



Diabetes Then and Now: 2011 and 2021

Key Findings

- Montanans with diabetes and their care givers have done well at following standards for blood testing and glucose monitoring.
- Four out of five Montana adults with diabetes have seen a healthcare professional about their diabetes at least once within the past year.
- Foot checks, both at home and at the caregiver's office, need to be more widely practiced.
- Many people with diabetes are not getting the eye exams they need to protect their vision.
- Three out of five Montana adults living with diabetes have had a course on managing their condition.

Introduction

Nearly one in ten (9%) Montanan adults live with diabetes, with 42% of them requiring insulin therapy. The burden of diabetes, as well as engagement in diabetes self-care practices is monitored by the Montana Diabetes Program (MDP). These practices include how frequently the person is seeing a healthcare provider for their diabetes, blood glucose monitoring at home and at the healthcare provider's office, eye exams and eye health, and foot exams at home and at the healthcare provider's office. These behaviors align with practices recommended by the American Diabetes Association (ADA) as recurring facets of the annual Standards of Care in Diabetes published through their journal, Diabetes. The purpose of this report is to describe diabetes self-care practices and how widely these are engaged in among Montana adults with diabetes.

Questions?



Best Practices for Healthcare Providers

- Review the [Standards of Care in Diabetes – 2023](#) published by the ADA for the most current recommendations.
- Identify barriers to accessing health care and support for diabetes management that may occur at the health system, payer, health care professional, and individual levels.

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Results from the 2011 and 2021 Behavioral Risk Factor Surveillance System

The data used in this report come from the 2011 and 2021 Behavioral Risk Factor Surveillance System (BRFSS). The BRFSS is a telephone survey conducted annually among non-institutionalized persons aged 18 or more years. Participants are randomly selected using both cell phone and land line numbers. In Montana, the diabetes module is asked in odd numbered years¹.

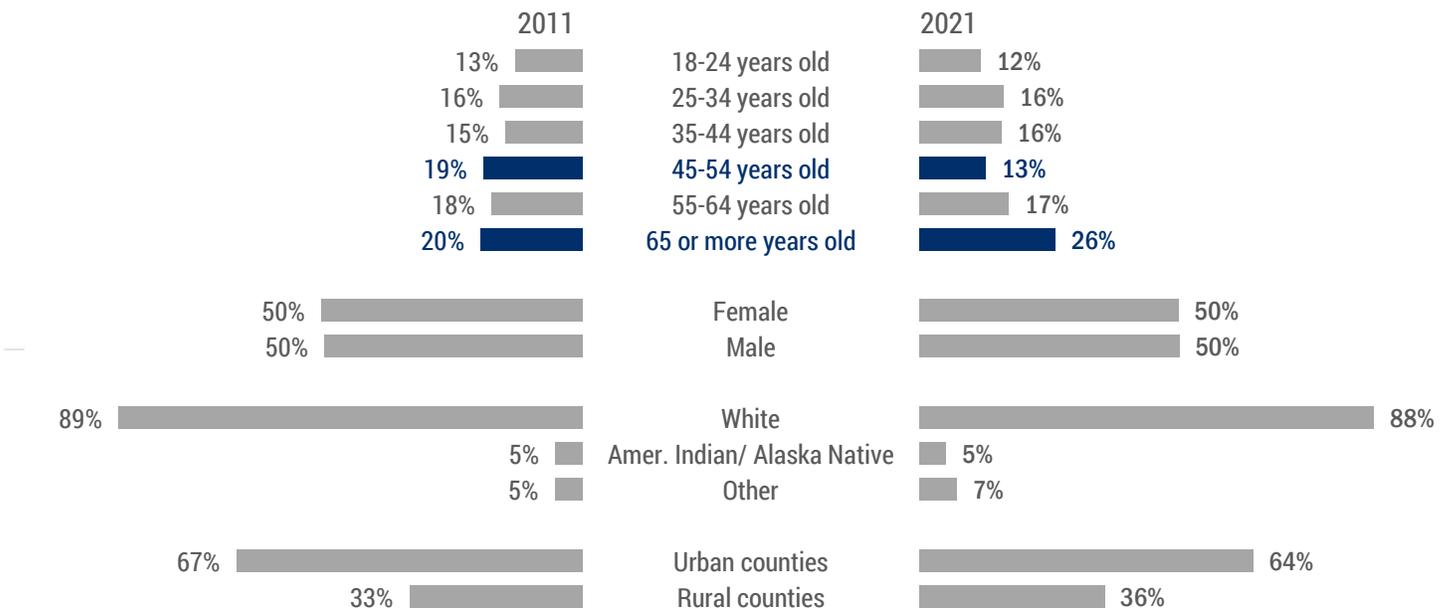
The purpose of this report is to describe results from the diabetes module and how the most recent available results compare to ten years prior. The results are weighted and drawn from a total of 16,508 surveys. Weighting strata are provided in the dataset. A total of 1,744 survey participants reported living with diabetes; this report does not include responses where the participant reported gestational diabetes. Significance testing was determined using a chi-square test.

About the Sample

There were 10,265 Montanan adults surveyed in 2011, and 6,243 in 2021. After weighting, the populations were similar with exceptions in the age distribution (Figure 1); data reported throughout this report were age-adjusted using the 2000 Census Standard population to correct for this difference.

The prevalence of diabetes increased from 8% in 2011 to 9% in 2021; this does not indicate a significant increase ($p < 0.05$). The incidence of newly diagnosed cases increased from 47 cases per 10,000 adult population in 2011 to 60 cases per 10,000 population; this indicates a statistically significant increase ($p > 0.05$). Among adults with diabetes, the use of insulin therapy increased from 38% in 2011 to 42%; this does not indicate a statistically significant change ($p > 0.05$).

Figure 1. Although many things changed from 2011 to 2021, Montana's demographics remained the same (aside from getting a little bit older).



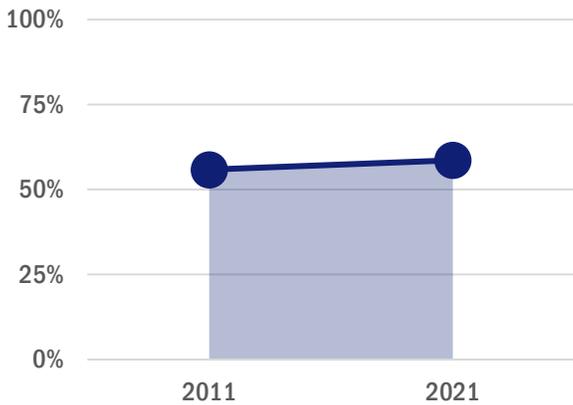


Health Seeking Behavior and Diabetes Management

The ADA recommends that individuals with diabetes have regular medical check-ups to monitor their condition and manage their health effectively. The specific frequency of visits may vary depending on the individual's type of diabetes, overall health, and treatment plan. However, there is not a specific "one-size-fits-all" recommendation for how often a person with diabetes should see their healthcare provider. Generally, people with diabetes should have at least an annual comprehensive check-up with their healthcare provider².

In 2011, 75% of people with diabetes reported seeing their healthcare provider for diabetes at least once in the past year. This increased to 80% in 2021. This increase did not indicate a statistically significant difference ($p > 0.05$).

Figure 2. Nearly 3 out of every 5 Montanans with diabetes have attended DSMES or a similar program.



Diabetes Self-Management and Education Support (DSMES) is recommended for all people with diabetes to facilitate the knowledge, decision-making, and skills mastery for diabetes self-care. According to the ADA, there are four critical times to evaluate the need for DSMES: at diagnosis, annually and/or when not meeting treatment targets, when complicating factors develop (medical, physical, psychosocial), and when transitions in life and care occur².

Barriers to accessing DSMES should also be identified at the health system, payer, health care professional, and individual levels. This includes addressing social determinants of health that may influence the need for program tailoring. Digital health options and telehealth are also available for delivering this program².

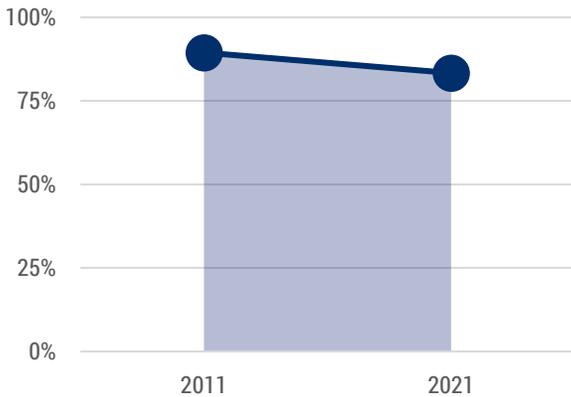
In 2011, 56% of Montanans with diabetes reported having attended DSMES or a similar program. This increased to 59% of people with diabetes in 2021; this indicated a statistically significant difference ($p \leq 0.05$; Figure 2).

Blood Sugar

The ADA has several recommendations regarding testing and monitoring blood glucose. Not only is this helpful for the diagnosis of diabetes, but it also can aid in evaluating treatment plans. When managing care for patients with diabetes, the ADA recommends assessing glycemic status at least two times a year in patients meeting treatment goals and who have stable glycemic control. This increases to quarterly among patients whose therapy has recently changed or who are not meeting glycemic goals².

In 2011, 85.4% of people with diabetes reported having their blood A1C checked by a doctor, nurse, or other health professional in the last year. This decreased to 84.7% in 2021. Although this decrease is statistically significant ($p \leq 0.05$), we at the Montana Diabetes Program do not believe it to be clinically significant regarding change over 10 years.

Figure 4. **Most people on insulin check their glucose daily**, however this number should be closer to 100%.



Self-monitoring of blood glucose (SMBG) in patients on noninsulin therapies may not consistently lead to clinically significant reductions in A1C levels. However, it can still be beneficial when making changes to diet, physical activity, and/or medications, especially those that can cause hypoglycemia, in conjunction with a treatment adjustment program. For individuals using insulin (approximately 35% of Montanan adults with diabetes), SMBG should be encouraged based on their specific insulin regimen and appropriate testing guidelines. Furthermore, when integrated into a comprehensive diabetes self-management education and support program, SMBG can help guide treatment decisions and enhance self-management practices, particularly for patients who require less frequent insulin injections².

In 2011, 89% of people on insulin therapy reported checking their glucose at least daily. This was reported by 83% of people on insulin therapy in 2021, this indicated a statistically significant decrease (Figure 4, $p \leq 0.05$).

Eye Exams

Diabetes-related retinal disease (DRD), also known as diabetic retinopathy, is a sight-threatening complication of diabetes as a result from high blood glucose levels damaging small vessels in the eyes. Regular monitoring of blood sugar levels, maintaining a healthy lifestyle, and adhering to prescribed medication regimens can significantly reduce the risk of developing DRD. It is essential for individuals with diabetes to work closely with healthcare professionals to manage their condition effectively and mitigate the risk of complications such as DRD².

Early symptoms of DRD may include blurred vision, floaters, and difficulty seeing at night. If any of these symptoms are experienced, immediate medical attention should be sought to prevent further deterioration of vision and explore appropriate treatment options². The prevalence of DRD among Montana adults in 2011 (17%) was similar to the prevalence in 2021 (16%, $p > 0.05$).

The ADA recommends that individuals with diabetes undergo an initial dilated eye examination shortly after their diagnosis. For individuals without any signs of diabetic retinopathy, subsequent dilated eye exams should be conducted at least every two years. However, for those with signs of or at risk for diabetic eye disease, more frequent examinations, such as annually or as recommended by an eye care specialist, may be necessary. It is important to note that these recommendations may vary depending on an individual's specific circumstances, and it is best to consult with an eye care professional for personalized guidance².

In 2011, 73% of adults with diabetes reported having a dilated eye exam in the prior 2 years. This increased to 74% in 2021. While this indicated a statistically significant increase ($p \leq 0.05$), we at the Montana Diabetes Program do not see this as clinically significant for describing a change over 10 years.



Foot Exams

Foot exams are important for people with diabetes to identify and prevent potential complications such as foot ulcers, infections, and nerve damage. Regular examinations help detect any early signs of issues, allowing for timely intervention and proper management to maintain foot health and overall well-being².

ADA recommendations stress the importance of regular foot examinations for individuals with diabetes. It is advised that people with diabetes receive a comprehensive foot examination by a healthcare professional at least once a year. This examination should include an assessment of the foot's skin, nails, circulation, sensation, and structure. Prompt reporting of any foot problems is crucial for preventing foot-related comorbidities and amputations².

In 2011, 66% of people with diabetes reported having their feet checked by a doctor, nurse, or other health professional. This increased to 68% in 2021. This did not indicate a statistically significant difference ($p > 0.05$).

Daily foot checks empower individuals to take an active role in their self-care and promote overall foot health. According to ADA guidelines, individuals with diabetes are advised to perform daily self-examinations of their feet to check for any signs of injury, such as cuts, blisters, redness, swelling, or changes in skin temperature. Self-foot exams can also be performed by a friend or family member. Prompt detection of signs of injury allows for timely intervention, reducing the risk of infections or ulcers². This was reported by 71% of people with diabetes in 2021. Comparison was not possible due to availability of 2011 data.

Conclusion

In conclusion, diabetes is a complex condition that requires ongoing management to prevent complications and maintain optimal health. The American Diabetes Association (ADA) plays a crucial role in defining standards of care, providing resources, and promoting education about diabetes.² Diabetes Self-Management Education and Support (DSMES) courses empower individuals with the knowledge and skills to effectively manage their condition. Regular monitoring of blood glucose levels, A1C testing, foot exams, and dilated eye exams are essential components of diabetes care and help prevent complications³.

The data from the Behavioral Risk Factor Surveillance System (BRFSS) showed improvements in adherence to ADA recommendations over the years, particularly in DSMES attendance. However, there is still room for improvement in areas such as foot care and regular eye examinations. These findings emphasize the need for continued education and awareness to ensure individuals with diabetes receive comprehensive care.

Overall, by following ADA guidelines, individuals with diabetes can take control of their health, reduce the risk of complications, and lead fulfilling lives². Collaborative efforts between healthcare professionals, patients, and organizations like the ADA are crucial in promoting effective diabetes management and improving the well-being of individuals living with this condition.

References

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2. American Diabetes Association (ADA). 2023. *Standards of Care in Diabetes – 2023*. Diabetes, 46 (suppl. 1). Retrieved from https://diabetesjournals.org/care/issue/46/Supplement_1.
3. Montana Department of Public Health and Human Services (MT DPHHS). *Diabetes Self-Management Education Support (DSMES)*. Retrieved from <https://diabetes-self-management-education-services-mtdphhs.hub.arcgis.com/>.