
HSC Statistical Brief No. 21

Racial Disparities in Cigarette Smoking Among Adults

Racial disparities in health status, health care, and mortality are well documented. In the United States, African Americans are more likely than non-Hispanic Whites to have diabetes or hypertension, to be overweight or obese, and to be uninsured (1,2). In addition, infant mortality, cardiovascular disease mortality, and cervical and breast cancer mortality are all higher among African Americans than Whites (1,3).

Measuring health-related racial disparities in West Virginia is challenging due to the small population of racial minorities in the state¹. For most available data sources, racial and ethnic minority groups must be combined and multiple years of data must be aggregated to obtain reliable estimates and rates for non-white groups. Nonetheless, *Minority Health in West Virginia*, published by the Bureau for Public Health in April 2007, identifies racial disparities in this state related to STD infection, birth outcomes, and mortality (4).

A major goal of *West Virginia Healthy People 2010*, the state's disease prevention and health promotion agenda, is to reduce racial disparities in health and mortality. This brief describes racial disparities in cigarette smoking and outlines progress toward reaching the *Healthy People 2010* goal to reduce cigarette smoking among African Americans in West Virginia.

Although historically the prevalence of smoking has not been higher among African Americans than Whites, it is important to target tobacco prevention efforts toward African Americans for many reasons, including (5,6):

- Smoking related illnesses are the number one cause of death among African Americans, surpassing all other causes of death, including AIDS, homicide, diabetes, and accidents.
- Although African Americans tend to smoke fewer cigarettes per day and begin smoking later in life than Whites, their smoking-related disease mortality is significantly higher.
- African Americans are more likely to develop and die from cancer than persons of any other racial or ethnic group. Lung cancer kills more African-Americans than any other type of cancer.
- Research indicates that tobacco companies have more aggressively marketed their products toward African Americans and other minority groups.

¹ West Virginia is less diverse in terms of both race and ethnicity than the United States as a whole. Census 2000 counts indicate that only 5.0% of West Virginia residents were non-white in 2000, compared with 24.9% of the national population. African Americans are the largest minority group in West Virginia, accounting for 3.2% of the state population in 2000. All other races combined, including residents who identified themselves as multiracial, accounted for approximately 1.8% of West Virginia's population in 2000 (4).

CURRENT CIGARETTE SMOKING

Historically, West Virginia has had one of the highest rates of cigarette smoking in the nation. In fact, in seven of the past nine years, West Virginia's prevalence of adult smoking has ranked in the top three among the 50 states and D.C. During this same time period, the prevalence of adult cigarette smoking has been significantly higher in West Virginia than the United States (see Figure 1). In 2006, more than 1 out of 4 adults were current cigarette smokers.

Recent tobacco prevention efforts in West Virginia have been successful in reducing the prevalence of youth cigarette smoking. Between 2000 and 2005, the percentage of public high school students who had never tried a cigarette significantly increased, while the prevalence of current cigarette smokers significantly decreased (7). However, the same successes have not been achieved for adults. While the adult smoking rate has declined for four consecutive years for the first time since 1984², there has been no statistically significant decrease in cigarette smoking among West Virginia adults. Nationwide, the prevalence of adult smokers significantly declined between 1998 and 2004 (from 22.9% to 20.8%) and again between 2004 and 2006 (from 20.8% to 19.7%).

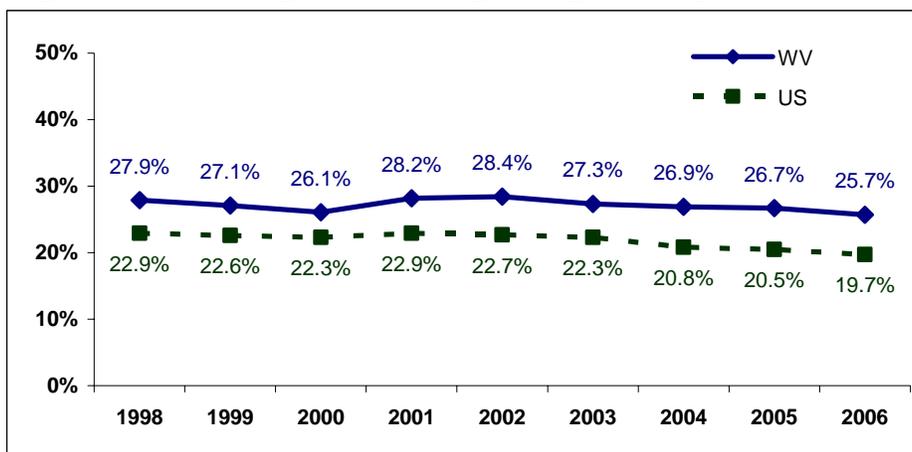
West Virginia Adult Current Cigarette Smoking Rankings

<u>Year</u>	<u>Rank*</u>
1999	3rd
2000	6th
2001	6th
2002	3rd
2003	3rd
2004	2nd
2005	2nd
2006	3rd
2007	2nd

* The rank of West Virginia's prevalence among the 50 states and DC. 2004 ranking excludes Hawaii. Data Source: Behavioral Risk Factor Surveillance System.

Like other health conditions and risk behaviors, cigarette smoking differs by sociodemographic characteristics. In West Virginia, cigarette smoking is inversely associated with age, education, and income. According to the 2006 West Virginia Behavioral Risk Factor Survey, the prevalence of cigarette smoking was approximately three times higher among 1) adults aged 18-24 than those aged 65 or older, 2) adults without a high school diploma or G.E.D. than college graduates, and 3) adults with an income less than \$15,000 than adults with an annual household income of \$75,000 or more (8).

Figure 1. Current Cigarette Smoking Among Adults by Year



Current Smoking = Responding "yes" to "Have you ever smoked 100 cigarettes in your entire life?" and responding "every day" or "some days" to "Do you now smoke every day, some days, or not at all?"

Note: US estimates exclude territories. 2004 data for Hawaii not available.

See the Appendix for detailed data tables.

Data Source: Behavioral Risk Factor Surveillance System.

² The West Virginia Behavioral Risk Factor Surveillance System (BRFSS) was initiated in 1984. The BRFSS collects data on risk behaviors and health conditions, including cigarette smoking, among a sample of randomly selected adults.

CIGARETTE SMOKING BY RACE

The collection of race in the Behavioral Risk Factor Surveillance System (BRFSS) has changed over time. Prior to 2001, respondents were asked to report one race. Since 2001, respondents have been given the option to choose more than one race. Those respondents reporting multiple races are then asked to identify one race as their preferred race. The preferred race classification is used when comparing racial estimates from 2001-2006 to racial estimates prior to 2001. Presented below are racial estimates of cigarette smoking using both the preferred race and multiple race classification. See the Appendix for a more detailed discussion of the collection of race in the BRFSS and the validation of comparing racial estimates over time.

Figure 2. Current Cigarette Smoking by Preferred Race, WV Adults

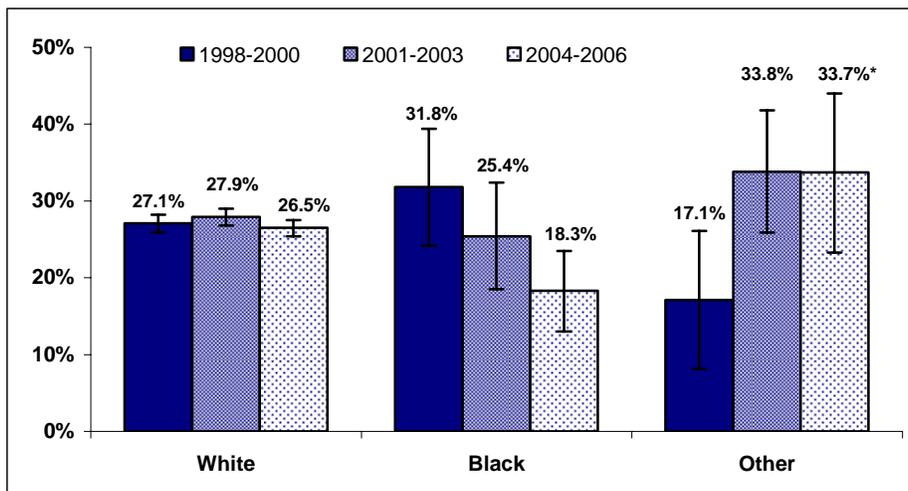


Figure 3. Current Cigarette Smoking by Multiracial Classification, WV Adults

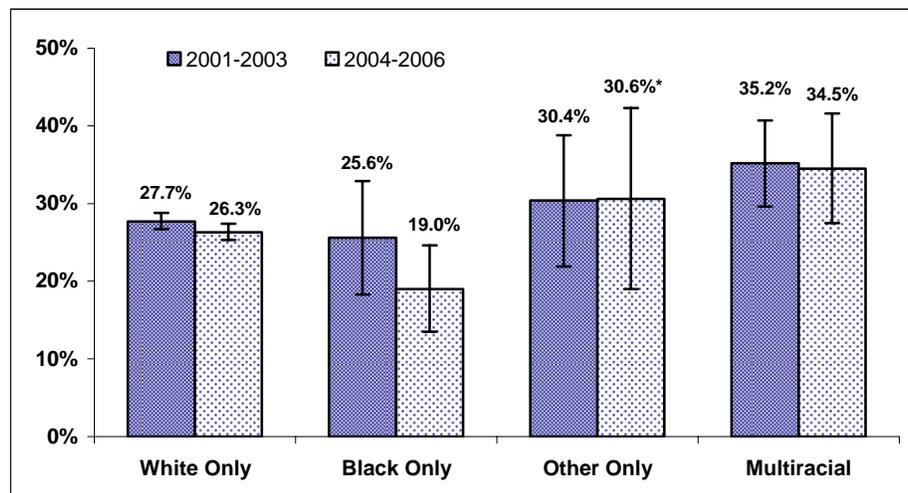


Figure 2 and Figure 3 Footnotes:

* Use caution when interpreting and reporting this estimate – the 95% confidence interval has a range >20. Current Smoking = Responding “yes” to “Have you ever smoked 100 cigarettes in your entire life?” and responding “every day” or “some days” to “Do you now smoke every day, some days, or not at all?” Other races = Asians, Native Hawaiians and other Pacific Islanders, American Indians or Alaska Natives, and other races.

See the Appendix for a detailed discussion of race classification and for detailed data tables.

Data Source: Behavioral Risk Factor Surveillance System.

CIGARETTE SMOKING BY RACE

In the years 1998-2000, there was no significant racial disparity in cigarette smoking among adults in West Virginia. Approximately 32% of African Americans, 27% of Whites, and 17% of adults of other races were current cigarette smokers (see Figure 2). *West Virginia Healthy People 2010* objective 27.20 aims to reduce the prevalence of cigarette smoking among African American adults to 20%.

Although there have been no significant declines in cigarette smoking among the total adult population in West Virginia (see Figure 1), comparing estimates of cigarette smoking by preferred race indicates that there has been a significant decrease in the percentage of African Americans who are current smokers. Between 1998-2000 and 2004-2006 the prevalence of smoking among African Americans significantly declined from 31.8% to 18.3% (see Figure 2). However, the prevalence of cigarette smoking among Whites has remained stable and the percentage of adults of other races who are current cigarette smokers has increased, although the increase was not significant.

The most recent data indicate that significant racial disparities in cigarette smoking now exist. Cigarette smoking is highest among adults who report more than one race. In 2004-2006, 34.5% of multiracial West Virginians were current smokers, compared with 26.3% of Whites and 19.0% of African Americans (see Figure 3). In addition, estimates of cigarette smoking using both the preferred race and multiple race classification indicate that the prevalence of current smoking was significantly higher among Whites than African Americans in 2004-2006.

Cigarette Smoking by Race United States

- In 2006, 23.7% of multiracial adults, 21.0% of African Americans, 19.7% of Whites, and 18.0% of adults of other races were current cigarette smokers.
- In 2006, African Americans and multiracial adults had a significantly higher prevalence of cigarette smoking than Whites and other races. The prevalence of smoking was also significantly higher among Whites than adults of other races.
- Between 2002 and 2006, the prevalence of cigarette smoking significantly declined among Whites (from 22.8% to 19.7%), adults of other races (from 21.6% to 18.0%), and multiracial adults (from 29.9% to 23.7%), but not among African Americans.

*See the Appendix for detailed data tables.
Source: Behavioral Risk Factor Surveillance System*

CONCLUSION

Recent BRFSS estimates indicate that racial disparities in cigarette smoking now exist. Whereas there were no significant racial differences in the prevalence of current smokers in the years 1998-2000, data from 2004-2006 indicate that West Virginia adults who are multiracial are significantly more likely than Whites and African Americans to be current cigarette smokers. In addition, African Americans are significantly less likely to be current smokers than Whites. The emergence of racial disparities is due to 1) a significant decline in smoking among African Americans and 2) the ability to collect data and produce estimates among individuals of multiple races (this disparity could not be measured prior to 2001).

A declining trend in smoking among African Americans is not observed nationwide. In West Virginia, African Americans are the only racial group that has experienced a significant decline in cigarette smoking, whereas in the United States they are the only racial group that has not experienced a smoking decrease. Although there have been no significant declines in cigarette smoking among the total population of adults in West Virginia, these results provide encouragement that tobacco prevention efforts are working. This information also suggests that the *West Virginia Healthy People 2010* objective to reduce the prevalence of cigarette smoking among African American adults to 20% has been met.

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APPENDIX

The Collection of Race in the Behavioral Risk Factor Surveillance System (BRFSS)

Prior to 2001, Behavioral Risk Factor Survey respondents were only able to report one race. Since 2001, respondents have been given the option to choose multiple races. Those that report multiple races are then asked to report one race as their preferred race (see Table A1 for BRFSS race questions). The preferred race classification is used when comparing racial estimates from 2001-2006 to racial estimates prior to 2001, which are derived from the single race question. The results presented in this brief are based on the hypothesis that the change in the collection of race does not significantly confound racial estimates over time. That is, it is assumed that multiracial respondents would identify themselves as the same race whether replying to the 1998-2000 single race question or the 2001-2006 preferred race question.

A review of racial classification in the years 1998 through 2006 (based on the 1998-2000 single race question and the 2001-2006 preferred race question) indicates that the percentage of West Virginia BRFSS respondents classified as White, Black, and Other has remained stable (see Table A2). Therefore, it is unlikely that this question change has significantly affected racial estimates of risk behaviors and health conditions measured by the BRFSS in West Virginia.

Table A1. BRFSS Race Questions

1998-2000 Race Questions and Response Categories	
<p>Single Race Question What is your race? Would you say:</p>	<p>1=White 2=Black or African American 3=Asian, Pacific Islander 4=American Indian, Alaska Native 5=Other 7=Don't know/Not sure 9=Refused</p>
2001-2006 Race Questions and Response Categories*	
<p>Multiple Race Question Which one or more of the following would you say is your race?</p>	<p>1=White 2=Black or African American 3=Asian 4=Native Hawaiian or Other Pacific Islander 5=American Indian, Alaska Native 6=Other 7=Don't know/Not sure 8=No additional choices 9=Refused</p>
<p>Preferred Race Question Which one of these groups would you say best represents your race? (Asked of those reporting >1 race to the Multiple Race Question)</p>	<p>1=White 2=Black or African American 3=Asian 4=Native Hawaiian or Other Pacific Islander 5=American Indian, Alaska Native 6=Other 7=Don't know/Not sure 9=Refused</p>

* In 2001-2006, respondents are classified as "no preferred race" if they reported more than one race to the multiple race question and responded "Don't know/Not sure" or "Refused" to the preferred race question.

APPENDIX

Table A2. Adult Respondents by Preferred Race^a, WVBRFSS

Years	White	Black	Other Race	Missing Race ^b
Unweighted Percentages (Number of Respondents)				
1998-2000	96.4 (7,090)	2.3 (172)	1.1 (82)	0.2 (13)
2001-2003	95.4 (9,337)	2.3 (229)	1.8 (174)	0.5 (52)
2004-2006^c	95.9 (10,351)	2.3 (253)	1.5 (160)	0.2 (25)
Weighted Percentages				
1998-2000^c	96.4	2.2	1.3	0.2
2001-2003^c	95.4	2.2	2.0	0.5
2004-2006	95.9	2.3	1.6	0.2

a. Beginning in 2001, respondents could choose more than one race. Those choosing multiple races were asked to report their preferred race. Presented are results for preferred race in the years 2001-2006.

b. Missing race includes those respondents who refused to report their race or reported their race as unknown. In addition, those respondents in the years 2001-2006 who reported multiple races by no preferred race were coded as missing and excluded from analyses (this includes 8 respondents in 2001-2003 and 5 respondents in 2004-2006).

c. Percentages do not sum to 100 due to rounding.

Table A3. Adult Respondents by Race^a, WVBRFSS

Years	White Only	Black Only	Other Race Only	Multiracial	Missing Race ^b
Unweighted Percentages (Number of Respondents)					
2001-2003	92.1 (9,014)	2.1 (207)	1.5 (145)	3.9 (382)	0.4 (44)
2004-2006^c	94.2 (10,159)	2.2 (232)	1.3 (135)	2.3 (243)	0.2 (20)
Weighted Percentages					
2001-2003^c	92.1	2.0	1.6	3.8	0.4
2004-2006^c	94.2	2.2	1.4	2.1	0.2

a. Beginning in 2001, respondents could choose more than one race. Respondents choosing more than one race are classified as "Multiracial."

b. Missing race includes those respondents who refused to report their race or reported their race as unknown.

c. Percentages do not sum to 100 due to rounding.

APPENDIX

Detailed Tables

Table A4. Adult Current Cigarette Smoking, BRFSS

Years	West Virginia			United States*		
	# Resp.	%	95%CI	# Resp.	%	95%CI
1998	2,411	27.9	25.9-30.0	146,614	22.9	22.6-23.3
1999	2,588	27.1	25.1-29.1	156,486	22.6	22.3-23.0
2000	2,345	26.1	24.2-28.0	179,725	22.3	22.0-22.7
2001	3,083	28.2	26.4-30.0	204,495	22.9	22.6-23.2
2002	3,348	28.4	26.6-30.2	240,050	22.7	22.4-23.0
2003	3,343	27.3	25.6-29.1	256,966	22.3	22.0-22.6
2004	3,436	26.9	25.1-28.7	295,998	20.8	20.5-21.1
2005	3,548	26.7	24.9-28.4	348,393	20.5	20.3-20.8
2006	3,790	25.7	24.0-27.5	346,340	19.7	19.4-20.0
1998-2000	7,344	27.1	25.9-28.2			
2001-2003	9,744	28.0	26.9-29.0			
2004-2006	10,774	26.4	25.4-27.4			

Current Smoking = Responding “yes” to “Have you ever smoked 100 cigarettes in your entire life?” and responding “every day” or “some days” to “Do you now smoke every day, some days, or not at all?”

* U.S. estimates exclude territories. 2004 data for Hawaii not available.

Table A5. Adult Current Cigarette Smoking by Preferred Race[†], WVBRFSS

Years	White			Black			Other		
	# Resp.	%	95%CI	# Resp.	%	95%CI	# Resp.	%	95%CI
1998-2000	7,078	27.1	25.9-28.2	172	31.8	24.2-39.4	82	17.1	8.1-26.1
2001-2003	9,320	27.9	26.8-29.0	228	25.4	18.5-32.4	174	33.8	25.9-41.8
2004-2006	10,336	26.5	25.4-27.5	253	18.3	13.0-23.5	160	33.7*	23.3-44.0

[†] Beginning in 2001, respondents could choose more than one race. Those choosing multiple races were asked to report their preferred race. Respondents who reported multiple races and also reported no preferred race were coded as missing and excluded from analyses (this includes 8 respondents in 2001-2003 and 5 respondents in 2004-2006).

* Use caution when interpreting and reporting this estimate – the 95% CI has a range greater than 20.

Note: Unless otherwise noted, all estimates meet the three HSC reliability criteria: 1) Estimate is based on 50 or more respondents, 2) 95% confidence interval has a range of 20 or less, and 3) the relative standard error is less than 30%.

Table A6. Adult Current Cigarette Smoking by Race, WVBRFSS

Years	White Only			Black Only			Other Only			Multiracial		
	# Resp	%	95%CI	# Resp	%	95%CI	# Resp	%	95%CI	# Resp	%	95%CI
2001-2003	8,997	27.7	26.7-28.8	206	25.6	18.3-32.9	145	30.4	21.9-38.8	382	35.2	29.6-40.7
2004-2006	10,144	26.3	25.3-27.4	232	19.0	13.5-24.6	135	30.6*	19.0-42.3	243	34.5	27.5-41.6

* Use caution when interpreting and reporting this estimate – the 95% CI has a range greater than 20.

Note: Unless otherwise noted, all estimates meet the three HSC reliability criteria: 1) Estimate is based on 50 or more respondents, 2) 95% confidence interval has a range of 20 or less, and 3) the relative standard error is less than 30%.

APPENDIX

Table A7. Adult Current Cigarette Smoking by Preferred Race[†], USBRFSS

Year	White			Black			Other		
	# Resp.	%	95%CI	# Resp.	%	95%CI	# Resp.	%	95%CI
1999	133,290	22.8	22.4-23.2	12,978	22.3	21.2-23.4	9,314	21.0	19.4-22.5
2002	201,150	22.9	22.6-23.2	18,645	21.8	20.8-22.8	17,734	21.9	20.6-23.1
2005	291,700	20.6	20.3-20.9	27,584	21.4	20.4-22.4	25,449	19.4	18.2-20.5
2006	289,152	19.8	19.4-20.10	28,159	21.1	20.14-22.1	25,125	18.1	16.9-19.2

[†] Beginning in 2001, respondents could choose more than one race. Those choosing multiple races were asked to report their preferred race. Respondents who reported multiple races and also reported no preferred race were coded as missing and excluded from analyses.

Table A8. Adult Current Cigarette Smoking by Race, USBRFSS

Year	White Only			Black Only			Other Only			Multiracial		
	# Resp	%	95%CI	# Resp	%	95%CI	# Resp	%	95%CI	# Resp	%	95%CI
2002	198,984	22.8	22.5-23.2	18,213	21.7	20.7-22.7	16,299	21.6	20.3-22.8	4,337	29.9	27.0-32.9
2005	287,965	20.5	20.2-20.8	26,960	21.3	20.3-22.3	23,535	19.0	17.8-20.2	6,995	29.4	26.9-32.0
2006	285,661	19.7	19.4-20.0	27,546	21.0	20.1-22.0	22,991	18.0	16.8-19.3	6,846	23.7	21.1-26.3



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The Health Statistics Center (HSC) maintains West Virginia vital records and conducts the Behavioral Risk Factor Survey. The HSC can do customized reports and data analysis for grants, formal research, agency use, or specific community health planning activities. For additional information call the HSC and ask for a Statistical Services staff member. Visit the HSC website for electronic access to HSC reports and statistical briefs.