

BRFSS SURVEILLANCE BRIEF

Volume 4 Number 1

DIABETES IN MARYLAND

BACKGROUND

Diabetes is a chronic disease with serious health implications. Nationally, 37.3 million adults or 11.3% of the United States adult population are estimated to have diabetes; 8.5 million or 23.0% of those are undiagnosed.ⁱ People with prediabetes, gestational diabetes, or overweight or obese weight classification have an increased risk of developing type 2 diabetes, as do people who are physically inactive, age 45 or older, have a parent or sibling with type 2 diabetes, or identify as African American, Hispanic/Latino American, or American Indian or Alaska Native.ⁱⁱ

People with diabetes have increased risk of severe complications including hypertension; stroke; kidney disease; lower-limb amputations; skin infections and disorders; glaucoma, cataracts, and other eye problems; and nervous system damage.ⁱⁱⁱ Diabetes requires continuous medical care with a variety of risk reduction strategies that go beyond glycemic control. These include self-management education; addressing cardiovascular risks such as blood pressure, lipid control, smoking prevention and cessation; weight management; physical activity; and regular monitoring for eye and foot health.^{iv}

This surveillance brief describes the prevalence of diabetes and the degree to which self-management behaviors and standards of care are met for people with diabetes in Maryland.

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 Centers for Disease Control and Prevention (CDC) guidance. Questions related to diabetes prevalence are

Key Findings

- In 2018-2020, 11.2% of Maryland adults reported ever being told they had diabetes.
- Diabetes prevalence is higher among Maryland residents who are African American, did not graduate from high school, or have at least one disability compared to other adults.
- Adults classified as obese, former smokers, and engaging in no physical activity reported diabetes more frequently than other adults.
- Despite the benefits to participating in diabetes self-management education, just over half of Maryland residents with diabetes (54.1%) had ever taken a course or class to manage their diabetes themselves in 2019.
- Less than half of Maryland residents (47.4%) received the American Diabetes Association (ADA) recommended frequency of A1c tests, dilated eye exams, and feet exams over the previous year in 2019, which decreased to 45.5% in 2020.
- People who had ever taken a course or class to manage their diabetes themselves were more likely to receive the recommended frequency of A1c tests, dilated eye exams, and feet exams over the previous year (64.9%) compared to people who have never taken a course (34.9%).
- One in three (34.8%) people with diabetes reported postponing diabetes care in 2020 due to the COVID-19 pandemic.
- Interventions are needed to increase access to diabetes care, promote the ADA “Standards of Medical Care for Diabetes,” and increase access and utilization of diabetes-self management education and supports.

Table 1: Prevalence of diabetes among Maryland adults, 2018-2020 (excludes women only told during pregnancy).

	%	95% CI
Statewide	11.2	10.8 – 11.6
Gender		
Male	11.5	10.9 – 12.1
Female	10.9	10.4 – 11.5
Race/Ethnicity		
White non-Hispanic	10.2	9.7 – 10.6
Black non-Hispanic**	14.1	13.3 – 15.0
Asian non-Hispanic	11.7	9.4 – 14.0
Hispanic**+	7.2	5.8 – 8.5
Age		
18 – 24	*	
25 – 34**	2.4	1.8 – 3.1
35 – 44**	5.7	4.8 – 6.6
45 – 54**	12.1	11.1 – 13.2
55 – 64**	17.6	16.5 – 18.7
65 and up**	22.6	21.7 – 23.5
Weight Classification		
Healthy weight (BMI 18.5 to 24.9)	5.4	4.8 – 6.0
Overweight (BMI 25.0 to 29.9)**	10.1	9.5 – 10.8
Obese (BMI 30.0 and above)**	19.1	18.3 – 20.0
Smoking Status		
No history of smoking	9.5	9.0 – 9.9
Current smoker**	11.3	10.1 – 12.4
Former smoker**	16.5	15.6 – 17.5
Physical Activity or Exercise		
Reported Physical Activity	9.4	9.0 – 9.8
Reported No Physical Activity**	18.1	17.0 – 19.1
Disability		
No disability	8.4	8.0 – 8.8
One or more disabilities**	21.6	20.5 – 22.7
Education		
Graduated high school	10.7	10.3 – 11.0
Did not graduate high school**	16.1	14.3 – 17.9
Density		
Urban	11.2	10.8 – 11.6
Rural**	12.9	11.4 – 14.4

*Unreliable estimates due to small sample sizes.
 **Significantly different (p < .05) than reference group (first row in given category) using the Rao-Scott chi square test.

included annually in the core section of the survey. Questions related to diabetes management are included as state-added questions every other year. For more information about Maryland BRFSS questionnaires, please visit the [Maryland BRFSS website](https://www.maryland.gov/ohd/brfss/).

To improve the generalizability of the survey data, making it possible to draw conclusions about the health of Maryland residents, CDC weights the data using iterative proportional fitting, also known as raking, to account for demographic differences between the survey sample and Maryland’s population. Data included in this document is not age-adjusted.

RESULTS

Prevalence of Diabetes

In 2018-2020, 11.2% of Maryland adults reported ever being told they had diabetes, excluding people who were only told during pregnancy (Table 1). Diabetes prevalence was similar for males and females (11.5% vs. 10.9%) and varied by race/ethnicity (14.1% Black residents, 11.7% Asian non-Hispanic, 10.2% White non-Hispanic, and 7.2% Hispanic). Of note, the Hispanic population in this sample is skewed towards being younger compared to other race/ethnicity groups, which may explain the lower diabetes prevalence rate. Diabetes prevalence was significantly higher among people who live in rural areas (12.9% who live in rural areas vs. 11.2% who live in urban areas), who did not graduate high school (16.1%

who did not graduate high school vs. 10.7% who graduated from high school), and who have one or more disabilities (21.6% who have one or more disability vs. 8.4% who do not have a disability).

Adults classified as obese, former smokers, and individuals engaging in no physical activity reported diabetes significantly more frequently than other adults (19.1% obese and 10.1% overweight vs. 5.4% healthy weight; 16.5% former smoker and 11.3% current smoker vs. 9.5% no history of smoking; and 18.1% engaging in no physical activity vs. 9.4% engaging in physical activity).

Diabetes Self-Management and Standards of Care¹

In 2019, over half of Maryland residents with diabetes reported monitoring their blood for glucose or sugar every day (61.4%) and checking their feet for sores or irritations every day (59%), and less than one third (31.8%) of Maryland residents reported currently taking insulin (Table 2).

Most people with diabetes (89.2%) saw a doctor, nurse, or other health professional for diabetes at least once over the past year, with the majority of people visiting three to four times (43.3%) (Table 3). People with diabetes who reported their race/ethnicity as Black were more likely to visit a health professional for their diabetes five or more times over the past year compared to other adults (14.1% Black residents vs. 9.3% White residents). People with diabetes reported seeing their doctor for diabetes significantly less frequently in 2020 compared to 2019 (43.3% saw their doctor 3-4 times in 2019 vs. 38.4% in 2020; 34.5% saw their doctor 1-2 times in 2019 vs. 37.3% in 2020).

More than half (54.1%) of Maryland adults with diabetes reported they have ever taken a course or class on how to manage their diabetes themselves (Table 3). However, this varied by race/ethnicity and education. People with diabetes who reported their race/ethnicity as White and people who did not graduate high school were less likely to take a diabetes self-management course or class compared to other adults (53.5% White residents vs. 59.8% Black residents; 35.5% who did not graduate high school vs. 58% who graduated from high school).

Approximately 47% of people with diabetes reported receiving the American Diabetes Association (ADA) “Standards of Medical Care in Diabetes” recommendations for frequency of A1c tests, dilated eye exams, and feet exams over the past year: at least two A1c tests, at least one dilated eye exam, and at least one feet exam (Table 3). For each individual test, roughly three quarters of people with diabetes reported receiving a dilated eye exam (73.4%), having their A1c checked by a doctor, nurse, or other health professional at least twice (73.6%), and having a health professional check their feet for any sores or irritations at least once in the past 12 months (77.6%). People with diabetes who did not graduate high school were significantly less likely to receive the recommended care compared to other adults (29.7% who did not graduate high school vs. 56.6% who graduated from high school). People with diabetes who have ever taken a course or class in how to manage their diabetes were significantly more likely to receive all recommended standards of care compared to people who have never taken a course (64.9% (95% CI: 61.1 – 68.8) among people who have ever taken a course vs. 34.9% (95% CI: 31.1 – 38.8) who have never taken a course). Further, people with diabetes were significantly less likely to receive all three recommended diabetes tests in 2020 compared to 2017 and 2019 (51.1% in 2017, 47.4% in 2019, 45.5% in 2020).

Table 2: Self-glucose monitoring, self-foot exams, and insulin use reported by Maryland adults, 2019 (excludes women only told during pregnancy).

	%	95% CI
Self-Glucose Check		
Daily	61.4	58.4 – 64.4
Less than Daily	26.7	23.9 – 29.4
Never	12.0	10.0 – 13.9
Self-Foot Check		
Daily	59.0	50.5 – 64.8
Less than Daily	24.6	21.9 – 27.2
Never	16.4	13.9 – 18.9
Insulin Use		
Uses insulin	31.8	29.0 – 34.7
Does not use insulin	68.2	65.3 – 71.0

¹ 2019 data are reported for diabetes self-management and care behaviors because 2020 data may not be reliable due to the COVID-19 pandemic.

Table 3: Engagement in diabetes standards of care reported by Maryland adults with diabetes, 2019 (excludes women only told during pregnancy).

	Overall	Race/Ethnicity		Density		Education	
		White	Black	Urban	Rural	Did not graduate High School	Graduated High School
Ever Took a Self-Management Course							
Yes (95% CI)	54.1 (51.1-57.2)	53.5 (50.0-57.0)	59.8** (54.9-64.7)	54.2 (51.2-63.1)	48.1 (38.8-57.4)	35.5 (25.8-45.1)	57.5** (54.4-60.5)
Maintains All Standards of Care in Past 12 Months***							
Yes	47.4 (44.3-50.4)	48.5 (44.9-52.1)	50.1 (45.0-55.3)	47.2 (44.1-50.4)	55.3 (45.8-64.7)	30.6 (21.1-40.1)	50.0** (46.8-53.1)
Times Saw Health Professional for Diabetes in Past 12 Months							
None	10.8 (8.6-13.0)	9.7 (7.4-11.9)	8.6 (5.6-11.6)	10.8 (8.6-13.1)	*	*	10.2 (8.0-12.4)
One-Two	34.5 (31.7-37.3)	38.2 (34.8-41.7)	31.4** (26.6-36.1)	34.4 (31.6-37.3)	38.0 (28.6-47.5)	31.7 (22.1-41.3)	35.0 (32.1-38.0)
Three-Four	43.3 (40.2-46.3)	42.8 (39.3-46.4)	46.0 (41.0-51.0)	43.3 (40.2-46.3)	43.3 (34.1-52.5)	35.4 (25.4-45.5)	44.5 (41.4-47.7)
Five +	11.5 (9.4-13.5)	9.3 (6.9-11.6)	14.1** (10.7-17.4)	11.5 (9.4-13.5)	*	*	10.3 (8.4-12.1)
*Unreliable estimates due to small sample sizes.							
**Significantly different (p < .05) from reference group (column to left).							
***Defined as at least two A1c tests, at least one dilated eye exam, and at least one feet exam.							
Asian and Hispanic Race/Ethnicity categories were suppressed due to small sample size.							

CONCLUSION

Data from the 2018-2020 Maryland BRFSS indicate 11.2% of Maryland adults have a known diagnosis of diabetes, which is comparable to the 2018-2020 national BRFSS rate of 11.3% of adults with diagnosed diabetes.^v The prevalence of diabetes was higher among certain racial and ethnic groups and people who are obese, former smokers, report no physical activity, have one or more disabilities, did not graduate high school, and live in rural areas. In 2019, less than half of adults with diabetes (47%) received care consistent with the ADA “Standards of Medical Care in Diabetes” for A1c tests, dilated eye exams, and feet exams.

The ADA Clinical Guidelines recommend everyone with diabetes participate in diabetes self-management education and support. Studies have shown that education and training in diabetes self-management skills and practices are effective for improving hemoglobin A1c levels and medication adherence, increasing healthier lifestyle behaviors and self-efficacy, and decreasing severe diabetes-related complications and hospitalizations.^{vi} Further, in Maryland, people with diabetes who have taken a course or class in how to manage their diabetes were significantly more likely to receive the recommended standard of care for A1c tests, dilated eye exams, and feet exams. However, just over half of Maryland adults with diabetes (54.1%) reported ever taking a diabetes self-management course, and only one-third (35.5%) of adults with diabetes who did not graduate high school reported ever taking a course. These data support the ADA and CDC recommendation to increase access and utilization of diabetes self-management education and support for all persons with diabetes, and particularly for those experiencing health inequities.

In Maryland, diabetes education and training programs include the ADA-recognized or Association of Diabetes Care & Education Specialists (ADCES)-accredited Diabetes Self-Management Education and Supports (DSMES) program and the Stanford Diabetes Self-Management Program (DSMP). Self-management education is offered throughout Maryland in outpatient and community settings and via telehealth during the COVID-19 public health emergency. People with diabetes and their healthcare providers can find local diabetes management programs on the [Maryland Department of Health](#) website. Providers should consider referring people with diabetes to a DSMES or DSMP program at their initial diagnosis.

Data suggest the COVID-19 pandemic may have had an impact on diabetes care in Maryland. One in three (34.8%) people with diabetes reported not seeking or postponing necessary medical care or medical appointments in 2020 due to the COVID-19 pandemic. This is consistent with people visiting their doctor for diabetes less frequently and less people receiving the recommended standard of care for frequency of A1c tests, dilated eye exams, and feet exams in 2020 compared to 2019. Interventions to support access to care and promote the ADA standards of care are warranted, especially in the context of a global pandemic which has exacerbated financial hardships that disrupt people's ability to manage their diabetes.^{vii}

References

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