



# MICHIGAN BRFSS SURVEILLANCE BRIEF

A NEWSLETTER FROM THE CHRONIC DISEASE EPIDEMIOLOGY UNIT, MDCH

## Preventive Health Behaviors Within the Michigan Adult Population

**Background.** Risk factors associated with developing type 2 diabetes consist of both non-modifiable factors, such as age, and modifiable causes, such as obesity, inadequate physical activity, and prediabetes.<sup>1</sup> In 2012, 31.1% of the Michigan adult population was classified as obese. While CDC estimates indicate that approximately 2.6 million Michigan adults have prediabetes, Michigan Behavioral Risk Factor Survey (MiBRFS) data show that only about 500,000 Michigan adults have prediabetes.<sup>2</sup> Prediabetes status significantly increases the risk of developing diabetes (potentially up to 70%).<sup>3</sup> Studies have shown that modest lifestyle changes, losing 5-7% body weight and being physically active at least 150 minutes a week, reduce the risk of diabetes among people with prediabetes.<sup>4</sup>

Based on 2012 data, nearly 800,000 Michigan adults reported being diagnosed with diabetes. Among Michigan adults with diabetes, approximately 56% were classified as obese, and about 60% reported participating in some form of leisure-time physical activity within the past month. Weight management, diet, and adequate physical activity have also been shown to be crucial in controlling diabetes.<sup>5</sup>

In this brief, preventive health behaviors are reported for both Michigan adults who have prediabetes or are at risk of diabetes, as well as for persons with diabetes (PWD).

**Methods.** One question related to lifetime diagnosis of diabetes was included within the core of the 2012 MiBRFS. State-added questions focusing on prediabetes diagnosis and the use of preventive health behaviors were also included.

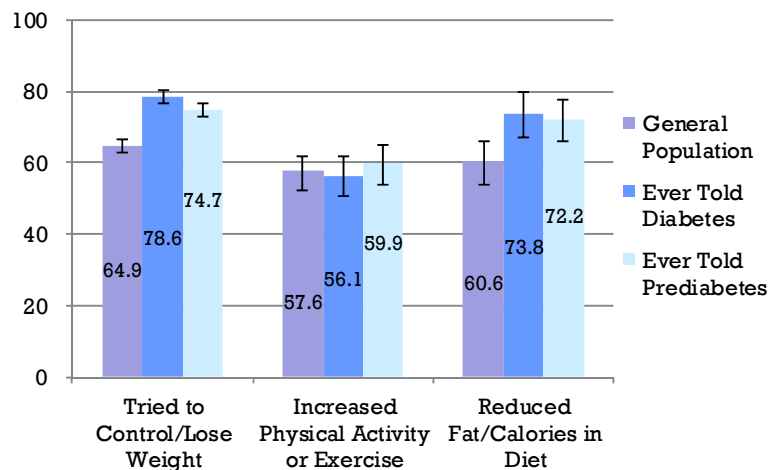
These data were used to assess the prevalence of preventive health behaviors during the past 12 months among Michigan adults by diabetes and prediabetes status. This relationship was also examined among different subgroups, including those who were classified as obese and those who were 45-64 years of age.

The diabetes question was included in all three splits of the 2012 MiBRFS, while the prediabetes questions were included in only one split. Accurately calculating a combined variable (i.e., diabetes, prediabetes, or neither) was not possible, therefore diabetes and prediabetes status were calculated separately.

**Results.** In 2012, 10.5% (9.7-11.2) of Michigan adults reported ever being diagnosed with diabetes, while an additional 7.3% (6.4-8.3) reported ever being diagnosed with prediabetes. Michigan adults with diabetes (78.6%) or prediabetes (74.7%) were more likely than the general population (64.9%) to have tried to control their weight or lose weight within the past 12 months (Figure 1). When compared to the general population, adults with diabetes and adults with prediabetes reported similar increases in physical activity or exercise during the past 12 months, but were more likely to have reduced the fat or calories in their diet (Diabetes: 73.8%; Prediabetes: 72.2%; General Population: 60.6%). Furthermore, adults with diabetes and adults with prediabetes were more likely to have reduced fat or calories in their diet than increase physical activity or exercise over the past 12 months (Figure 1).

Among obese adults, the prevalence of trying to control or lose weight during the past 12 months was comparable among all three groups (General Population: 83.5%; Diabetes: 86.5%; Prediabetes: 88.8%) [Table 1]. In addition, the prevalence of reducing the amount of fat or calories in their diet was significantly higher than the prevalence of increased physical activity and

Figure 1. Preventive Health Behaviors During the Past 12 Months Among Michigan Adults, 2012 Michigan BRFS



### MiBRFSS News

- The 2012 MiBRFSS annual tables were released on June 25th. All of these tables are available for download on the MiBRFSS website ([www.michigan.gov/brfs](http://www.michigan.gov/brfs)).
- State-added question proposals for the 2014 MiBRFSS will be accepted for consideration through July 31st.
- Did you miss an issue of *Michigan BRFSS Surveillance Brief*? Back issues are available on our website.

exercise among all three groups (Table 1).

Similarly, among Michigan adults 45-64 years of age, those who were ever diagnosed with diabetes were more likely than the general population of this age group to have both attempted to control their weight or lose weight (Diabetes: 80.1% vs. General Population: 68.8%) and reduced the fat or calories in their diet (Diabetes: 77.5% vs. General Population: 64.7%). Furthermore, these groups were similar in terms of increasing their physical activity or exercise during the past 12 months (Table 2).

**Conclusions.** Modest lifestyle changes for those at risk for diabetes have been shown to be more effective than metformin treatment in reducing the incidence of diabetes among persons with prediabetes.<sup>4</sup> Lifestyle therapy among PWD assists in prevention and management of diabetes complications.<sup>5</sup>

The ADA recommends weight loss among all overweight or obese individuals who have diabetes or are at risk for diabetes.<sup>6</sup> Independent of diabetes or prediabetes status, over 80% of Michigan adults who were classified as obese reported actively trying to manage their weight. Over 70% also reported reducing their dietary fat and caloric intake.

While weight is the predominant factor in the risk of developing type 2 diabetes, age is also a factor.<sup>6</sup> In Michigan, PWD aged 45-64 years tended to be more conscious about weight management and were more likely to monitor weight through dietary strategies than the general population and those without diabetes or prediabetes within the same age group.

Evidence from the Diabetes Prevention Program study demonstrated the importance of physical activity in the reduction of diabetes risk, in combination with weight loss, for people with prediabetes.<sup>4</sup> In 2012, nearly 60% of the general population increased their physical activity within the past year. Even though adult PWD and adults with prediabetes were more conscientious about their diet, the prevalences of those who increased their physical activity were comparable to the general population. Similar results were observed for both those who were classified as obese and those 45-64 years of age.

Both adult PWD and adults with prediabetes were more inclined than the general population to attempt to control or lose weight through changes in diet and less so through increased physical activity. Physical activity is vital to glycemic control, thus more research may be needed into the barriers to physical activity among PWD and persons at high risk.

**References**

- <sup>1</sup> Karam JG, McFarlane SI. Update on the prevention of type 2 diabetes. *Curr Diab Rep.* 2011; 11: 56-63.
- <sup>2</sup> Michigan Department of Community Health. Prediabetes in Michigan 2011 - The Facts. [www.michigan.gov/diabetes](http://www.michigan.gov/diabetes).
- <sup>3</sup> Nathan DM et al. Impaired fasting glucose and impaired glucose tolerance. Consensus Statement. *Diabetes Care.* 2007; 30:753-759.
- <sup>4</sup> Diabetes Prevention Research Group. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *NEJM.* 2002; 346:393-403.
- <sup>5</sup> Nelson SE. Management of Patients with Type 2 Diabetes. *Curr Med Res Opin.* 2011; 27:1931.1947.
- <sup>6</sup> American Diabetes Association: Clinical Practices and Recommendations - 2013. *Diabetes Care.* 2013; 36:S1-S110.

**Table 1. Preventive Health Behaviors During the Past 12 Months Among Michigan Adults Classified as Obese, 2012 Michigan BRFSS**

	<b>Tried to Control/Lose Weight</b>	<b>Increased Physical Activity or Exercise</b>	<b>Reduced Fat/Calories in Diet</b>
	<b>% (95% CI)</b>	<b>% (95% CI)</b>	<b>% (95% CI)</b>
General Population	83.5 (80.7-86.0)	62.9 (59.5-66.2)	75.2 (71.9-78.3)
Ever Told Diabetes	86.5 (79.3-91.5)	59.3 (51.3-66.9)	77.9 (69.2-84.7)
Ever Told Prediabetes	88.8 (82.4-93.0)	64.7 (55.3-73.1)	84.0 (76.3-89.5)

**Table 2. Preventive Health Behaviors During the Past 12 Months Among Michigan Adults Aged 45-64 Years, 2012 Michigan BRFSS**

	<b>Tried to Control/Lose Weight</b>	<b>Increased Physical Activity or Exercise</b>	<b>Reduced Fat/Calories in Diet</b>
	<b>% (95% CI)</b>	<b>% (95% CI)</b>	<b>% (95% CI)</b>
General Population	68.8 (65.9-71.4)	57.0 (54.2-59.8)	64.7 (61.9-67.4)
Ever Told Diabetes	80.1 (70.8-86.9)	61.4 (53.5-68.7)	77.5 (68.4-84.6)
No Diabetes	67.0 (64.0-69.9)	56.4 (53.4-59.3)	62.8 (59.7-65.7)
Ever Told Prediabetes	73.3 (63.4-81.3)	59.8 (50.5-68.5)	69.7 (60.3-77.7)
No Prediabetes	66.3 (63.1-69.3)	55.9 (52.7-59.1)	61.9 (58.7-65.0)

**The Michigan Behavioral Risk Factor Surveillance System (MiBRFSS)**

The MiBRFSS comprises annual, statewide telephone surveys of Michigan adults aged 18 years and older and is part of the national BRFSS coordinated by the CDC. The annual Michigan Behavioral Risk Factor Surveys (MiBRFS) follow the CDC BRFSS protocol and use the standardized English core questionnaire that focuses on various health behaviors, medical conditions, and preventive health care practices related to the leading causes of mortality, morbidity, and disability. Landline and cell phone interviews are conducted across each calendar year. Data are weighted to adjust for the probabilities of selection and a raking weighting factor that adjusts for the distribution of the Michigan adult population based on eight demographic variables. All analyses are performed using SAS-callable SUDAAN® to account for the complex sampling design.

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