 28.4%, from 13.7 per 100,000 population in 1999 to 17.6 in 2010. Among racial/ethnic populations, the greatest increases were observed among American Indian/Alaska Natives (AI/ANs) (65.2%, from 11.2 to 18.5) and whites (40.4%, from 15.9 to 22.3). By mechanism, the greatest increase was observed for use of suffocation (81.3%, from 2.3 to 4.1), followed by poisoning (24.4%, from 3.0 to 3.8) and firearms (14.4%, from 7.2 to 8.3). The findings underscore the need for suicide preventive measures directed toward middle-aged populations.

CDC used the Web-based Injury Statistics Query and Reporting System (3) to compile NVSS data on suicides reported during 1999–2010 among U.S. residents aged  $\geq 10$  years. Age group–specific annual suicide rates, as well as age-adjusted annual suicide rates calculated using the U.S. standard 2000 population, were based on bridged race population estimates from the U.S. Census Bureau. Trends in age-adjusted suicide rates from 1999, when signs of an increase began (4), through 2010, the latest data available, were analyzed for adults aged 35–64 years by sex and mechanism of suicide. The three most common suicide mechanisms were firearms (i.e., penetrating injury or gunshot wound from a weapon using a powder charge to fire a projectile), poisoning (predominantly drug overdose), and suffocation (predominantly hanging). These three mechanisms and an “all other” mechanism category

were used for comparisons. Data also were analyzed by age group, race/ethnicity,\* and U.S. Census region.

Percentage changes in observed suicide rates from 1999 to 2010 were calculated along with corresponding 95% confidence intervals, assuming a Poisson distribution. Tests of significance of trends in annual age-adjusted suicide rates for adults aged 35–64 years across the 12-year period were conducted using joinpoint regression (5), assuming a log-linear model. This report focuses on adults aged 35–64 years because percentage changes from 1999 to 2010 in the annual age-adjusted suicide rates for persons aged 10–34 years and  $\geq 65$  years were comparatively small and not statistically significant (a 7.0% increase from 9.2 in 1999 to 9.9 in 2010 [ $p = 0.06$ ] and a 5.9% decrease from 15.8 in 1999 to 14.9 in 2010 [ $p = 0.09$ ], respectively). Finally, data were analyzed by state, and percentage changes in age-adjusted suicide rates from 1999 to 2010 were calculated for all 50 states.

From 1999 to 2010, the age-adjusted suicide rate for adults aged 35–64 years in the United States increased significantly by

\*Race/ethnicity was coded into six mutually exclusive categories: white, black, AI/AN, Asian/Pacific Islander, Hispanic, and other/unknown. All persons categorized in the first four groups were non-Hispanic. Persons categorized as Hispanic might be of any race.

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**What is already known on this topic?**

Traditionally, suicide prevention efforts have been focused mostly on youths and older adults, but recent evidence suggests that suicide rates among middle-aged adults in the United States have increased substantially. Firearms, suffocation (predominantly hanging), and poisoning (predominantly drug overdose) are the three leading mechanisms of suicide in the United States.

**What is added by this report?**

The annual, age-adjusted suicide rate among persons aged 35–64 years increased 28.4%, from 13.7 per 100,000 population in 1999 to 17.6 in 2010. Among racial/ethnic populations, the greatest increases were observed among American Indian/Alaska Natives (65.2%, from 11.2 to 18.5) and whites (40.4%, from 15.9 to 22.3). By mechanism, the greatest rate increase was observed for suffocation (81.3%, from 2.3 to 4.1), followed by poisoning (24.4%, from 3.0 to 3.8) and firearms (14.4%, from 7.2 to 8.3). Significant increases were observed across all regions in the United States.

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

These results highlight the need for suicide prevention strategies that address mental health issues and the stresses and challenges that middle-aged adults are likely to face. Such stresses include economic challenges, dual caregiver responsibilities (children and aging parents), and potential health problems.

28.4%, from 13.7 per 100,000 population to 17.6 ( $p < 0.001$ ) (Table 1). The suicide rate for men aged 35–64 years increased 27.3%, from 21.5 to 27.3, and the rate for women increased

31.5%, from 6.2 to 8.1 (Table 2). Among men, the greatest increases were among those aged 50–54 years and 55–59 years, (49.4%, from 20.6 to 30.7, and 47.8%, from 20.3 to 30.0, respectively). Among women, suicide rates increased with age, and the largest percentage increase in suicide rate was observed among women aged 60–64 years (59.7%, from 4.4 to 7.0).

By racial/ethnic population, the greatest increases from 1999 to 2010 among men and women overall were observed among AI/ANs (65.2%, from 11.2 to 18.5) and whites (40.4%, from 15.9 to 22.3). Among AI/ANs, the suicide rate for women increased 81.4%, from 5.7 to 10.3; the rate for men increased 59.5%, from 17.0 to 27.2. Among whites, the rate for women increased 41.9%, from 7.4 to 10.5; the rate for men increased 39.6%, from 24.5 to 34.2.

Suicide rates from 1999 to 2010 increased significantly across all four geographic regions and in 39 states.<sup>†</sup> In 2010, rates for

<sup>†</sup>The age-adjusted annual suicide rates per 100,000 population and the statistically significant increases from 1999 to 2010 for the 39 states were as follows: Alabama (19.4, 17.8%), Arizona (24.3, 15.8%), Arkansas (22.8, 54.2%), California (15.0, 17.0%), Colorado (24.9, 41.3%), Connecticut (14.5, 30.5%), Florida (21.4, 24.0%), Georgia (16.3, 24.5%), Hawaii (21.9, 61.2%), Idaho (27.1, 53.9%), Illinois (13.2, 18.7%), Indiana (19.5, 53.8%), Iowa (17.8, 41.7%), Kansas (19.9, 38.9%), Kentucky (21.7, 39.4%), Massachusetts (12.8, 32.3%), Michigan (18.2, 41.6%), Minnesota (16.0, 34.5%), Mississippi (20.1, 31.4%), Missouri (19.9, 26.2%), New Hampshire (17.8, 45.5%), New Jersey (11.8, 31.3%), New York (11.7, 41.7%), North Carolina (18.0, 22.1%), North Dakota (20.2, 70.5%), Ohio (16.9, 41.5%), Oklahoma (24.4, 34.4%), Oregon (27.3, 49.3%), Pennsylvania (17.4, 23.8%), Rhode Island (22.6, 69.1%), South Carolina (19.8, 36.6%), South Dakota (23.5, 48.0%), Tennessee (20.6, 21.8%), Texas (16.5, 23.7%), Utah (24.7, 27.6%), Vermont (19.8, 57.9%), West Virginia (21.0, 30.2%), Wisconsin (19.2, 33.9%), and Wyoming (31.1, 78.8%).

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**TABLE 1. Number of suicides, age-adjusted suicide rates,\* and percentage change in rates from 1999 to 2010 among persons aged 35–64 years, by selected characteristics — National Vital Statistics System, United States, 1999–2010**

Characteristic	1999		2010		% change in rate	(95% CI)
	No.	Rate	No.	Rate		
<b>Total</b>	<b>14,443</b>	<b>13.7</b>	<b>21,754</b>	<b>17.6</b>	<b>28.4</b>	<b>(25.7–31.2)</b>
<b>Age group (yrs)</b>						
35–39	3,286	14.4	3,084	15.3	6.4	(1.3–11.8)
40–44	3,180	14.3	3,487	16.7	16.5	(11.0–22.2)
45–49	2,817	14.3	4,372	19.3	34.3	(28.1–40.8)
50–54	2,264	13.4	4,427	19.9	48.4	(41.1–56.1)
55–59	1,678	12.8	3,760	19.1	49.1	(40.8–57.9)
60–64	1,218	11.4	2,624	15.6	37.0	(28.0–46.6)
<b>Race/Ethnicity†</b>						
White	12,536	15.9	18,848	22.3	40.4	(37.2–43.6)
Black	772	6.4	970	6.8	5.8	(-3.8–16.3)
Hispanic	691	7.1	1,180	7.4	3.5	(-5.9–13.9)
A/PI	285	7.1	509	7.8	10.6	(-4.4–27.9)
AI/AN	90	11.2	171	18.5	65.2	(27.7–113.6)
Other/Unknown	69	—	76	—	—	—
<b>U.S. Census region§</b>						
Northeast	2,178	10.5	3,190	13.9	32.7	(25.6–40.2)
Midwest	3,084	12.7	4,609	17.3	35.6	(29.5–42.0)
South	5,532	14.8	8,396	18.4	24.4	(20.3–28.8)
West	3,649	15.8	5,559	19.5	23.6	(18.5–28.9)
<b>Mechanism</b>						
Firearm	7,634	7.2	10,393	8.3	14.4	(11.0–17.8)
Poisoning	3,202	3.0	4,722	3.8	24.4	(18.9–30.4)
Suffocation	2,412	2.3	4,934	4.1	81.3	(72.7–90.4)
Other	1,195	1.1	1,705	1.4	22.5	(13.7–32.0)

**Abbreviations:** CI = confidence interval; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native.

\* Per 100,000 population. Rates were age adjusted for all categories except age group.

† Race/ethnicity was coded into six mutually exclusive categories: white, black, AI/AN, A/PI, Hispanic, and other/unknown. All persons categorized in the first four groups were non-Hispanic. Persons categorized as Hispanic might be of any race.

§ *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.

adults aged 35–64 years were highest (19.5 per 100,000 population) in the West U.S. Census Region (Table 1). By suicide mechanism, age-adjusted rates increased for the three primary mechanisms for both men and women (Figure). Firearms and suffocation were the most common mechanisms for men (14.3 and 6.8 in 2010, respectively), whereas poisoning and firearms were the most common mechanisms for women (3.4 and 2.5 in 2010, respectively). By mechanism, the greatest increase was observed for use of suffocation (81.3%, from 2.3 to 4.1), followed by poisoning (24.4%, from 3.0 to 3.8) and firearms (14.4%, from 7.2 to 8.3) (Table 1). By sex, the increase for suffocation was 75.0% for men (from 3.9 to 6.8) and 115.0% for women (from 0.7 to 1.5) (Table 2). From 1999 to 2010, suicides by suffocation increased from 18% to 24% of all suicides for men and from 12% to 18% of all suicides for women.

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### Editorial Note

Suicide rates among both men and women aged 35–64 years increased substantially from 1999 and 2010. This finding is consistent with a previous study that showed a notable increase in the overall suicide rate among middle-aged adults relative to a small increase in suicide rates among younger persons and a small decline in older persons during a similar period (2). The increases were geographically widespread and occurred

**TABLE 2. Number of suicides, age-adjusted suicide rates,\* and percentage change in rates from 1999 to 2010 among persons aged 35–64 years, by sex and selected characteristics — National Vital Statistics System, United States, 1999–2010**

Characteristic	Men						Women					
	1999		2010		% change in rate	(95% CI)	1999		2010		% change in rate	(95% CI)
	No.	Rate	No.	Rate			No.	Rate	No.	Rate		
<b>Total</b>	<b>11,128</b>	<b>21.5</b>	<b>16,635</b>	<b>27.3</b>	<b>27.3</b>	<b>(24.3–30.5)</b>	<b>3,315</b>	<b>6.2</b>	<b>5,119</b>	<b>8.1</b>	<b>31.5</b>	<b>(25.8–37.4)</b>
<b>Age group (yrs)</b>												
35–39	2,590	22.7	2,372	23.6	4.0	(-1.6–10.0)	696	6.1	712	7.0	15.8	(4.3–28.5)
40–44	2,429	22.1	2,661	25.6	15.9	(9.7–22.5)	751	6.7	826	7.9	17.3	(6.3–29.5)
45–49	2,152	22.3	3,375	30.1	35.2	(28.1–42.8)	665	6.7	997	8.7	30.2	(18.0–43.6)
50–54	1,702	20.6	3,358	30.7	49.4	(40.9–58.4)	562	6.5	1,069	9.4	44.7	(30.6–60.2)
55–59	1,284	20.3	2,859	30.0	47.8	(38.3–57.8)	394	5.8	901	8.9	52.5	(35.5–71.7)
60–64	971	19.1	2,010	24.9	30.2	(20.6–40.5)	247	4.4	614	7.0	59.7	(37.7–85.1)
<b>Race/Ethnicity<sup>†</sup></b>												
White	9,599	24.5	14,379	34.2	39.6	(36.0–43.4)	2,937	7.4	4,469	10.5	41.9	(35.4–48.8)
Black	631	11.3	766	11.4	1.0	(-9.2–12.3)	141	2.2	204	2.7	23.0	(-0.7–53.0)
Hispanic	570	11.8	959	12.1	1.9	(-8.4–13.3)	121	2.5	221	2.8	9.6	(-12.5–37.1)
A/PI	207	10.9	346	11.4	4.7	(-12.0–24.5)	78	3.6	163	4.7	28.9	(-1.5–69.4)
AI/AN	67	17.0	122	27.2	59.5	(18.1–115.2)	23	5.7	49	10.3	81.4	(10.0–198.6)
Other/Unknown	54	—	63	—	—	—	15	—	13	—	—	—
<b>U.S. Census region<sup>§</sup></b>												
Northeast	1,693	16.8	2,502	22.4	33.4	(25.0–42.0)	485	4.6	688	5.9	29.1	(14.8–45.2)
Midwest	2,387	20.0	3,544	26.8	34.4	(28.0–42.0)	697	5.7	1,065	7.9	38.6	(26.0–53.0)
South	4,253	23.3	6,386	28.7	23.1	(18.0–28.0)	1,279	6.7	2,010	8.6	28.6	(20.0–38.0)
West	2,795	24.3	4,203	29.7	22.1	(16.0–28.0)	854	7.4	1,356	9.5	28.6	(18.0–40.0)
<b>Mechanism</b>												
Firearm	6,431	12.4	8,830	14.3	14.9	(11.4–18.6)	1,203	2.2	1,563	2.5	10.1	(2.0–18.7)
Poisoning	1,815	3.5	2,540	4.1	18.5	(9.9–27.9)	1,387	2.6	2,182	3.4	32.3	(23.6–41.6)
Suffocation	2,029	3.9	4,002	6.8	75.0	(66.0–84.5)	383	0.7	932	1.5	115.0	(90.7–142.3)
Other	853	1.6	1,263	2.1	27.3	(15.2–40.7)	342	0.6	442	0.7	10.3	(-3.7–26.2)

**Abbreviations:** CI = confidence interval; A/PI = Asian/Pacific Islander; AI/AN = American Indian/Alaska Native.

\* Per 100,000 population. Rates were age adjusted for all categories except age group.

<sup>†</sup> Race/ethnicity was coded into six mutually exclusive categories: white, black, AI/AN, A/PI, Hispanic, and other/unknown. All persons categorized in the first four groups were non-Hispanic. Persons categorized as Hispanic might be of any race.

<sup>§</sup> *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.

in states with high, as well as average and low suicide rates. By race/ethnicity, the increases were highest and statistically significant only among whites and American Indian/Alaska Natives, widening the racial/ethnic gap in suicide rates (3).

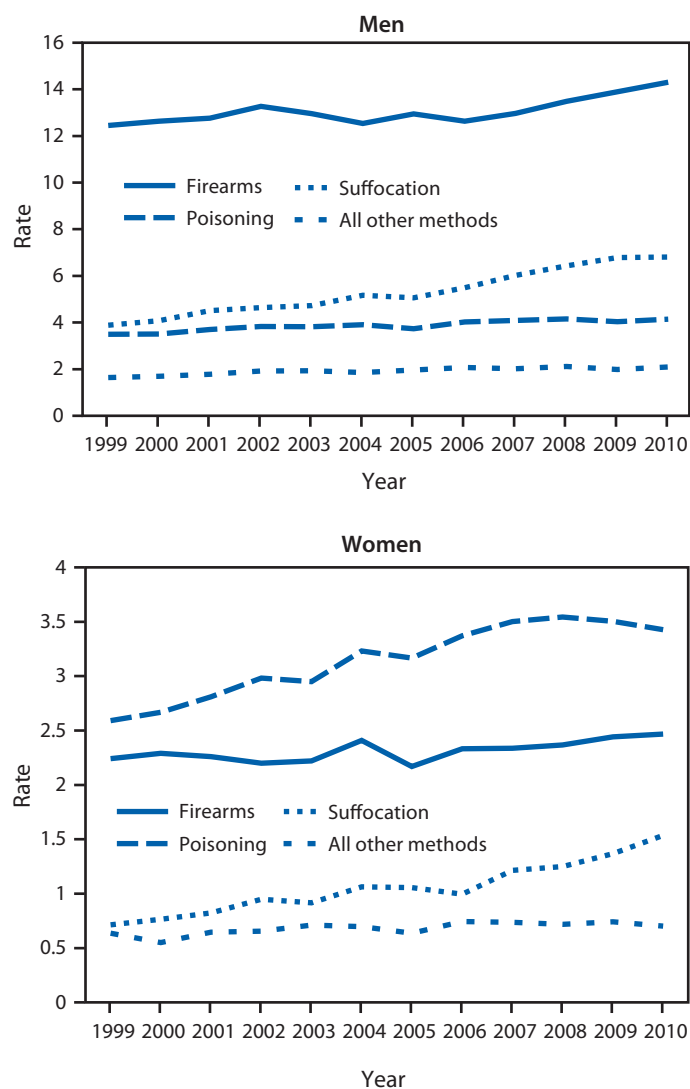
Prevalence of mechanisms of suicide changed from 1999 to 2010. Whereas firearm and poisoning suicide rates increased significantly, suffocation (predominantly hanging) suicide rates increased the most among men and women aged 35–64 years. This increasing trend is particularly troubling because a large proportion of suicide attempts by suffocation result in death, suggesting a need for increased public awareness of suicide risk factors and research of potential suicide prevention strategies to reduce suffocation deaths (2).

Possible contributing factors for the rise in suicide rates among middle-aged adults include the recent economic downturn (historically, suicide rates tend to correlate with business cycles, with higher rates observed during times of economic

hardship) (6,7); a cohort effect, based on evidence that the “baby boomer” generation had unusually high suicide rates during their adolescent years (8); and a rise in intentional overdoses associated with the increase in availability of prescription opioids (1,2). Additional research is needed to understand the cause of the increase in age-adjusted suicide rates and why the extent of the increase varies across racial/ethnic populations.

The findings in this report are subject to at least four limitations. First, the findings are subject to variation among state coroners/medical examiners regarding determination of manner of death, especially for poisoning, as recorded on the death certificate (9). Second, suicide rates likely are an underestimate of the actual prevalence because suicides might be undercounted in NVSS (9). Third, NVSS lacks information about factors such as physical and mental health history at the time of suicide and recent stressors that might have contributed to risk for suicide. The National Violent Death Reporting

**FIGURE. Trends in age-adjusted suicide rates\* among persons aged 35–64 years, by sex and mechanism — National Vital Statistics System, United States, 1999–2010**



\* Per 100,000 population.

System collects more comprehensive information on suicide circumstances but the system currently is limited to 18 states.<sup>§</sup> Finally, suicide rates might be affected by death certificate race/ethnicity misclassification, particularly for AI/ANs.<sup>¶</sup>

Most suicide research and prevention efforts have focused on youths and older adults. Although the analysis in this report does not explain why suicide rates are increasing so substantially among middle-aged adults, the results underscore the importance of prevention strategies that address the needs of persons aged 35–64 years, which includes the baby boomer

cohort. Prevention efforts are particularly important for this cohort because of its size, history of elevated suicide rates, and movement toward older adulthood, the period of life that has traditionally been associated with the highest suicide rates (3,8).

The 2012 Surgeon General's *National Strategy for Suicide Prevention* describes salient risk factors, prevention opportunities, and existing resources to help those at increased risk for suicide (10). Suicide prevention strategies such as those that enhance social support, community connectedness, and access to mental health and preventive services, as well as efforts to reduce stigma and barriers associated with seeking help, are important for addressing suicide risk across the lifespan. Other strategies are likely to be particularly critical for addressing the needs of middle-aged adults, such as those that help persons overcome risk factors, which include economic challenges, job loss, intimate partner problems or violence, the stress of caregiver responsibilities (often for children and aging parents), substance abuse, and declining health or chronic health problems (7,8,10).

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<sup>§</sup> Additional information available at <http://www.cdc.gov/violenceprevention/nvdrs>.

<sup>¶</sup> Additional information available at [http://wonder.cdc.gov/wonder/help/cmfr/sr02\\_148.pdf](http://wonder.cdc.gov/wonder/help/cmfr/sr02_148.pdf).

## Adult Participation in Aerobic and Muscle-Strengthening Physical Activities — United States, 2011

The *2008 Physical Activity Guidelines for Americans* states that aerobic and muscle-strengthening physical activities provide substantial health benefits for adults (1). To assess participation in aerobic physical and muscle-strengthening activities among adults in the United States, the Behavioral Risk Factor Surveillance System (BRFSS) included new questions in 2011.\* CDC analyzed the 2011 BRFSS survey data for U.S. states and the District of Columbia (DC) and found that the self-reported activities of 20.6% of adult respondents met both aerobic and muscle-strengthening guidelines. Among U.S. states and DC, the prevalence of adults meeting both aerobic and muscle-strengthening guidelines ranged from 12.7% to 27.3%. Nationwide, 51.6% of U.S. adults met the aerobic activity guideline, and 29.3% met the muscle-strengthening guideline. State public health officials can use these data to establish new baselines for measuring progress toward meeting the physical activity guidelines.

BRFSS is a state-based, random-digit-dialed telephone survey of the noninstitutionalized U.S. civilian population aged  $\geq 18$  years. Data for the 2011 BRFSS survey were collected from 497,967 respondents and reported by the 50 states and DC. Response rates were calculated using standards set by the American Association of Public Opinion Research.† The response rate is the number of respondents who completed the survey as a proportion of all eligible and likely eligible persons. The median survey response rate for combined landline and cellular telephone respondents for all states and DC in 2011 was 49.7% (range: 33.8%–64.1%).

The assessment of the aerobic activity guideline excluded 39,879 respondents because of missing information, leaving 458,088 usable responses, and the assessment of the muscle-strengthening guideline excluded 28,655 respondents for the same reason, leaving 469,312 usable responses. The assessment of the proportions of persons meeting both the aerobic and muscle-strengthening guidelines excluded 44,246 respondents with missing physical activity data, leaving 453,721 usable responses. Persons with missing educational attainment or body mass index (BMI) data were excluded from education and BMI analyses.

In 2011, to assess participation in aerobic physical activity, respondents were asked to report the frequency and duration of the two aerobic physical activities, outside of regular job duties,

at which they spent the most time during the past month or week. To assess participation in muscle-strengthening activities, respondents were asked to report the frequency of their participation in activities to strengthen their muscles during the past month or week. Minutes of activity per month were converted into minutes of activity per week by dividing monthly minutes by the number of weeks in a month. Respondents were classified as meeting both the aerobic and muscle-strengthening guidelines if they met 1) the aerobic activity guideline ( $\geq 150$  minutes per week of moderate-intensity aerobic activity, or  $\geq 75$  minutes of vigorous-intensity aerobic activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity [where vigorous-intensity minutes are multiplied by 2] totaling  $\geq 150$  minutes per week) and 2) the muscle-strengthening guideline (muscle-strengthening activities at least two times per week) (1).

To count toward meeting the aerobic activity guideline, activities had to be classified as aerobic and had to be performed for  $\geq 10$  minutes per episode (2). Consistent with earlier (1984–2000) BRFSS classification of aerobic intensity for specific physical activities (3,4), the cut point for defining vigorous-intensity activities in the 2011 BRFSS was  $\geq 60\%$  of a respondent's estimated aerobic capacity, based on age and sex (3). Moderate-intensity activities were defined as activities using  $\geq 3.0$  metabolic equivalents<sup>§</sup> and less than the respondent's vigorous-intensity cut point (2,3). Data were analyzed by demographic characteristics and weighted to provide prevalence estimates; 95% confidence intervals were calculated for each estimate. Orthogonal polynomial contrasts and pairwise t-tests were used to identify significant trends and differences by subgroups.

For 2011, 20.6% of U.S. adults were classified as meeting both the aerobic and muscle-strengthening guidelines, including 23.4% of men and 17.9% of women (Table 1). By age group, the prevalence of meeting both aerobic and muscle-strengthening guidelines ranged from 30.7% among persons aged 18–24 years to 15.9% among those aged  $\geq 65$  years. Among racial/ethnic groups, prevalence was lower among Hispanic adults (18.4%) than among non-Hispanic blacks (21.2%) ( $p < 0.001$ ) and non-Hispanic whites (20.7%) ( $p < 0.001$ ). By education level, college graduates had the highest prevalence of adults meeting both aerobic and

\*The 2011 BRFSS questions are available at <http://www.cdc.gov/brfss/questionnaires.htm>.

†Available at [http://www.aapor.org/standard\\_definitions2.htm](http://www.aapor.org/standard_definitions2.htm).

§One metabolic equivalent is equal to the amount of energy expended while sitting at rest. Additional information and examples are available at <https://sites.google.com/site/compendiumofphysicalactivities>.

**TABLE 1. Proportion of U.S. adults meeting aerobic and muscle-strengthening physical activity guidelines, by selected characteristics — Behavioral Risk Factor Surveillance System, United States, 2011**

Characteristic	Met both aerobic and muscle-strengthening guidelines* (n = 453,721)		Met muscle-strengthening guideline† (n = 469,312)		Met aerobic activity guideline‡ (n = 458,088)	
	%	(95% CI)	%	(95% CI)	%	(95% CI)
<b>Total</b>	<b>20.6</b>	<b>(20.3–20.8)</b>	<b>29.3</b>	<b>(29.1–29.6)</b>	<b>51.6</b>	<b>(51.3–51.9)</b>
<b>Sex</b>						
Male	23.4	(23.0–23.8)	34.4	(34.0–34.9)	53.1	(52.6–53.5)
Female	17.9	(17.6–18.2)	24.5	(24.1–24.8)	50.2	(49.8–50.6)
<b>Age group (yrs)</b>						
18–24	30.7	(29.7–31.9)	44.1	(42.9–45.2)	56.8	(55.7–58.0)
25–34	23.0	(22.3–23.7)	34.6	(33.7–35.4)	49.8	(49.0–50.7)
35–44	20.4	(19.8–21.0)	29.3	(28.7–30.0)	49.8	(49.0–50.5)
45–54	18.7	(18.2–19.2)	26.1	(25.6–26.7)	51.1	(50.4–51.7)
55–64	17.1	(16.7–17.6)	24.0	(23.5–24.5)	50.9	(50.3–51.5)
≥65	15.9	(15.6–16.3)	21.7	(21.3–22.1)	52.7	(52.2–53.2)
<b>Race/Ethnicity<sup>¶</sup></b>						
White, non-Hispanic	20.7	(20.4–21.0)	29.0	(28.7–29.3)	53.9	(53.6–54.2)
Black, non-Hispanic	21.2	(20.3–22.2)	31.6	(30.6–32.6)	45.5	(44.5–46.5)
Hispanic	18.4	(17.6–19.3)	27.3	(26.3–28.3)	45.8	(44.7–46.9)
Other race	22.8	(21.6–24.0)	32.9	(31.6–34.2)	51.6	(50.2–52.9)
<b>Education level</b>						
Less than high school diploma	12.0	(11.3–12.8)	20.0	(19.2–20.9)	39.2	(38.2–40.2)
High school diploma	17.0	(16.6–17.5)	25.2	(24.6–25.7)	47.5	(46.9–48.1)
Some college	22.2	(21.7–22.7)	31.7	(31.2–32.2)	53.8	(53.2–54.4)
College degree	27.4	(26.9–27.8)	36.6	(36.1–37.0)	60.7	(60.2–61.1)
<b>Body mass index<sup>**</sup></b>						
Underweight/Normal	25.8	(25.3–26.2)	35.4	(34.9–35.9)	57.0	(56.4–57.5)
Overweight	21.9	(21.5–22.3)	31.0	(30.5–31.5)	54.1	(53.5–54.6)
Obese	13.5	(13.0–13.9)	21.0	(20.5–21.5)	43.4	(42.8–43.9)
<b>U.S. Census region<sup>††</sup></b>						
Midwest	20.0	(19.5–20.5)	28.7	(28.2–29.3)	51.3	(50.7–51.9)
Northeast	21.3	(20.7–21.9)	30.0	(29.3–30.6)	52.2	(51.5–52.9)
South	18.7	(18.3–19.2)	27.7	(27.3–28.2)	48.0	(47.5–48.5)
West	23.5	(22.9–24.0)	32.0	(31.4–32.6)	57.2	(56.5–57.8)

**Abbreviation:** CI = confidence interval.

\* To meet both the aerobic and muscle-strengthening guidelines from the 2008 *Physical Activity Guidelines for Americans*, respondents had to report engaging in at least 150 minutes per week of moderate-intensity aerobic physical activity or 75 minutes of vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate- and vigorous-intensity aerobic physical activity, and participating in muscle-strengthening physical activity at least two times per week.

† Prevalence of respondents who report participating in muscle-strengthening physical activity at least two times per week.

‡ Prevalence of respondents who report engaging in at least 150 minutes per week of moderate-intensity aerobic physical activity or 75 minutes of vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate- and vigorous-intensity aerobic physical activity.

¶ Other includes multiracial, Asian, Native Hawaiian or Other Pacific Islander, or American Indian/Alaska Native.

\*\* Underweight/normal, overweight, and obese classifications based on body mass index (weight [kg] / height [m]<sup>2</sup>); underweight/normal: <25.0; overweight: 25.0–29.9; and obese: ≥30.0.

†† U.S. Census Bureau regions are defined as *Midwest*: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; *Northeast*: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; *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.

muscle-strengthening guidelines (27.4%); this decreased by decreasing education levels, with persons who had less than a high school diploma having the lowest prevalence (12.0%). By BMI, prevalence was lower for obese persons (13.5%) than for overweight (21.9%) and underweight/normal weight persons (25.8%). The negative linear relationships between age and meeting both aerobic and muscle-strengthening guidelines and between BMI and meeting the guidelines were both significant ( $p < 0.001$ ), as was the positive linear relationship with education.

Among the 50 states and DC, the prevalence of adults meeting both aerobic and muscle-strengthening guidelines ranged from 12.7% in West Virginia and Tennessee to 27.3% in Colorado (Table 2, Figure). Compared with the South and Midwest, states in the West (23.5%) and Northeast (21.3%) had the highest proportion of adults who met both aerobic and muscle-strengthening guidelines ( $p < 0.001$ ) (Table 1).

Nationwide, 51.6% met the aerobic activity guideline and 29.3% of U.S. adults met the muscle-strengthening guideline (Table 1). Prevalence patterns by sex, education, and BMI for

TABLE 2. Proportion of U.S. adults meeting aerobic and muscle-strengthening physical activity guidelines, by state — Behavioral Risk Factor Surveillance System, United States, 2011

State	Met both aerobic and muscle-strengthening guidelines* (n = 453,721)		Met muscle-strengthening guideline† (n = 469,312)		Met aerobic activity guideline‡ (n = 458,088)	
	%	(95% CI)	%	(95% CI)	%	(95% CI)
Alabama	15.0	(13.8–16.3)	24.7	(23.3–26.2)	42.4	(40.7–44.0)
Alaska	25.0	(22.8–27.3)	33.8	(31.5–36.3)	57.9	(55.4–60.4)
Arizona	24.2	(22.2–26.3)	32.5	(30.3–34.8)	52.8	(50.4–55.1)
Arkansas	16.7	(14.8–18.8)	24.7	(22.6–26.9)	45.7	(43.3–48.1)
California	23.7	(22.8–24.6)	32.1	(31.1–33.1)	58.2	(57.1–59.2)
Colorado	27.3	(26.1–28.5)	35.6	(34.4–36.9)	61.8	(60.5–63.1)
Connecticut	21.8	(20.3–23.3)	30.6	(29.0–32.3)	52.6	(50.8–54.3)
Delaware	21.5	(19.7–23.4)	32.3	(30.3–34.4)	48.5	(46.4–50.6)
District of Columbia	26.3	(24.2–28.6)	36.1	(33.8–38.5)	57.6	(55.2–59.9)
Florida	21.4	(20.2–22.7)	29.2	(27.8–30.5)	52.8	(51.4–54.3)
Georgia	20.7	(19.4–22.1)	30.2	(28.7–31.8)	50.7	(49.1–52.3)
Hawaii	23.7	(22.2–25.3)	32.1	(30.5–33.8)	58.5	(56.7–60.2)
Idaho	22.4	(20.7–24.2)	30.3	(28.4–32.2)	57.2	(55.2–59.2)
Illinois	22.0	(20.2–23.8)	31.4	(29.5–33.4)	51.7	(49.7–53.7)
Indiana	17.3	(16.0–18.6)	26.0	(24.6–27.4)	46.0	(44.4–47.5)
Iowa	17.2	(16.1–18.5)	27.5	(26.1–28.9)	47.6	(46.1–49.1)
Kansas	16.5	(15.8–17.3)	24.5	(23.7–25.3)	46.8	(45.8–47.7)
Kentucky	17.3	(16.0–18.7)	26.3	(24.8–27.9)	46.8	(45.2–48.5)
Louisiana	15.5	(14.3–16.8)	23.9	(22.6–25.4)	42.0	(40.4–43.5)
Maine	20.6	(19.6–21.6)	27.5	(26.5–28.6)	56.7	(55.5–57.9)
Maryland	19.8	(18.6–21.1)	30.2	(28.8–31.7)	48.7	(47.1–50.2)
Massachusetts	23.3	(22.3–24.3)	32.0	(30.9–33.1)	56.3	(55.1–57.4)
Michigan	19.7	(18.6–20.9)	28.8	(27.5–30.1)	53.5	(52.1–55.0)
Minnesota	20.9	(19.9–21.9)	29.6	(28.5–30.8)	54.0	(52.8–55.2)
Mississippi	14.2	(13.1–15.4)	23.9	(22.5–25.3)	40.0	(38.5–41.5)
Missouri	17.3	(15.9–18.8)	24.7	(23.1–26.3)	49.5	(47.6–51.4)
Montana	21.8	(20.6–23.2)	30.2	(28.8–31.6)	55.3	(53.8–56.8)
Nebraska	19.0	(18.2–19.8)	28.1	(27.3–29.0)	49.0	(48.0–49.9)
Nevada	21.3	(19.3–23.3)	30.1	(27.9–32.4)	52.6	(50.1–55.1)
New Hampshire	22.3	(20.8–23.8)	30.4	(28.8–32.1)	56.1	(54.3–57.8)
New Jersey	23.1	(22.0–24.3)	31.7	(30.5–32.9)	53.2	(52.0–54.5)
New Mexico	22.3	(21.1–23.6)	31.5	(30.2–32.9)	52.2	(50.7–53.6)
New York	21.5	(20.1–23.0)	30.1	(28.6–31.7)	51.5	(49.8–53.1)
North Carolina	18.3	(17.1–19.6)	27.7	(26.3–29.1)	46.8	(45.2–48.3)
North Dakota	18.0	(16.5–19.5)	27.4	(25.7–29.1)	47.3	(45.5–49.2)
Ohio	21.4	(20.1–22.7)	30.4	(29.0–31.8)	51.6	(50.1–53.1)
Oklahoma	16.2	(14.9–17.5)	23.8	(22.4–25.2)	44.8	(43.2–46.3)
Oregon	23.4	(21.9–25.0)	30.9	(29.3–32.6)	61.1	(59.3–62.9)
Pennsylvania	18.8	(17.7–20.0)	27.8	(26.5–29.1)	49.4	(48.0–50.8)
Rhode Island	19.5	(18.1–21.0)	28.5	(26.9–30.2)	48.7	(47.0–50.5)
South Carolina	18.5	(17.4–19.7)	27.6	(26.3–28.9)	50.0	(48.5–51.4)
South Dakota	16.0	(14.5–17.6)	26.1	(24.2–28.1)	46.1	(43.9–48.2)
Tennessee	12.7	(10.7–14.9)	20.6	(18.2–23.2)	39.0	(36.1–41.9)
Texas	19.0	(17.7–20.3)	28.3	(26.9–29.8)	48.2	(46.7–49.8)
Utah	22.5	(21.5–23.6)	32.3	(31.2–33.5)	55.8	(54.6–57.1)
Vermont	21.6	(20.3–23.0)	29.0	(27.6–30.5)	59.2	(57.6–60.8)
Virginia	22.7	(21.1–24.3)	33.4	(31.6–35.3)	52.4	(50.5–54.3)
Washington	21.0	(19.8–22.1)	30.6	(29.3–31.9)	54.2	(52.8–55.6)
West Virginia	12.7	(11.6–14.0)	20.2	(18.8–21.6)	43.0	(41.3–44.7)
Wisconsin	22.3	(20.4–24.2)	29.2	(27.2–31.3)	57.4	(55.2–59.6)
Wyoming	21.2	(19.7–22.8)	29.6	(27.9–31.3)	53.1	(51.3–54.9)

Abbreviation: CI = confidence interval.

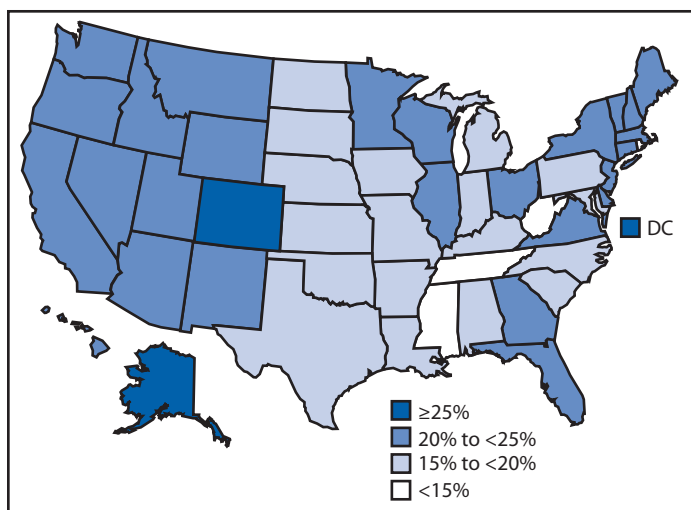
\* To meet both the aerobic and muscle-strengthening guidelines from the 2008 *Physical Activity Guidelines for Americans*, respondents had to report engaging in at least 150 minutes per week of moderate-intensity aerobic physical activity or 75 minutes of vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate- and vigorous-intensity aerobic physical activity and participating in muscle-strengthening physical activity at least two times per week.

† Prevalence of respondents who report participating in muscle-strengthening physical activity at least two times per week.

‡ Prevalence of respondents who report engaging in at least 150 minutes per week of moderate-intensity aerobic physical activity or 75 minutes of vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate- and vigorous-intensity aerobic physical activity.



**FIGURE.** Proportion of U.S. adults meeting both aerobic and muscle-strengthening physical activity guidelines,\* by state — Behavioral Risk Factor Surveillance System, United States, 2011



\* To meet both the aerobic and muscle-strengthening guidelines from the 2008 *Physical Activity Guidelines for Americans*, respondents had to report engaging in at least 150 minutes per week of moderate-intensity aerobic physical activity or 75 minutes of vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate- and vigorous-intensity aerobic physical activity and participating in muscle-strengthening physical activity at least 2 times per week.

meeting the aerobic activity guideline and the muscle-strengthening guideline were similar to patterns observed for adults who met both the aerobic and muscle-strengthening guidelines combined. Among the 50 states and DC, the prevalence of meeting the aerobic activity guideline ranged from 39.0% in Tennessee to 61.8% in Colorado and for meeting the muscle-strengthening guideline ranged from 20.2% in West Virginia to 36.1% in DC (Table 2).

#### Reported by

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#### Editorial Note

The results of this analysis indicate that approximately one in five U.S. adults met the 2008 guidelines for both aerobic and muscle-strengthening physical activity in 2011. State-based estimates of adults who met both aerobic and muscle-strengthening guidelines ranged from 12.7% to 27.3%. Nationwide, 51.6% of U.S. adults met the aerobic activity guideline and 29.3% met the muscle-strengthening guideline.

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

Before 2011, state-based prevalences of U.S. adults who met the 2008 *Physical Activity Guidelines for Americans* for both aerobic and muscle-strengthening activities were not available. In 2011, the Behavioral Risk Factor Surveillance System (BRFSS) included new questions to assess both of these activities.

#### What is added by this report?

Based on 2011 BRFSS data, approximately one in five U.S. adults report engaging in enough of both aerobic and muscle-strengthening activities to meet the 2008 guidelines. Among all 50 states and the District of Columbia, the prevalence of meeting both aerobic and muscle-strengthening guidelines ranged from 12.7% to 27.3%. Nationwide, 51.6% of U.S. adults met the aerobic activity guideline, and 29.3% met the muscle-strengthening guideline. Within their comparative groups, lower proportions of women, Hispanics, older adults, and obese persons met the aerobic and muscle-strengthening guidelines.

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

States that use BRFSS data to set and monitor physical activity goals and objectives can use these new baseline data to track progress toward meeting aerobic and muscle-strengthening guidelines for adults.

Within their comparative groups, women, Hispanics, older adults, and obese persons were least likely to have met aerobic and muscle-strengthening guidelines. Additional research is needed to determine the reasons for differences in the proportion of adults who meet aerobic activity guidelines and muscle-strengthening guidelines. The reasons for some states having higher physical activity prevalences have not been explored fully; however, one explanation could be the differences in state demographic distributions (e.g., age, education, or race/ethnicity). For example, states with a higher proportion of non-Hispanic whites (e.g., Oregon: 83.6%, Vermont: 95.3%) had a higher proportion of adults meeting the guidelines than states with a lower proportion of non-Hispanic whites (e.g., Louisiana: 62.6%, Mississippi: 59.1%). However, opportunities exist in all states to increase the proportion of adults participating in aerobic and muscle-strengthening activities.

The 2011 National Health Interview Survey (NHIS) provides nationally representative data with which to compare findings in this report. Although NHIS and BRFSS use different questions to assess physical activity and different survey methodologies (5), the reported physical activity prevalences are similar. Prevalence estimates were the same in both surveys (20.6%) for meeting both aerobic and muscle-strengthening guidelines (6). For meeting the aerobic activity guideline, prevalence estimates were 48.4% for NHIS and 51.6% for BRFSS; for meeting the muscle-strengthening guideline, prevalence estimates were 24.1% for NHIS and 29.3% for BRFSS.

The 2011 nationwide and state-based prevalence estimates for meeting the aerobic activity guideline differ from previous BRFSS reports (7). In the 2009 BRFSS, the prevalence of persons meeting the aerobic activity guideline was higher (65.4%) than the 2011 BRFSS prevalence described in the current report, and state-based prevalence estimates ranged from 46.7% to 74.3%. These differences are the result, in part, of changes in the BRFSS methods and weighting procedures implemented in 2011 (8) and changes in the questions used to assess aerobic physical activity also implemented in 2011 (4). Because of these changes, data in this report are not directly comparable with data collected from BRFSS before 2011 and set the precedent for new physical activity baseline data. The 2011 data can be used to monitor future physical activity trends using BRFSS.

The findings in this report are subject to at least three limitations. First, BRFSS data are self-reported and might be overestimated because of social-desirability bias, recall limitations, or other factors (9). Second, the median combined landline and cellular telephone response rate was 49.7%, and lower response rates can result in response bias; however, new weighting and survey methodology help to adjust for nonresponse, noncoverage, and undercoverage issues (8). Finally, respondents reported information on their top two physical activities outside of regular job duties. Thus, some respondents classified as not meeting the aerobic guideline criteria might have met the criteria if information about additional aerobic activities or regular, aerobic job duties had been included in the analysis.

Environmental and systems efforts involving communities, schools, governments, and worksites can increase opportunities for physical activity in adults. CDC's *Guide to Community Preventive Services* recommends eight evidence-based approaches to increase physical activity, including four that address environmental and policy approaches (10). One example is creating or enhancing access to places for physical activity combined with informational outreach. Examples of ways to create opportunities for aerobic and muscle-strengthening activities include establishing joint-use agreements to allow adult use of school facilities during nonschool hours. Other recommended approaches include using street- or community-scale design and practices to

provide support and cues (e.g., traffic-calming measures and bicycle amenities) to help adults become more physically active. To implement these approaches, CDC currently funds 25 states to address nutrition, physical activity, obesity, and other chronic diseases by creating supportive environments where persons live, work, learn, and play. CDC's Community Transformation Grants program also funds activities to improve environments and provide safe, accessible places for physical activity through 61 state and local government agencies, tribes, territories, and nonprofit organizations in 36 states. Continued national, state, and local efforts to implement strategies can help improve the proportion of adults who meet physical activity guidelines.

### Acknowledgments

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## State-Specific Prevalence of Walking Among Adults with Arthritis — United States, 2011

Walking contributes to total physical activity and is an appropriate activity to increase overall physical activity levels among adults with arthritis. Walking also is the most preferred exercise among arthritis patients (1,2) and has been shown to improve arthritis symptoms, physical function, gait speed, and quality of life (3–5). To estimate the distribution of average weekly minutes of walking among adults with arthritis by state and map the prevalence of low amounts of walking (<90 minutes per week) among adults with arthritis, CDC analyzed data from the 2011 Behavioral Risk Factor Surveillance System (BRFSS). This report describes the results of that analysis, which indicated that among adults with arthritis in the 50 states and the District of Columbia (DC), the median prevalence of walking was 53% (range: 44.3%–66.2%) for 0 minutes per week, 13.1% (range: 9.3%–16.2%) for 1–89 minutes per week, 5.3% (range: 3.2%–6.8%) for 90–119 minutes per week, 5.6% (range: 2.6%–8.3%) for 120–149 minutes per week, and 23.2% (range: 16.0%–30.6%) for ≥150 minutes per week. A state median of 66% of adults with arthritis walked <90 minutes per week, ranging from a low of 58.0% in California to a high of 76.2% in Tennessee. The large number of persons with arthritis who are not getting the full benefit of regular walking might benefit from community interventions aimed at increasing access to walking as well as specific programs that offer social support.

BRFSS is a random-digit-dialed telephone survey conducted annually in all 50 states, DC, and U.S. territories. Data collected in 2011 from 50 states and DC (497,967 respondents; 166,417 with arthritis) were used to assess the distribution of average weekly minutes of walking and the prevalence of walking <90 minutes per week among adults with self-reported, doctor-diagnosed arthritis. After excluding responses from respondents with missing data on key variables (e.g., arthritis status and physical activity), the analytic sample size was 153,688 respondents with arthritis. Response rates for BRFSS are calculated using standards set by the American Association of Public Opinion Research response rate formula no. 4.\* The response rate is the number of respondents who completed the survey as a proportion of all eligible and likely eligible persons. The 2011 median survey response rate for all states and DC was 53.0%; response rates ranged from 37.4% in California to 66.5% in South Dakota.†

Respondents were classified as having arthritis if they answered “yes” to the question, “Have you ever been told by a doctor or other health professional that you have arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?” Respondents who reported they had participated in physical activities or exercise (excluding occupational and transportation activities) in the past month were subsequently asked to recall the frequency, duration, and type of activity for the two activities they did most often. Walking was one of approximately 60 activities listed, and the most common activity reported. For adults who reported walking, the time spent walking per week was calculated by multiplying the frequency (times per week) by duration (minutes per session). Based on the *2008 Physical Activity Guidelines for Americans*, time spent in vigorous-intensity walking (walking is a vigorous-intensity activity for some older adults) was multiplied by two.§

The average number of minutes walked per week was grouped into five categories: 0, 1–89, 90–119, 120–149, and ≥150 minutes per week. Walking minutes were dichotomized to <90 minutes per week and ≥90 minutes per week to assess the state-specific prevalence of low amounts of walking. The 90-minute threshold was based on the minimum amount of weekly walking shown in a randomized controlled trial to lower pain (27% decrease) and improve function (39% increase) among adults with arthritis (5) and the typical amount of walking achieved in the Arthritis Foundation’s Walk With Ease (WWE) program, which is 3 days per week with approximately 30 minutes of total walking time per session (3). Unadjusted prevalence estimates, 95% confidence intervals, medians, and ranges for all 50 states and DC were calculated (Table). Age-adjusted prevalence estimates, categorized by tertiles, also were calculated (Figure). All estimates use sampling weights (raking methodology) to account for the complex sample design, nonresponse, noncoverage, and cellphone-only households; this method of weighting sample BRFSS data is new in 2011; therefore, 2011 estimates should not be compared to estimates from previous years.¶

Among adults with arthritis in the 50 states and the District of Columbia (DC), the median prevalence of walking was 53% (range: 44.3%–66.2%) for 0 minutes per week, 13.1% (range: 9.3%–16.2%) for 1–89 minutes per week, 5.3%

\* Response rate definitions [http://www.aapor.org/standard\\_definitions2.htm](http://www.aapor.org/standard_definitions2.htm).

† 2011 Behavioral Risk Factor Surveillance Survey Summary Data Quality Report available at [http://www.cdc.gov/brfss/pdf/2011\\_summary\\_data\\_quality\\_report.pdf](http://www.cdc.gov/brfss/pdf/2011_summary_data_quality_report.pdf).

§ 2008 Physical Activity Guidelines for Americans available at <http://www.health.gov/paguidelines>.

¶ 2011 BRFSS overview available at [http://www.cdc.gov/brfss/annual\\_data/annual\\_2011.htm](http://www.cdc.gov/brfss/annual_data/annual_2011.htm).

**TABLE. State-specific prevalence of walking among adults with arthritis, by average minutes walked per week — United States, Behavioral Risk Factor Surveillance System, 2011**

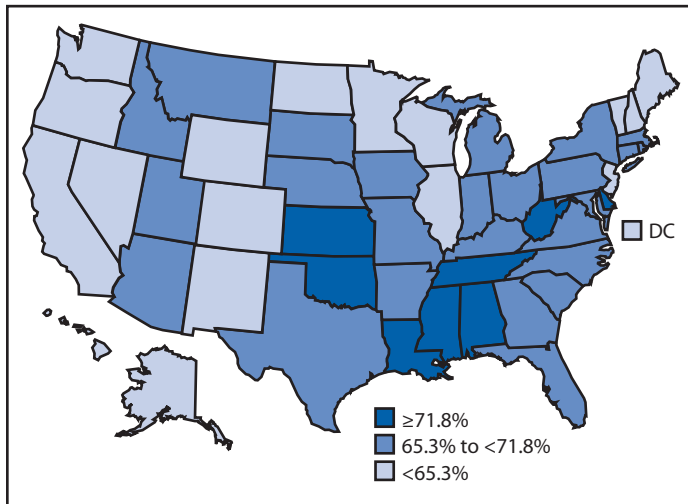
State	Average minutes walked per week											
	0		1–89		90–119		120–149		≥150		<90	
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Alabama	59.7	(57.2–62.2)	14.5	(12.8–16.3)	4.8	(3.8–6.1)	4.2	(3.2–5.5)	16.8	(15.0–18.6)	74.2	(71.9–76.4)
Alaska	49.8	(45.1–54.5)	10.9	(8.3–14.2)	4.4	(2.9–6.5)	5.5	(3.5–8.6)	29.4	(25.2–34.0)	60.7	(56.0–65.3)
Arizona	50.1	(46.2–54.0)	12.8	(10.5–15.7)	5.6	(4.1–7.5)	5.1	(3.7–7.0)	26.4	(23.1–29.9)	63.0	(59.2–66.6)
Arkansas	59.6	(56.0–63.1)	13.7	(11.3–16.4)	4.2	(3.0–6.0)	4.7	(3.5–6.2)	17.8	(15.2–20.8)	73.2	(69.9–76.3)
California	44.3	(42.3–46.4)	13.7	(12.3–15.2)	6.6	(5.5–7.9)	7.7	(6.6–8.9)	27.7	(26.0–29.6)	58.0	(55.9–60.0)
Colorado	46.6	(44.3–48.9)	13.5	(12.0–15.1)	6.6	(5.6–7.8)	7.0	(5.9–8.4)	26.3	(24.4–28.3)	60.1	(57.8–62.3)
Connecticut	53.3	(50.1–56.4)	12.7	(10.8–14.8)	4.5	(3.4–5.9)	5.5	(4.3–6.9)	24.1	(21.5–26.9)	65.9	(62.9–68.8)
Delaware	62.5	(58.9–65.9)	10.6	(8.5–13.1)	4.7	(3.4–6.5)	4.1	(2.9–5.7)	18.1	(15.5–21.1)	73.1	(69.8–76.1)
District of Columbia	49.4	(45.2–53.7)	9.3	(7.6–11.3)	4.8	(3.2–7.2)	5.8	(4.4–7.7)	30.6	(26.9–34.6)	58.7	(54.5–62.8)
Florida	54.1	(51.6–56.5)	11.2	(9.8–12.8)	4.4	(3.5–5.6)	5.7	(4.5–7.1)	24.7	(22.6–26.8)	65.2	(62.8–67.6)
Georgia	55.0	(52.3–57.6)	12.3	(10.7–14.0)	5.9	(4.8–7.4)	5.8	(4.7–7.2)	21.0	(18.9–23.3)	67.3	(64.7–69.7)
Hawaii	50.5	(47.0–54.1)	12.0	(9.9–14.6)	4.8	(3.5–6.4)	6.8	(5.2–8.9)	25.9	(22.9–29.1)	62.5	(59.1–65.9)
Idaho	49.7	(46.3–53.2)	14.2	(12.1–16.7)	5.8	(4.4–7.7)	8.3	(6.4–10.6)	22.0	(19.5–24.7)	63.9	(60.6–67.1)
Illinois	50.7	(47.3–54.2)	13.8	(11.6–16.3)	5.3	(4.1–6.9)	5.1	(3.8–6.7)	25.1	(22.0–28.5)	64.5	(61.0–67.8)
Indiana	55.3	(52.7–57.9)	14.7	(13.0–16.6)	5.6	(4.5–7.0)	4.4	(3.5–5.4)	20.1	(18.1–22.2)	70.0	(67.5–72.3)
Iowa	51.6	(48.9–54.3)	15.8	(14.0–17.9)	5.4	(4.3–6.8)	5.5	(4.4–6.8)	21.7	(19.5–24.0)	67.4	(64.9–69.9)
Kansas	56.2	(54.6–57.8)	15.5	(14.4–16.7)	5.0	(4.4–5.7)	5.0	(4.4–5.7)	18.3	(17.1–19.5)	71.7	(70.3–73.1)
Kentucky	54.7	(52.1–57.2)	14.6	(13.0–16.4)	5.9	(4.7–7.3)	5.4	(4.3–6.6)	19.5	(17.5–21.6)	69.3	(66.8–71.6)
Louisiana	63.5	(60.9–66.0)	12.2	(10.7–14.0)	3.7	(2.9–4.8)	4.6	(3.6–5.9)	16.0	(14.1–18.0)	75.7	(73.4–77.9)
Maine	47.5	(45.5–49.4)	12.8	(11.6–14.1)	6.7	(5.8–7.8)	6.0	(5.1–7.0)	27.0	(25.3–28.8)	60.3	(58.3–62.2)
Maryland	55.0	(52.2–57.8)	13.1	(11.4–15.0)	4.7	(3.5–6.1)	6.1	(4.9–7.6)	21.1	(19.0–23.5)	68.1	(65.4–70.6)
Massachusetts	53.1	(51.0–55.3)	10.8	(9.5–12.2)	4.4	(3.7–5.2)	5.6	(4.8–6.5)	26.2	(24.3–28.1)	63.9	(61.9–65.9)
Michigan	52.1	(49.7–54.5)	14.2	(12.7–16.0)	5.2	(4.3–6.3)	6.1	(5.0–7.4)	22.4	(20.5–24.4)	66.3	(64.1–68.5)
Minnesota	49.2	(46.8–51.6)	14.8	(13.1–16.6)	5.6	(4.5–7.0)	5.2	(4.3–6.3)	25.2	(23.2–27.3)	64.0	(61.7–66.3)
Mississippi	59.6	(57.2–62.0)	13.5	(12.0–15.3)	5.9	(4.9–7.2)	4.4	(3.6–5.4)	16.5	(14.7–18.4)	73.2	(71.0–75.3)
Missouri	56.4	(53.2–59.5)	13.6	(11.5–16.1)	5.0	(3.8–6.6)	5.6	(4.2–7.3)	19.4	(17.1–22.0)	70.0	(67.0–72.8)
Montana	53.0	(50.3–55.7)	12.5	(10.9–14.3)	4.9	(3.8–6.4)	4.9	(4.0–6.1)	24.6	(22.4–27.0)	65.5	(62.9–68.1)
Nebraska	53.9	(52.2–55.6)	14.2	(13.1–15.4)	5.5	(4.7–6.4)	4.6	(4.1–5.3)	21.8	(20.5–23.2)	68.1	(66.5–69.6)
Nevada	54.0	(49.3–58.6)	10.5	(8.4–13.1)	5.6	(3.8–8.1)	5.8	(4.1–8.1)	24.2	(20.5–28.3)	64.5	(59.9–68.8)
New Hampshire	51.9	(48.9–54.9)	13.5	(11.5–15.8)	5.2	(4.1–6.5)	5.6	(4.4–7.1)	23.8	(21.4–26.3)	65.4	(62.6–68.2)
New Jersey	55.0	(52.7–57.3)	10.1	(8.8–11.6)	4.2	(3.4–5.2)	5.4	(4.4–6.5)	25.3	(23.4–27.3)	65.1	(62.9–67.3)
New Mexico	50.1	(47.6–52.6)	12.7	(11.2–14.4)	6.2	(4.9–7.7)	5.7	(4.7–6.9)	25.3	(23.2–27.6)	62.8	(60.3–65.2)
New York	50.6	(47.6–53.6)	13.2	(11.3–15.5)	5.0	(3.8–6.5)	6.2	(4.9–7.9)	24.9	(22.5–27.5)	63.8	(60.9–66.6)
North Carolina	54.5	(51.8–57.2)	14.6	(12.8–16.6)	6.0	(4.7–7.6)	6.5	(5.4–7.9)	18.4	(16.3–20.6)	69.1	(66.5–71.6)
North Dakota	53.0	(49.7–56.2)	12.2	(10.4–14.2)	5.9	(4.7–7.5)	5.5	(4.2–7.2)	23.4	(20.6–26.3)	65.2	(62.0–68.3)
Ohio	54.8	(52.3–57.3)	12.5	(11.0–14.2)	5.4	(4.4–6.6)	5.2	(4.2–6.3)	22.0	(19.9–24.3)	67.4	(64.9–69.7)
Oklahoma	57.7	(55.3–60.1)	14.7	(13.0–16.5)	4.6	(3.7–5.7)	4.7	(3.8–5.8)	18.4	(16.6–20.3)	72.4	(70.2–74.5)
Oregon	47.6	(44.7–50.5)	13.2	(11.3–15.4)	5.9	(4.7–7.5)	7.1	(5.8–8.6)	26.1	(23.8–28.6)	60.9	(58.1–63.6)
Pennsylvania	52.2	(49.9–54.5)	12.4	(10.9–14.0)	5.8	(4.8–7.1)	6.2	(5.2–7.3)	23.4	(21.6–25.3)	64.6	(62.4–66.7)
Rhode Island	52.6	(49.8–55.4)	12.9	(11.2–14.8)	4.5	(3.6–5.8)	6.2	(5.0–7.6)	23.8	(21.4–26.3)	65.5	(62.8–68.2)
South Carolina	52.9	(50.6–55.3)	14.5	(13.0–16.2)	5.4	(4.5–6.5)	6.2	(5.0–7.6)	20.9	(19.1–22.8)	67.5	(65.2–69.7)
South Dakota	52.1	(47.9–56.1)	16.2	(13.6–19.2)	5.7	(3.9–8.2)	5.7	(4.1–8.1)	20.3	(17.2–23.9)	68.3	(64.2–72.0)
Tennessee	66.2	(61.7–70.4)	10.0	(8.0–12.5)	3.6	(2.5–5.1)	2.6	(1.9–3.6)	17.5	(14.1–21.6)	76.2	(72.0–79.9)
Texas	54.2	(51.3–56.9)	15.0	(12.9–17.2)	5.4	(4.3–6.7)	5.5	(4.3–7.0)	20.0	(18.0–22.1)	69.1	(66.5–71.6)
Utah	49.0	(46.6–51.4)	14.9	(13.3–16.7)	6.1	(5.1–7.4)	6.7	(5.7–8.0)	23.2	(21.3–25.2)	63.9	(61.7–66.2)
Vermont	49.5	(46.7–52.2)	12.2	(10.6–14.0)	6.1	(5.0–7.5)	6.3	(5.1–7.7)	26.0	(23.6–28.5)	61.6	(58.9–64.3)
Virginia	58.4	(55.2–61.5)	12.2	(10.3–14.4)	4.5	(3.4–6.0)	6.3	(4.8–8.1)	18.7	(16.4–21.1)	70.6	(67.7–73.4)
Washington	46.8	(44.3–49.3)	14.2	(12.6–15.9)	5.3	(4.3–6.6)	6.5	(5.4–7.8)	27.3	(25.1–29.5)	61.0	(58.5–63.3)
West Virginia	62.2	(59.6–64.7)	12.1	(10.5–13.9)	3.2	(2.4–4.2)	3.6	(2.8–4.6)	18.9	(16.9–21.1)	74.3	(72.0–76.6)
Wisconsin	47.1	(43.1–51.1)	12.2	(9.9–14.9)	6.8	(4.6–9.9)	5.6	(4.3–7.3)	28.3	(24.9–32.0)	59.3	(55.3–63.2)
Wyoming	49.8	(46.2–53.3)	12.1	(10.1–14.5)	4.8	(3.5–6.6)	5.0	(3.7–6.6)	28.3	(25.1–31.8)	61.9	(58.3–65.4)
Median	53.0	(51.6–54.2)	13.1	(12.5–13.7)	5.3	(4.9–5.6)	5.6	(5.4–5.8)	23.2	(21.1–24.7)	65.5	(64.5–67.5)
Range	44.3–66.2		9.3–16.2		3.2–6.8		2.6–8.3		16.0–30.6		58.0–76.2	

Abbreviation: CI = confidence interval.

(range: 3.2%–6.8%) for 90–119 minutes per week, 5.6% (range: 2.6%–8.3%) for 120–149 minutes per week, and 23.2% (range: 16.0%–30.6%) for ≥150 minutes per week. A median of 66% adults with arthritis walked <90 minutes per week, ranging from a low of 58.0% in California to a high of

76.2% in Tennessee (Table). Among adults with arthritis, eight states had age-adjusted prevalences of walking <90 minutes per week of ≥71.8%, 25 states had prevalences ranging from 65.3 to <71.8% and 18 states had prevalences of <65.3% (Figure).

**FIGURE.** Age-adjusted prevalence of walking <90 minutes per week among adults with arthritis, by state — United States, Behavioral Risk Factor Surveillance System, 2011



### Reported by

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### Editorial Note

Walking is a low-impact, acceptable, convenient, inexpensive, feasible, and proven physical activity intervention that can help reduce arthritis pain, improve function (3,6), and move persons with arthritis along the continuum of physical activity, getting them closer to meeting the *2008 Physical Activity Guidelines for Americans*. In this study, more than half of adults with arthritis in all 50 states and DC reported no or low (<90 minutes) walking per week. Better access to evidence-based physical activity programs for adults with arthritis will provide increased reach of these programs, which might improve physical activity levels and provide associated health benefits to this population.

The *Guide to Community Preventive Services* recommends both behavioral and social approaches and environmental and policy approaches to increase physical activity.\*\* Individually adapted behavior-change programs that incorporate skills such as goal setting, building social support, and problem solving have been shown to increase time spent in physical activity as well as increase aerobic capacity and energy expenditure.

\*\* *Guide to Community Preventive Services* available at <http://www.thecommunityguide.org/pa/index.html>.

### What is already known on this topic?

Walking has been shown to reduce arthritis symptoms and improve physical function, strength, balance, and quality-of-life. Walking is a low-impact, acceptable, convenient, inexpensive, and preferred activity for adults with arthritis and is an appropriate activity to increase overall physical activity.

### What is added by this report?

In every state, more than half of adults with arthritis do no or little (<90 minutes) walking per week. Prevalence of walking <90 minutes per week ranged from 58.0% in California to 76.2% in Tennessee. The age-adjusted prevalence of walking <90 minutes per week was ≥71.8% in eight states.

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

The large number of persons with arthritis who are not getting the full benefit of regular walking might benefit from community interventions aimed at increasing access to walking as well as specific programs that offer social support.

Such programs include the Arthritis Foundation Exercise Program, Senior Services' EnhanceFitness program, and the Arthritis Foundation's WWE program.†† Pairing individual, evidence-based physical activity programs with environmental/policy approaches that increase access to physical activity is a feasible way to increase walking among adults with arthritis. For example, worksites that build walking trails or provide walking maps as an environmental approach to increasing employee physical activity might augment their worksite wellness programs by offering an evidence-based program, such as WWE, to employees who desire to increase their walking in a group-lead or self-directed program.

WWE, a 6-week walking program, has been shown to reduce pain and fatigue and increase function, ability, strength, balance, and walking pace among adults with arthritis (3). WWE has two formats, a traditional group-lead version using a trained leader, and a self-directed version where persons can go through the program at their own pace. Typically, WWE groups meet 3 days a week for about an hour, with a maximum walking time of 30–40 minutes per session. Persons with arthritis who walk <90 minutes per week might find that the structure and social support of WWE reduces barriers to walking. The social support of a group walking program also might help improve adherence to a walking program and promote a feeling of safety (6). Currently, CDC funds 12 states to implement evidenced-based physical activity programs in local communities. In the first year of the current 5-year grant cycle, all 12 states offered

†† *Arthritis Appropriate Physical Activity and Self-Management Education Interventions: A Compendium of Implementation Information* available at <http://www.cdc.gov/arthritis/interventions/marketing-support/compendium/docs/pdf/compendium-2012.pdf>.

WWE by partnering with various delivery systems, such as county extension offices, health-care systems and health plans, parks and recreation departments, and organizations serving aging adults.

The findings in this report are subject to at least six limitations. First, all data in BRFSS is based on self-report; therefore, arthritis status and the weekly amount of walking might be misreported. However, the case-finding question used in BRFSS to assess arthritis status has been shown to be sufficiently sensitive and specific for public health surveillance purposes (7). Second, among adults with arthritis, rates of meeting physical activity recommendations via self-reported measures (approximately 30%) are much higher than when activity is objectively measured using motion sensors (13% among men and 8% among women); however, the prevalence of physical inactivity (the low end of the activity spectrum) is similar using both methods (8,9). Third, BRFSS questions do not include transportation or occupational activities that involve walking. Fourth, BRFSS does not assess the severity, location, or type of arthritis, which might affect walking differently. Fifth, because of the sample size, categories (e.g., 1–89 minutes per week) were collapsed so respondents in this category range from being practically inactive to walking an amount that might have important health effects. However, these respondents still are on the low end of the continuum and are good targets for marketing evidenced-based programs. Finally, the 2011 median survey response rate for all states and DC was 53.0% and ranged as low as 37.4% in California; lower response rates can result in response bias.

Most persons with arthritis do no or little walking per week. Effective and safe interventions are available in the community

and can assist persons with arthritis to start and maintain a walking program. By coupling environmental and policy strategies to increase access to walking, it might be possible to expand the reach of these effective programs for adults with arthritis.

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## Progress Toward Eradication of Polio — Worldwide, January 2011–March 2013

In May 2012, the World Health Assembly of the World Health Organization (WHO) declared the completion of polio eradication a programmatic emergency (1). Since the launch of the Global Polio Eradication Initiative (GPEI) in 1988, the number of annual polio cases has decreased by >99%. As of March 2013, circulation of indigenous wild poliovirus (WPV) continued in only three countries: Afghanistan, Nigeria, and Pakistan (the last case in India had onset in January 2011). This report provides an update on progress toward global polio eradication during January 2011–March 2013, using data reported as of April 23, 2013 (2). The number of WPV cases reported globally decreased 66%, from 650 in 2011 to 223 in 2012; WPV cases decreased 53% (from 80 to 37) in Afghanistan and 71% (from 198 to 58) in Pakistan, but increased 97% (from 62 to 122) in Nigeria. The number of imported WPV cases in previously polio-free countries decreased from 309 in 12 countries in 2011 to six in two countries in 2012 (3,4). During January–March 2013, a total of 22 WPV cases were reported worldwide, compared with 48 cases during the same period in 2012. An estimated 2.05 billion doses of oral poliovirus vaccine (OPV) were administered in 2012 to approximately 448 million persons, primarily children aged <5 years, in supplemental immunization activities (SIAs) conducted in 46 countries. SIAs were temporarily suspended in areas of Pakistan and Nigeria after attacks against health workers occurred in December 2012 and the first quarter of 2013. The number of confirmed WPV cases has decreased to the lowest level ever, but security concerns continue to threaten the overall goal of global eradication.

### Routine Vaccination Coverage

By the end of 2011, the latest complete year for which data are available, infant routine vaccination coverage worldwide with 3 doses of poliovirus vaccine by age 12 months (Pol3) was estimated at 84%. By WHO region, coverage with Pol3 was 76% in the African Region, 93% in the Region of the Americas, 83% in the Eastern Mediterranean Region, 94% in the European Region, 74% in the South-East Asia Region, and 96% in the Western Pacific Region (4). Coverage varied substantially among and within countries. Estimated national Pol3 coverage was 66% in Afghanistan, 75% in Pakistan, and 73% in Nigeria 2011 (4), with substantial variability within each country.

### Extent of SIAs

In 2012, SIAs using OPV were conducted in 46 countries against WPV and circulating vaccine-derived polioviruses

(cVDPV) (6). The SIAs included 77 national immunization days, 120 subnational immunization days, 29 child health days, and nine mop-up rounds. A total of 67 SIAs were conducted in Afghanistan, India, Nigeria, and Pakistan, 46 SIAs in previously polio-free countries affected by outbreaks or reestablished transmission following importations, and 122 preventive SIAs in countries with no WPV cases during 2012. An estimated 2.05 billion doses of OPV were administered to approximately 448 million persons, primarily children aged <5 years. Of these doses, 869 million were trivalent OPV, 1.1 billion were bivalent OPV, and 36 million were type 1 monovalent OPV. Short-interval additional dose SIAs, implemented in rapid succession (<2 weeks apart) to quickly raise immunity using monovalent OPV and/or bivalent OPV, became a core strategy in Pakistan in 2011 in high-risk areas and continued during 2012; these measures were introduced in Afghanistan during 2013 in low-performing districts. SIAs were temporarily suspended in some areas of Pakistan and Nigeria during December 2012 and the first quarter of 2013 following attacks against health workers; SIAs were resumed after security precautions were enhanced for vaccination teams.

### Poliovirus Surveillance

WPV transmission is monitored through surveillance for acute flaccid paralysis (AFP) cases and testing of stool specimens in WHO-accredited laboratories. AFP surveillance performance is monitored by using standard indicators for sensitivity and timeliness (nonpolio AFP rate and stool specimen adequacy). In 19 countries with transmission of poliovirus (WPV and/or cVDPV) during 2011–2012, national AFP surveillance performance indicators were met in 12 (63%) countries in 2011 and 13 (68%) countries in 2012. Indicators improved from 2011 in several high-risk countries in close proximity to Nigeria (Angola, Central African Republic, and Democratic Republic of the Congo [DRC]), but not in others (Chad and Niger) (7). AFP cases caused by cVDPV were detected in eight countries in 2012 (Afghanistan, Chad, DRC, Kenya, Nigeria, Pakistan, Somalia, and Yemen) (7).

### Reported WPVs

Of 223 cases reported in 2012, a total of 202 were WPV type 1 (WPV1), and 21 were WPV type 3 (WPV3), decreases of 65% and 69%, respectively, compared with 2011. During January–March 2013, a total of 22 WPV1 cases were reported globally from three countries, representing a 54% decrease compared with the 48 WPV1 cases reported during the same

### What is already known on this topic?

Since the launch of the Global Polio Eradication Initiative in 1988, the number of polio cases have decreased by >99%, and more than 100 countries have stopped transmission. However, circulation of wild poliovirus (WPV) has continued uninterrupted in three countries: Afghanistan, Nigeria, and Pakistan. In previous years, WPV has spread from polio-endemic countries to neighboring countries and sometimes beyond. Twelve previously polio-free countries had WPV circulation in 2011.

### What is added by this report?

The number of polio cases confirmed globally and the geographic extent of WPV transmission has reached the lowest levels ever reported. In 2012, only Afghanistan, Chad, Niger, Nigeria, and Pakistan reported polio cases. Except for Nigeria, where cases nearly doubled compared with 2011, the number of cases in each country decreased. During January–March 2013, the number of polio cases in Afghanistan, Nigeria, and Pakistan were lower than during the same period in 2012. However, security risks following attacks on health workers delivering polio vaccine have impeded progress in certain areas of Pakistan and Nigeria.

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

In areas of Pakistan and Nigeria, special security measures have been undertaken to sustain progress toward polio eradication such as the protection of vaccinators by law enforcement officers. Increasing local community engagement in security-compromised areas is critical to overcoming inaccessibility and insecurity and enhancing community vaccine acceptance. Efforts are under way to further focus resources on high-risk areas to interrupt transmission.

period in 2012 from four countries (Table). As of February 2012, India no longer was considered to be polio-endemic. During January–March 2013, fewer WPV cases were reported in Afghanistan, Nigeria, and Pakistan (two, 14, and six, respectively) than during the corresponding period in 2012 (six, 24, and 15, respectively). As of April 23, no WPV3 cases had been reported globally in 2013.

## Polio-Endemic Countries

**Afghanistan.** In 2012, a total of 37 WPV1 cases were reported, a 54% decrease from 80 cases reported in 2011. No WPV3 cases have been reported from Afghanistan since April 2010.

**Nigeria.** In 2012, a total of 122 WPV cases (103 WPV1 and 19 WPV3) were reported, a 97% increase from 62 cases (47 WPV1 and 15 WPV3) reported in 2011. The most recently reported WPV3 case from northern Nigeria occurred in November 2012.

**Pakistan.** In 2012, a total of 58 WPV cases (55 WPV1, two WPV3, and one WPV1/WPV3 mixed infection) were reported compared with 198 cases (196 WPV1 and two WPV3) in 2011,

**TABLE. Number of reported cases of wild poliovirus (WPV) infection, by country and serotype — January 2011–March 2013\***

Country	2011	2012	2012 Jan–Mar	2013 Jan–Mar
<b>Polio-endemic</b>				
Afghanistan	80	37	6	2
India	1	0	0	0
Nigeria	62	122	24	14
Pakistan	198	58	15	6
<b>Polio-nonendemic</b>				
Angola	5	0	0	0
Central African Republic	4	0	0	0
Chad	132	5	3	0
China	21	0	0	0
Côte d'Ivoire	36	0	0	0
DRC	93	0	0	0
Gabon	1	0	0	0
Guinea	21	0	0	0
Kenya	1	0	0	0
Mali	7	0	0	0
Niger	5	1	0	0
Republic of Congo	1	0	0	0
<b>Total</b>	<b>650</b>	<b>223</b>	<b>48</b>	<b>22</b>
<b>Total WPV type 3</b>	<b>67</b>	<b>21</b>	<b>8</b>	<b>0</b>
<b>Total WPV type 1</b>	<b>583</b>	<b>202<sup>†</sup></b>	<b>40<sup>†</sup></b>	<b>22</b>

**Abbreviation:** DRC = Democratic Republic of the Congo.

\* Data as of April 23, 2013.

<sup>†</sup> Includes one case mixed infection types 1 and 3 WPV.

a 71% decrease. No WPV3 cases have been reported since April 2012 in the Federally Administered Tribal Areas of Pakistan.

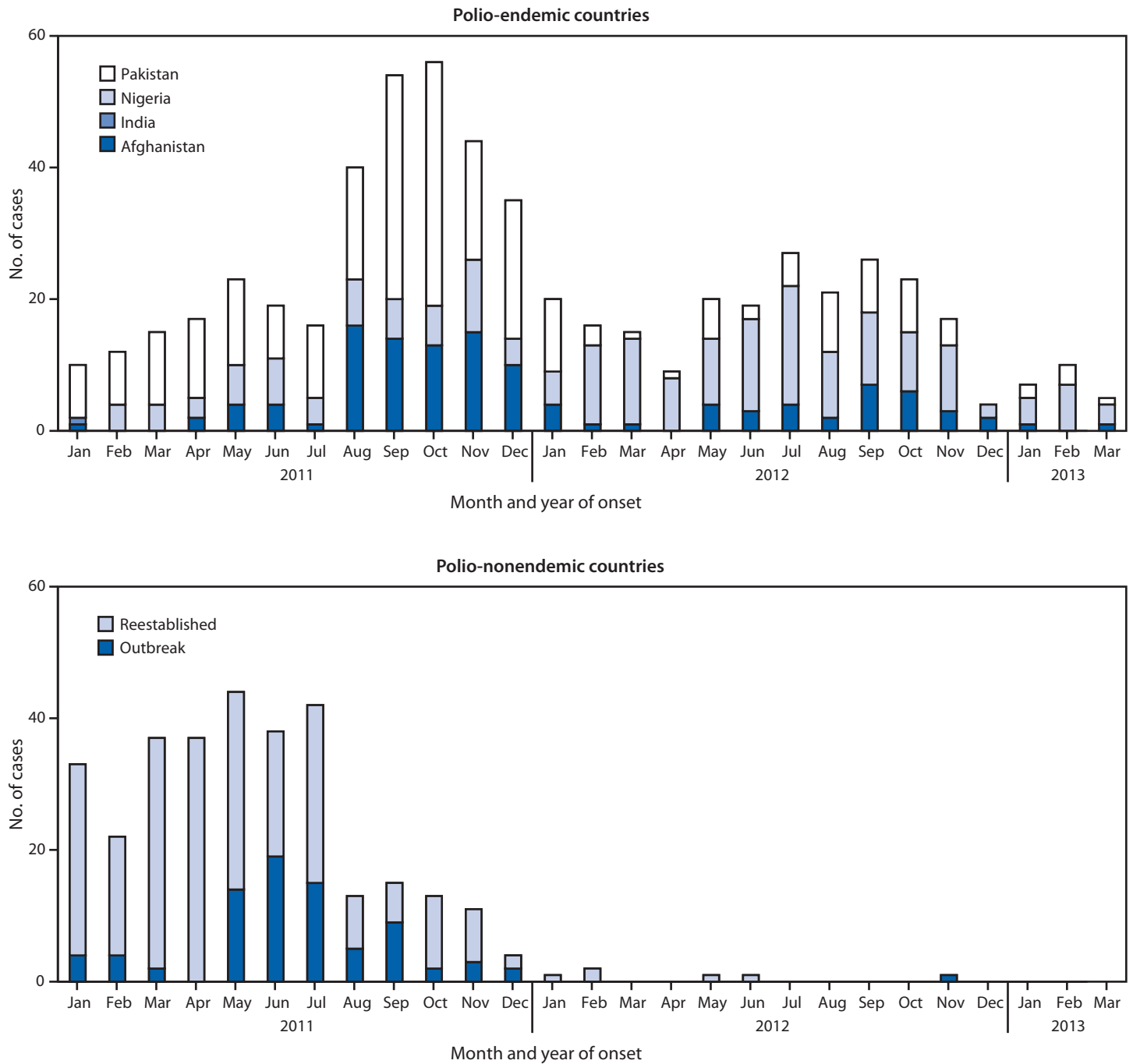
## Polio-Nonendemic Countries

The number of WPV cases resulting from importations and outbreaks in previously polio-free countries decreased from 309 in 12 countries\* in 2011 to six in two countries in 2012 (Niger and Chad) (Figure). In Niger, one WPV1 case was reported in 2012, compared with five WPV1 cases reported during 2011. All of the virus isolates from persons with WPV1 in Niger during 2011–2012 were genetically related to WPV1 circulating in Nigeria. In Chad, which experienced reestablished transmission after WPV1 importation in 2010 (3), five WPV1 cases were reported in 2012, compared with 132 WPV1 cases reported in 2011, a 96% decrease. WPV1 was detected in sewage samples through environmental surveillance in Cairo, Egypt, during December 2012 and was linked genetically to WPV1 circulating in Sindh, Pakistan, during 2012; WPV has not been detected in Egypt in environmental samples or AFP cases since December 2012. No new WPV outbreaks have been reported in polio-free countries globally in 2013, as of April 23.

\* Angola, Central African Republic, Chad, China, Côte d'Ivoire, Democratic Republic of the Congo, Gabon, Guinea, Kenya, Mali, Niger, and Republic of the Congo.



FIGURE. Number of reported cases of wild poliovirus infection among polio-endemic countries and polio-nonendemic countries, by month and year of onset — January 2011–March 2013\*



\* Data as of April 23, 2013.

**Reported by**

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**Editorial Note**

After the May 2012 World Health Assembly resolution, the implementation of the GPEI Global Emergency Action Plan 2012–2013 and national emergency action plans in countries with WPV transmission led to substantial progress toward global polio eradication. Since the resolution, the number

of WPV cases reported globally and the geographic extent of WPV transmission have reached the lowest levels ever reported. The possible interruption of WPV3 transmission in Asia and the prevention and control of WPV outbreaks in previously polio-free countries are important achievements. Sustained efforts are needed in polio-free countries at risk for outbreaks after WPV importation, including maintaining population immunity, and conducting vigilant surveillance.

Key elements of national emergency plans have included enhanced government commitment to polio eradication, increased vaccination coverage through routine and supplementary immunization efforts (e.g., improved micro-planning, effective strategies to vaccinate children previously missed, and enhanced monitoring of SIA quality), increased accountability at all administrative levels, improved partner coordination (e.g., polio operations rooms at national and state levels), and the implementation of innovative approaches (e.g., short-interval additional dose SIAs). Other critical program efforts include increases in technical support and human resources provided to priority countries through the placement of thousands of additional polio staff members at the lowest administrative levels. Further technical support was provided by an expansion and increase in duration of the international Stop Transmission of Polio (STOP) program,<sup>†</sup> in both polio-endemic and polio-nonendemic, high-risk countries, and national STOP (N-STOP) programs, in Nigeria and Pakistan, that develop sustained national capacity and expertise (8).

Security remains a problem in the polio-endemic areas of Afghanistan and in areas of Pakistan. New security risks following attacks on health workers delivering polio vaccine have impeded progress in certain areas of Pakistan and Nigeria. In these locations, national governments have implemented special security measures, such as the protection of vaccinators by law enforcement officers. Increasing local community engagement with field staff members in security-compromised areas is critical to overcoming inaccessibility and insecurity and increasing community vaccine acceptance. Strategies also have been implemented to identify and vaccinate chronically missed children, reduce parental refusals, maintain sufficient

vaccine supplies, and focus resources in countries and regions at the greatest risk for outbreaks (9).

At the request of the World Health Assembly, GPEI has developed a Polio Eradication and Endgame Strategic Plan (2013–2018), in consultation with stakeholders, to complete polio eradication and transition GPEI infrastructure (10). Main objectives of the plan include 1) detecting and interrupting WPV and cVDPV poliovirus transmission by strengthening global surveillance, enhancing SIA quality, and preventing and rapidly responding to outbreaks; 2) strengthening immunization systems and withdrawing OPV by increasing routine vaccination coverage, ensuring the availability and use of appropriate polio vaccines; 3) ensuring laboratory containment of poliovirus and certifying WPV eradication; and 4) transitioning GPEI assets and infrastructure within routine immunization programs and leveraging programmatic lessons. As highlighted by the cessation of WPV transmission in India, commitment and dedication to program implementation have achieved successes; however, the challenges that remain to complete global polio eradication require sustained commitment and continued coordinated efforts.

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<sup>†</sup> Additional information available at <http://www.cdc.gov/polio/stop>.

## Announcements

### Global Road Safety Week — May 6–12, 2013

The United Nations (UN) General Assembly has declared the week of May 6–12, 2013, as Global Road Safety Week. This year the week is dedicated to pedestrian safety. More than 5,000 pedestrians are killed on the world's roads each week, and pedestrians comprise nearly one quarter of global road deaths annually (1). The vast majority of pedestrian deaths occur in low-income and middle-income countries.

The goal of this year's observance is to draw attention to the need to provide safe, reliable, and accessible facilities for all pedestrians. The World Health Organization (WHO) is coordinating Global Road Safety Week efforts and recommends increased implementation of strategies known to save pedestrians' lives, including 1) installing and/or upgrading crosswalks, sidewalks, overpasses, underpasses, raised medians, and road signs and signals; 2) slowing vehicle speeds by "calming" streets with speed bumps and rumble strips; 3) enforcing laws against speeding and distracted driving; 4) creating walking streets or pedestrian zones; 5) improving mass transit route design and access; 6) improving lighting around pedestrian crossings; and 7) enhancing the visibility of pedestrians through the use of reflective materials.

WHO, in collaboration with the CDC and other partners, will release a report in May 2013 regarding "best practices" for pedestrian safety outlining the global problem, risk factors, and interventions to prevent or reduce pedestrian injuries around the globe (2).

Global Road Safety Week is part of the larger UN Decade of Action for Road Safety 2011–2020 activities, aimed at saving 5 million lives on the road by the year 2020. Additional information about Global Road Safety Week, the UN Decade of Action for Road Safety, and ideas on how to get involved in promoting pedestrian safety are available from WHO at <http://www.who.int/roadsafety/week/2013/en/index.html>. Information on CDC's efforts to improve global road safety is available at <http://www.cdc.gov/features/globalroadsafety>, and resources from CDC for preventing road traffic injuries are available at <http://www.cdc.gov/motorvehiclesafety> and <http://www.cdc.gov/winnablebattles/motorvehicleinjury>.

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### National Physical Fitness and Sports Month — May 2013

May is designated National Physical Fitness and Sports Month to raise awareness about the important role physical activity plays in maintaining health. According to the 2008 *Physical Activity Guidelines for Americans*, physical activity can help control weight, improve mental health, and lower the risk for early death, heart disease, type 2 diabetes, and some cancers. Physical activity also can improve cardiovascular and muscular fitness (1). In 2011, however, only one in five U.S. adults participated in enough physical activity to gain substantial health benefits (2).

To achieve substantial health benefits, the guidelines recommend that adults perform at least 150 minutes a week of moderate-intensity aerobic activity, or 75 minutes per week of vigorous-intensity aerobic activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activities (1). The guidelines also recommend including muscle-strengthening activities that involve all major muscle groups on 2 or more days a week. Additional information about physical activity and resources for increasing participation in physical activity are available at <http://www.health.gov/paguidelines> and <http://www.cdc.gov/physicalactivity>.

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## Announcements

### Arthritis Awareness Month — May 2013

May is Arthritis Awareness Month. Arthritis affects an estimated 50 million U.S. adults (1) and continues to be the most common cause of disability in the United States (2). This year's theme, "Faces of Arthritis," (<http://www.arthritis.org/facesofarthritis>) is designed to challenge arthritis stereotypes and educate the public about the impacts of arthritis, along with promoting clinical and public health interventions to control it.

Common arthritis stereotypes suggest that arthritis only affects older adults and that it is inevitable and untreatable. However, arthritis can affect persons at any age, including children, and most persons with arthritis are aged <65 years (3). Further, arthritis comprises a set of diseases that are not a normal part of aging. Even after arthritis is diagnosed, there are many measures that can minimize disease progression and joint pain as well as help patients maintain function. For example, persons with arthritis can supplement clinical management with physical activity, which reduces arthritis pain and helps manage coincident problems, such as diabetes, heart disease, and obesity (4). In addition, self-management education helps persons with arthritis gain control of their condition by learning techniques to manage their symptoms and reduce pain and activity limitations (5).

Information about ways to help manage arthritis is available at <http://www.cdc.gov/arthritis>. Additional information is available from the Arthritis Foundation (<http://www.arthritis.org>) and the National Institute of Arthritis and Musculoskeletal and Skin Diseases (<http://www.nih.gov/niams>).

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### Drinking Water Week — May 5–11, 2013

The United States has one of the safest public drinking water supplies in the world (1). Tap water not only provides water for daily activities such as drinking, bathing, and cooking, it also benefits the entire community by providing water to serve businesses, schools, and hospitals, and to promote overall health (2). May 5–11, 2013, is Drinking Water Week, an annual observance whose theme "What Do You Know About H<sub>2</sub>O?" underscores the many ways in which all consumers can get to know their water (3).

Disinfection and treatment practices, as well as the environmental regulation of water pollutants, have substantially improved domestic water quality during the past century and have led to a marked decrease in the incidence of waterborne diseases such as typhoid fever (4–6). Despite these improvements, sources of drinking water still can become contaminated and lead to adverse health effects (7).

New challenges to the U.S. water supply include aging drinking water infrastructure, the impact of climate change on water availability and quality, chemical contamination of water sources, emerging pathogens, and the development of new ways to obtain and use water. Drinking Water Week is a time to highlight the importance of safe drinking water and recognize that protecting and reinvesting in water infrastructure is crucial to the health of persons living in the United States.

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## **Announcements**

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### **Recommendations Regarding Cardiovascular Disease from the Community Preventive Services Task Force**

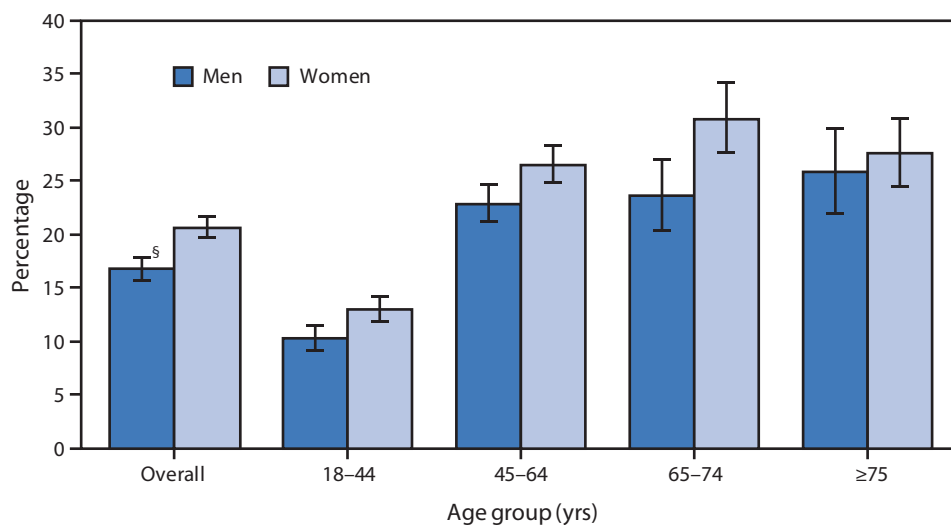
The Community Preventive Services Task Force recently posted new information on its website: “Cardiovascular Disease Prevention and Control: Reducing Out-of-Pocket Costs for Cardiovascular Disease Preventive Services for Patients with High Blood Pressure and High Cholesterol.” The information is available at <http://www.thecommunityguide.org/cvd/ropc.html>.

Established in 1996 by the U.S. Department of Health and Human Services, the task force is an independent, nonfederal, unpaid 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

### Percentage of Adults Aged $\geq 18$ Years Who Often Had Pain in the Past 3 Months,\* by Sex and Age Group — National Health Interview Survey, United States, 2010–2011<sup>†</sup>



\* Based on responses to the following questions: "In the past 3 months, how often did you have pain? Would you say never, some days, most days, or every day?" Persons who had pain most days or every day were categorized as often having pain. Unknowns were not included in the denominators when calculating percentages.

<sup>†</sup> Estimates are based on household interviews of a sample of the noninstitutionalized U.S. civilian population. Estimates are age-adjusted using the projected 2000 U.S. population as the standard population and using four age groups: 18–44 years, 45–64 years, 65–74 years, and  $\geq 75$  years.

<sup>§</sup> 95% confidence interval.

During 2010–2011, women (20.7%) were more likely than men (16.9%) to often have pain overall and in all age groups except those aged  $\geq 75$  years. Among both men and women, those aged 18–44 years were less likely to often have pain than adults in older age groups.

**Source:** National Health Interview Survey, 2010 Quality of Life and 2011 Functioning and Disability supplements. Data are from a subset of the adults randomly selected for the Sample Adult Component of the National Health Interview Survey questionnaire. Available at <http://www.cdc.gov/nchs/nhis.htm>.

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## Morbidity and Mortality Weekly Report

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