

PREDIABETES IN MARYLAND

1.6 million Maryland adults are estimated to have prediabetes, but only 408,000 know their status, according to results from the 2014 Maryland Behavioral Risk Factor Surveillance System (BRFSS). This surveillance brief describes diabetes testing rates and prevalence of prediabetes for Maryland adults by age, gender, race/ethnicity, weight category, history of cardiovascular disease, and insurance status. Among Maryland adults who have never received a diagnosis of diabetes, 58.9% report having had a blood sugar test in the previous three years, and 10.5% report having been told they have prediabetes. One in 5 Marylanders age 45 and older who are obese (22.7%) have not been tested for diabetes in the previous 3 years despite having 2 risk factors for prediabetes and diabetes. By improving screening and testing rates, providers will be better able to refer and link at-risk people to community resources to take action to prevent progression to type 2 diabetes.

BACKGROUND

Prediabetes is a serious condition where blood glucose levels are higher than normal—A1C between 5.7 and 6.4, or Fasting Plasma Glucose between 100 and 125 mg/dL—but not high enough to be diagnosed as diabetes.¹ People with prediabetes have an increased risk of developing type 2 diabetes, and are at higher risk of developing heart disease and stroke.² The Centers for Disease Control and Prevention (CDC) report that 37% of U.S. adults age 20 and older (51% age 65 and older) have prediabetes, based on fasting blood glucose or A1C levels.² When applied to the Maryland population, this translates to 1.6 million residents age 20 and older who have prediabetes.

According to the CDC, 9 of 10 adults who have prediabetes do not know they have it.³ People at risk for type 2 diabetes can prevent or delay the disease by making modest lifestyle changes which include weight loss and physical activity, two factors that improve the body's ability to use and process glucose.⁴ Research has shown that people with prediabetes who participate in a structured lifestyle change program involving at least 150 minutes of physical activity per week and a 5% to 7% loss of body weight can cut their risk of developing type 2 diabetes by 58% (71% for people over 60 years old).⁴ The National Diabetes Prevention Program (National DPP) is an evidence-based lifestyle change program designed to help participants make these lifestyle changes to avoid developing type 2 diabetes. To find information about the National DPP in Maryland, please visit www.powertopreventdiabetes.org.

Testing to detect prediabetes and diabetes is recommended for adults of any age who are overweight or obese (BMI \geq 25, or \geq 23 in Asian Americans) and who have one or more additional risk factors for diabetes. For all others, especially those who are overweight, testing should begin at age 45.¹

METHODS

The Maryland Behavioral Risk Factor Surveillance System (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 diabetes testing and prediabetes diagnosis were included in an optional Prediabetes module in the 2014 Maryland BRFSS survey. Survey respondents were asked if they had been tested for high blood sugar or diabetes within the past three years. Respondents were also asked if they had ever been told by a doctor or other health professional that they have prediabetes or borderline diabetes. Female respondents were also asked: "Was this only when you were pregnant?" Records for respondents who answered yes to this question or to a previous question about having ever been told they have diabetes were excluded.

BRFSS survey respondents self-reported height and weight. Body Mass Index (BMI) was then calculated by the CDC using a standard formula.⁵ Overweight 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.⁵

People with prediabetes are at increased risk of developing heart disease and stroke.² History of cardiovascular disease (CVD) was assessed by a series of three questions about whether the respondent had ever been told by a doctor, nurse, or other health professional that they had a heart attack, that they have angina or coronary heart disease, or that they had a stroke.

Demographics and insurance coverage were documented based on self-report. To improve generalizability of the survey data and make statements about the health of Maryland residents, survey data were weighted by the CDC using a statistical procedure called raking to account for demographic differences between the survey sample population and the Maryland state population.

RESULTS

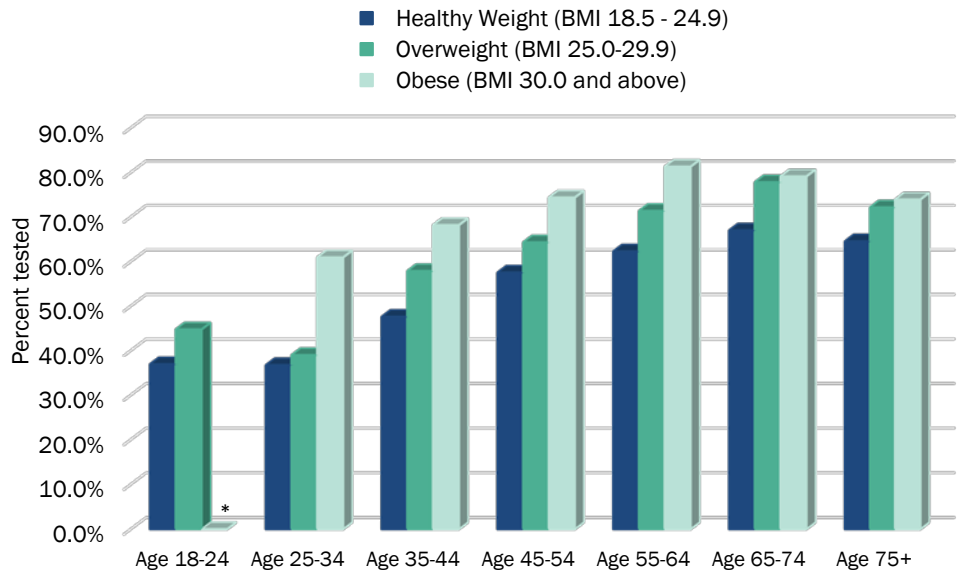
Among Maryland adults who have never received a diagnosis of diabetes, 58.9% report having had a blood sugar test in the previous 3 years. In Maryland residents age 45 and older, for whom risk of prediabetes is increased, 69.5% report having been tested in the previous 3 years.⁶ Reported testing rates were higher among women than among men (62.4% vs. 55.1%), and increased with increasing age, reaching 74.9% among 65 to 74 year olds.⁶ Testing rates were higher among White Non-Hispanic, Black Non-Hispanic, and Other racial/ethnic groups compared to Asians and Hispanics (60.6%, 62.0%, and 65.1% vs. 39.3% and 50.5%).⁶ Reported testing rates were higher for overweight and obese Maryland adults than for those of a healthy weight (60.6% and 69.4% vs. 50.3%).⁶ Reported testing rates were also higher for those with cardiovascular disease than for those without it (69.8% vs. 58.4%).⁶ In addition, testing rates were higher for Maryland residents who reported having insurance than for residents who reported no insurance coverage (61.4% vs. 38.6%).⁶

Among Maryland adults who have never received a diagnosis of diabetes, 10.5% report having been told they have prediabetes.⁶ The percent rises to 14.7% for Maryland adults age 45 and older.⁶ Prediabetes diagnoses were reported by 9.9% of men and 11.1% of women, and increased with increasing age.⁶ Prediabetes rates varied by race/ethnicity group, with Black Non-Hispanics, Asians, and Other race/ethnic groups reporting higher rates of prediabetes than White Non-Hispanics and Hispanics (12.4%, 11.8%, and 12.8% vs. 9.6% and 8.3%).⁶ Prediabetes rates were lowest among those with a healthy weight as measured by Body Mass Index (BMI), and increased with increasing weight category to 18.0% of those with a BMI of 30.0 or greater.⁶ Prediabetes rates were almost twice as high among Maryland residents with a history of cardiovascular disease as they were among residents with no history of cardiovascular disease (18.6% vs. 10.0%).⁶ Prediabetes was also reported by a higher percent of Maryland adults with health insurance than Maryland adults with no insurance (10.8% vs. 8.5%).⁶

CONCLUSIONS

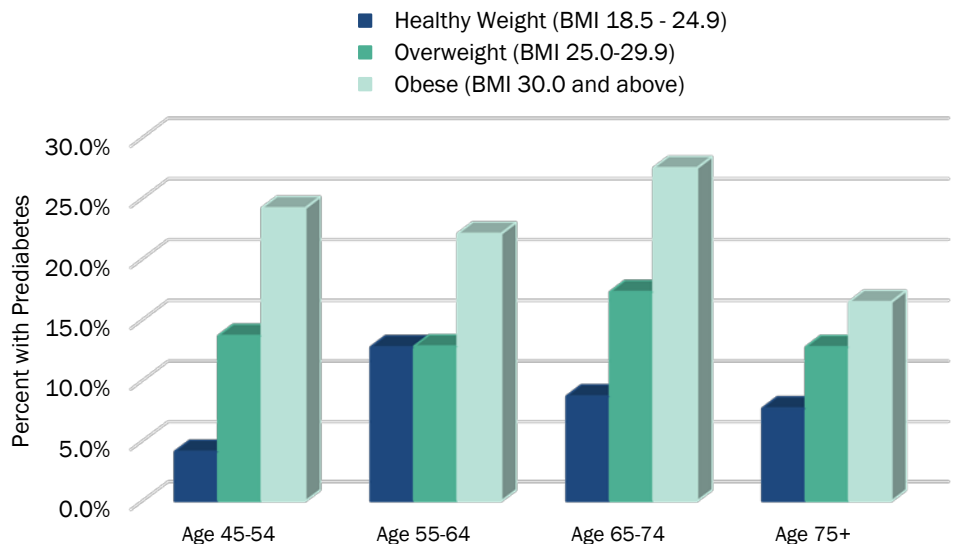
Based on 2014 Maryland BRFSS data, 10.5% of Maryland adults age 18+ had been told they have prediabetes (10.7% age 20+).⁶ This contrasts with the CDC estimate of 37% of adults age 20+ with prediabetes, which suggests a chasm between Maryland adults who have prediabetes and Maryland adults with prediabetes who know their status.²

Figure 1. Maryland adults who have been tested for diabetes in the previous three years, by age group and by weight classification, 2014 Maryland BRFSS



* Data not available

Figure 2. Maryland adults who have been told by a health professional they have prediabetes, by age group* and by weight classification, 2014 Maryland BRFSS



* Data not available for ages < 45 years old.

In addition, 58.9% of Maryland adults age 18+ had been tested for diabetes in the previous 3 years.⁶ Review of testing rates by age and weight category suggests health care providers may be testing according to guidelines; however, Maryland adults were not reporting they have been told they have prediabetes as frequently as expected.^{2,7} Among people age 45+ who were classified as obese, 77.3% report having been tested for diabetes in the previous 3 years; more than 1 in 5 Marylanders age 45+ who were obese (22.7%) reported not having been tested for diabetes in the previous 3 years despite having 2 risk factors for prediabetes and diabetes.⁶ These data support the CDC recommendation to increase awareness among the public about their risk of prediabetes. The data further support CDC recommendations to increase awareness among health care providers to ensure they are screening and testing patients for prediabetes and are referring appropriate patients to community based programs that can help them make lifestyle changes to reduce their risk of developing type 2 diabetes.

With screening and testing, people who are at risk or have prediabetes become aware of their status and can seek lifestyle change programs to achieve weight loss and increased physical activity. Without testing, people at high risk remain unaware of their status. Without making lifestyle changes, 15-30% of this population will develop diabetes within five years.

People can take an online quiz to assess their risk for prediabetes, and are encouraged to follow up with their health care provider if their score indicates risk for prediabetes. The National Diabetes Prevention Program (DPP) is proven to help participants avoid developing type 2 diabetes. This year-long lifestyle program has been shown to reduce the incidence of type 2 diabetes by 58%.⁴ Information about the online quiz and the National DPP is available at www.powertopreventdiabetes.org. Health care providers can refer patients with prediabetes to the National DPP classes which are available in Maryland and can be found at www.BeHealthyMaryland.org.

Table 1: Diabetes testing and prevalence of prediabetes in Maryland adults who are not living with diabetes, 2014 Maryland BRFSS

	Diabetes Testing in the Past Three Years		Prevalence of Prediabetes	
	%	95% CI	%	95% CI
Statewide	58.9	(57.1 - 60.7)	10.5	(9.5 - 11.6)
Gender				
Male	55.1	(52.2 - 57.9)	9.9	(8.4 - 11.5)
Female	62.4	(60.1 - 64.7)	11.1	(9.7 - 12.5)
Age				
Age 18-24	35.8	(29.2 - 42.4)	4.6	(1.5 - 7.8)
Age 25-34	45.6	(40.1 - 51.2)	5.6	(2.4 - 8.8)
Age 35-44	57.2	(52.7 - 61.6)	7.0	(4.7 - 9.2)
Age 45-54	65.2	(61.8 - 68.7)	13.9	(11.3 - 16.4)
Age 55-64	71.8	(68.9 - 74.8)	15.4	(13.0 - 17.7)
Age 65-74	74.9	(71.8 - 78.0)	17.7	(15.3 - 20.2)
Age 75+	69.1	(64.9 - 73.4)	11.2	(9.0 - 13.5)
Age 45+	69.5	(67.7 - 71.3)	14.7	(13.4 - 16.0)
Race/Ethnicity				
White Non-Hispanic	60.6	(58.5 - 62.7)	9.6	(8.4 - 10.8)
Black Non-Hispanic	62.0	(58.2 - 65.8)	12.4	(10.1 - 14.6)
Asian Non-Hispanic	39.3	(30.7 - 48.0)	11.8	(6.7 - 17.0)
Hispanic	50.5	(42.4 - 58.5)	8.3	(3.4 - 13.3)
Other	65.1	(56.3 - 74.0)	12.8	(7.7 - 18.0)
Weight Classification				
Healthy Weight (BMI 18.5 - 24.9)	50.3	(47.1 - 53.5)	5.0	(3.8 - 6.1)
Overweight (BMI 25.0-29.9)	60.6	(57.6 - 63.7)	9.8	(8.2 - 11.5)
Obese (BMI 30.0 and above)	69.4	(66.0 - 72.9)	18.0	(15.5 - 20.5)
Weight Classification, age 45+				
Healthy Weight (BMI 18.5 - 24.9)	61.7	(58.5 - 65.0)	8.1	(6.3 - 9.9)
Overweight (BMI 25.0-29.9)	70.2	(67.4 - 73.1)	14.0	(11.8 - 16.2)
Obese (BMI 30.0 and above)	77.3	(73.8 - 80.8)	23.5	(20.5 - 26.5)
History of Cardiovascular Disease (CVD)				
Have CVD	69.8	(63.6 - 76.0)	18.6	(14.4 - 22.9)
No history of CVD	58.4	(56.5 - 60.3)	10.0	(8.9 - 11.1)
Insurance Status				
Have insurance	61.4	(59.6 - 63.2)	10.8	(9.8 - 11.9)
Do not have insurance	38.6	(31.0 - 45.9)	8.5	(3.7 - 13.3)

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