

HYPERTENSION (HIGH BLOOD PRESSURE) IN MARYLAND

An estimated 1.5 million adult Maryland residents have hypertension, also called high blood pressure, according to results from the 2015 Maryland Behavioral Risk Factor Surveillance System (BRFSS).¹ An estimated 700,000 Marylanders with hypertension do not have their high blood pressure under control, which places them at increased risk of many serious health conditions.² This surveillance brief describes hypertension prevalence and use of medication to control hypertension by age, gender, race/ethnicity, weight category, smoking status, history of cardiovascular disease, history of diabetes, and insurance status. One-third of adult Maryland residents reported having ever been told they have high blood pressure. Among those, 80.4% reported they were currently taking medication to control their blood pressure. Taking medication to control blood pressure was reported more frequently by residents with health insurance than by residents who reported no insurance coverage (80.5% with insurance vs. 50% without insurance). Not having insurance coverage varied by race/ethnicity, with 10.3% Black non-Hispanics reporting no insurance vs. 4.2% White non-Hispanics reporting no insurance. In light of this, conventional approaches to hypertension management need to be tailored to meet the needs of individual patients, especially in minority and uninsured populations.

BACKGROUND

Hypertension is defined by the Centers for Disease Control and Prevention (CDC) as blood pressure of 140/90mm Hg or higher.² One in three U.S. adults has high blood pressure.² This common condition increases the risk for heart disease and stroke, which are leading causes of death for Maryland residents (25% diseases of the heart, 23.4% malignant neoplasms, and 5.4% cerebrovascular disease).^{2,3} Just over half (54%) of people with high blood pressure have it under control, and in Maryland, an estimated 700,000 adults have uncontrolled hypertension.^{1,2} Uncontrolled hypertension can lead to congestive heart failure, heart attacks, vision loss, angina, peripheral artery disease, and kidney damage.⁴ Hypertension is sometimes referred to as the “silent killer” because people with the condition often do not have signs or symptoms.⁴ Hypertension “hides in plain sight,” as nearly 1 in 5 people with hypertension (19.1%) is unaware of his or her condition.⁵

To increase awareness and control of this condition, it is important that people at risk of hypertension have their blood pressure checked regularly.⁶ Additionally, health care providers need to establish clinical criteria to identify undiagnosed hypertension and determine a plan for addressing both those with undiagnosed and those with uncontrolled hypertension.⁷ Although there is no cure, hypertension can be managed by a variety of lifestyle changes, which are sometimes coupled with medication therapy. Lifestyle changes that help lower one’s blood pressure include: losing weight, exercising regularly, decreasing sodium intake, eating a healthy diet, reducing or eliminating use of alcohol and cigarettes, and managing stress.⁸

METHODS

The Maryland BRFSS is a telephone-based health survey of adult Maryland residents that provides statewide prevalence of chronic health conditions, health-related behaviors, use of preventive services, and access to care. It is part of the National BRFSS and is conducted under CDC guidance. Questions related to hypertension prevalence and use of medication to control high blood pressure were included in the core section of the 2015 version, and survey respondents were asked if they had ever been told by a doctor, nurse, or other health

professional that they have high blood pressure. Female respondents who said yes were asked: “Was this only when you were pregnant?” Records for women who were told they have high blood pressure only during pregnancy and records for respondents who stated that they have borderline high blood pressure were excluded from analysis. Survey respondents who said “yes” to the first question were then asked if they are currently taking medicine for their high blood pressure.

History of diabetes was measured by asking respondents if they were ever told they have diabetes. Female respondents who said “yes” to this question were asked: “Was this only when you were pregnant?” Records for women who were only told they have diabetes when they were pregnant were excluded from analysis.

BRFSS survey respondents also self-reported height and weight as part of the core survey. Body Mass Index (BMI) was then calculated by CDC using a standard formula.⁹ High BMI in adults is defined as BMI of 25.0 or higher and is associated with increased risk of type 2 diabetes, hypertension, coronary heart disease, stroke, sleep apnea, some cancers, and many other conditions.⁹ Demographics, insurance coverage, and smoking status were all documented based on self-report. Protocol indicates that a respondent needed to report smoking at least 100 cigarettes in his or her lifetime to be considered a current or former smoker.¹⁰ History of cardiovascular disease (CVD) was assessed by a series of three questions about whether the respondents had ever been told by a doctor, nurse, or other health professional that they had a heart attack, have angina or coronary heart disease, or had a stroke.

To improve the generalizability of the survey data (thereby making it possible to draw conclusions about the health of Maryland residents), CDC weighted survey data using iterative proportional fitting, also known as raking, to account for demographic differences between the survey sample population and the Maryland state population.

Table 1: Ever told have high blood pressure, excluding women only told during pregnancy and respondents reporting prehypertension or borderline hypertension, 2015 Maryland BRFSS

	%	95% CI
Statewide	33.1	(31.5-34.7)
Gender		
Male	34.0	(31.4-36.5)
Female	32.3	(30.3-34.4)
Age		
Age 18-24	*	
Age 25-34	14.5	(10.4-18.7)
Age 35-44	21.0	(17.1-24.9)
Age 45-54	34.1	(30.4-37.8)
Age 55-64	47.4	(44.1-50.8)
Age 65-74	61.8	(58.6-65.1)
Age 75+	70.4	(66.3-74.5)
Race/Ethnicity		
White non-Hispanic	34.3	(32.3-36.2)
Black non-Hispanic	39.6	(36.1-43.2)
Asian non-Hispanic	15.3	(10.0-20.6)
Hispanic	18.0	(11.7-24.4)
Other	35.3	(25.3-45.4)
Weight Classification		
Healthy Weight (BMI 18.5 - 24.9)	20.2	(17.7-22.7)
Overweight (BMI 25.0-29.9)	32.2	(29.5-35.0)
Obese (BMI 30.0 and above)	51.9	(48.3-55.4)
Smoking Status		
Current smokers	31.3	(26.7-36.0)
Former smokers	44.2	(40.8-47.6)
No history of smoking	28.7	(26.7-30.7)
History of Cardiovascular Disease (CVD)		
Have CVD	70.5	(64.9-76.1)
No history of CVD	29.7	(28.0-31.3)
History of Diabetes		
Ever told have diabetes	76.9	(72.8-80.9)
Never told have diabetes	28.1	(26.4-29.7)
Insurance Status		
Have insurance	34.1	(32.5-35.8)
Do not have insurance	23.3	(16.4-30.3)

*Data suppressed due to fewer than 50 respondents or relative standard error ≥30.0%.

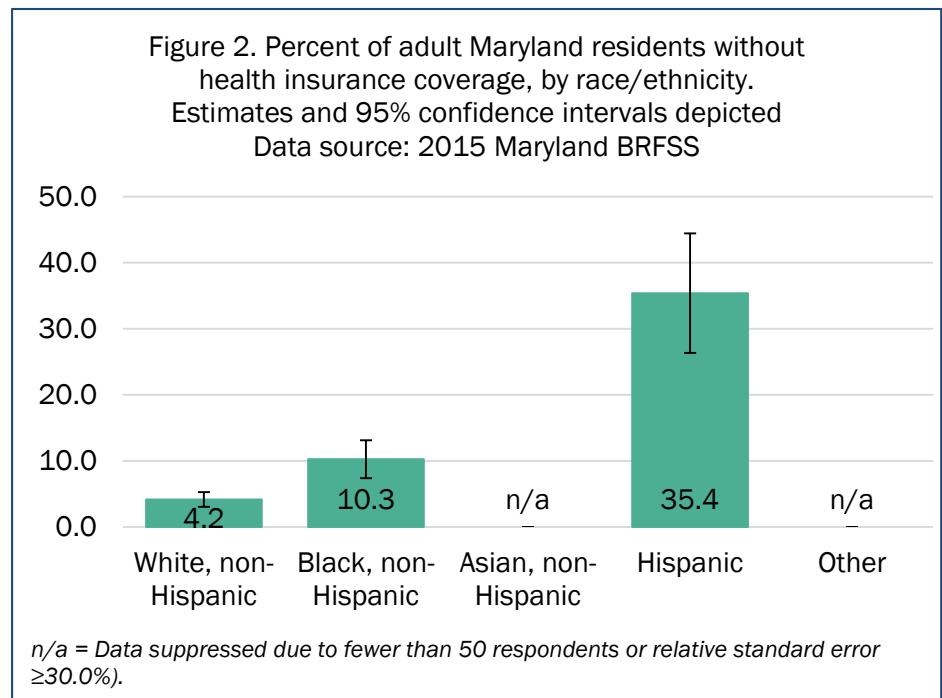
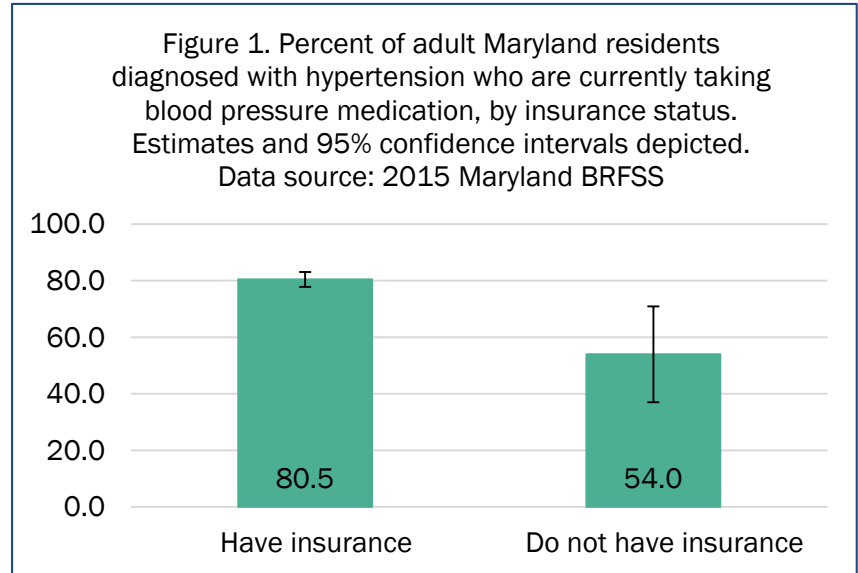
RESULTS

Among adult Maryland residents, one-third reported having ever been told they have high blood pressure; this equates to over 1.5 million Marylanders. Prevalence of high blood pressure was similar for men and women (34% vs. 32.3%) and increased with age, reaching 70.4% among Maryland residents age 75 and older. Hypertension prevalence was highest among Black non-Hispanic adults (39.6% vs. 34.3% White non-Hispanic, 15.3% Asian non-Hispanic, 18% Hispanic, and 35.3% other). Half (51.9%) of

Maryland residents classified as obese reported hypertension, compared to 32.2% of residents classified as overweight and 20.2% classified as having a healthy weight. Former smokers also reported hypertension more frequently than current smokers and residents with no history of smoking (44.2% vs. 31.3% and 28.7%, respectively). Prevalence of hypertension was associated with a history of CVD; 70.5% of people with a history of CVD reporting hypertension compared to 29.7% of people without CVD. Similarly, hypertension was associated with history of diabetes; 76.9% of people with diabetes reporting hypertension compared to 28.1% of people who have never been told they have diabetes. Hypertension prevalence also varied by insurance status; 34.1% of people who had insurance reported that they have been told they have high blood pressure, compared to 23.3% of people who did not have insurance.¹

Among adult Maryland residents who have been told they have high blood pressure, 78.9% reported that they were currently taking medication to control their blood pressure. Use of medication to control hypertension varied by insurance status: 80.5% (95% CI: 77.9% - 83.2%) of people with hypertension who had insurance reported taking medication to control their blood pressure, compared to 54% (95% CI: 37.1% - 71%) of people with hypertension who did not have insurance (see Figure 1). Not having health

insurance coverage was more common among Black, non-Hispanic and Hispanic adult Maryland residents compared to White non-Hispanic adult residents (10.3% and 35.4% vs. 4.2%, respectively) (see Figure 2).¹



CONCLUSIONS

The results of the 2015 Maryland BRFSS survey indicated that one-third of Maryland adults (33.1%) have been told they have hypertension.¹ The prevalence of hypertension varied by gender, race/ethnicity, weight classification, the existence of comorbid conditions, and insurance status. Evidence shows that health insurance coverage has beneficial effects on blood pressure control.¹¹ However, the BRFSS results showed insurance status was associated with a large discrepancy in current use of blood pressure medication to treat hypertension, as residents with insurance reported using medication 1.5 times as often as residents without insurance (80.5% vs. 54%).¹ Insurance coverage of Maryland adults varied by race/ethnicity. Black non-Hispanic residents reported having no insurance coverage more than twice as frequently as White non-Hispanic residents (10.3% vs. 4.2%).¹ This suggests disparities in treating and controlling hypertension in Maryland adults may be impacted by addressing disparities in insurance coverage.

As with many conditions, monitoring and medication are critical components of disease management. Team-based care that includes the patient, primary care physician, and other health care providers can help reduce and control blood pressure.¹² Hypertension is often asymptomatic; therefore it is important to regularly monitor blood pressure in all patients. The National Heart, Lung and Blood Institute recommends lifestyle changes, such as eating a healthy diet, being physically active, and quitting smoking to help control blood pressure.¹³ To address disparities, it is advisable to consider conventional approaches to hypertension management tailored to meet the needs of individual patients, including consideration for comorbid conditions and ability to afford treatment. In particular, enhanced efforts may be necessary to connect patients without health insurance to appropriate treatment.

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- 1 2015 Maryland BRFSS www.marylandbrfss.org
- 2 Centers for Disease Control and Prevention. High Blood Pressure Fact Sheet. http://www.cdc.gov/dhdsdp/data_statistics/fact_sheets/docs/fs_bloodpressure.pdf 03/25/16
- 3 Maryland Vital Statistics Annual Report 2014 http://dhmh.maryland.gov/vsa/Documents/14annual_revised.pdf 3/14/16
- 4 American Heart Association. Why Blood Pressure Matters. 2014. http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/WhyBloodPressureMatters/Why-Blood-Pressure-Matters_UCM_002051_Article.jsp#.VvAlaOlrKUK 3/18/16
- 5 Nwankwo T, Yoon SS, Burt V, Gu Q. Hypertension among adults in the US: National Health and Nutrition Examination Survey, 2011-2012. NCHS Data Brief, No. 133. Hyattsville, MD: National Center for Health Statistics, Centers for Disease Control and Prevention, US Dept of Health and Human Services, 2013. <http://www.cdc.gov/nchs/data/databriefs/db133.pdf>
- 6 American Heart Association. Keeping high blood pressure under control. http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/PreventionTreatmentofHighBloodPressure/Keeping-High-Blood-Pressure-Under-Control_UCM_460131_Article.jsp 3/21/16
- 7 Wall HK, Hannan JA, Wright, JS. Patients With Undiagnosed Hypertension Hiding in Plain Sight JAMA.2014;312(19):1973-1974. doi:10.1001/jama.2014.15388 <http://jama.jamanetwork.com/article.aspx?articleid=1935131>
- 8 American Heart Association. Prevention and Treatment of High Blood Pressure. http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/PreventionTreatmentofHighBloodPressure/Prevention-Treatment-of-High-Blood-Pressure_UCM_002054_Article.jsp#.V5uEQ_krKUK 7/29/16.
- 9 Centers for Disease Control and Prevention. About Adult BMI. www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html 05/23/2016
- 10 Centers for Disease Control and Prevention. BRFSS Questionnaires. <https://www.cdc.gov/brfss/questionnaires/index.htm> 2/10/17
- 11 McWilliams JM. Health Consequences of Uninsurance among Adults in the United States: Recent Evidence and Implications. The Milbank Quarterly. 2009;87(2):443-494. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2881446/> 7/8/16
- 12 Proia KK, Thota AB, Njie GJ, Finnie RKC, Hopkins DP, et al. Team-Based Care and Improved Blood Pressure Control: A Community Guide Systematic Review American Journal of Preventive Medicine 2014;47(1):86-99.
- 13 National Heart, Lung and Blood Institute. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure. NIH Publication No. 03-5233. 2003. <http://www.nhlbi.nih.gov/files/docs/guidelines/express.pdf> 7/7/16