

University of Wyoming

Capstone Senior Project

Rural Wyoming and Diabetes Prevention; What Can We Do to Be In The Fight?

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Abstract

The prevalence of type 2 diabetes mellitus (T2DM) has increased drastically. The CDC reports: "The rate of new cases (or incidence) of diabetes in youths younger than 20 years increased in the United States between 2002 and 2015, with a 4.8% increase per year for type 2 diabetes." Though T2DM has always been a meaningful conversation, states are getting more involved by introducing Diabetes Prevention Programs (DPPs) and prevention resources throughout their counties to slow down this rapidly increasing rate. However, Wyoming seems less progressive in its efforts at diabetes prevention; this may be due to specific disparities faced by rural areas. Most of Wyoming's population is rural, while more areas are further categorized as frontier or rural regions. Areas lacking population density are typically unaware of the prevention resources for T2DM, let alone have the means to access possible prevention resources and official Diabetes Prevention Programs (DPPs). Therefore, this project investigates how other states in the Rocky Mountain Region facilitate type 2 diabetes mellitus prevention in rural areas. It compares it to the prevention resources and DPPs offered in rural areas of Wyoming. After analyzing Colorado's, Montana's, North Dakota's, South Dakota's, and Utah's rural health departments and T2DM initiatives, there are many possible prevention measures that rural areas in Wyoming can adopt to join the national fight against T2DM.

Introduction

The Census Bureau defines rural as "any population, housing, or territory NOT in an urban area ²⁵ and as "any area that is not urban is rural" ⁶. Rural health is another term highlighted in regions such as these. Having cities classified as rural, people are farther removed from healthcare facilities and other services than those living in urban areas; therefore, they experience different health disparities that foster the development of type 2 diabetes mellitus (T2DM). The majority of Wyoming is rural and, additionally, Wyoming has "17 (of 23) counties with fewer than six people per square mile (the most widely accepted definition for 'Frontier' by federal agencies)" ²⁶. Forty-seven percent of Wyoming's residents live in Frontier areas in the state. Except for people living in Cheyenne and Casper, the remaining population lives in rural areas ²⁶. In the United States (US), rural areas have a higher affliction of type 2 diabetes mellitus than urban areas ⁹. It is then fair to assume that Diabetes Prevention Programs (DPPs) and diabetes prevention resources would be paramount. However, most rural and frontier Wyoming populations do not have access to such preventative measures, making room for T2DM prevalence to continue its upward climb. There may, however, be a solution to this problem. Wyoming is one of six states in the Rocky Mountain Region (Colorado, Montana, North Dakota, South Dakota, and Utah). The other six states have areas that resemble those in Wyoming, and many have established T2DM DPPs and prevention resources available to their rural and frontier communities. By observing how other states in the Rocky Mountain Region conduct their type 2 diabetes mellitus prevention programs in their least populated areas, it is possible to learn ways that rural Wyoming can join the fight against type 2 diabetes mellitus.

Type 2 diabetes mellitus is a chronic disease caused by various genetic and environmental factors that result in the progressive loss of β -cell mass or function that manifests

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clinically as hyperglycemia (high blood glucose)³. β -cells are in the pancreas. They are responsible for producing the hormone insulin that ensures the glucose will be taken up from the blood and into the cell. In the case of T2DM, the body's cells resist the usual insulin effect, leading to insulin resistance. As a result of this resistance, glucose starts to build up in the blood¹¹. As a result, in response to the rising glucose levels in the blood, the pancreas starts producing even more insulin, making the body's resistance to it worse until the pancreas finally "gives out"¹¹. Once hyperglycemia occurs, people with T2DM are at risk for developing chronic complications, although progression rates may differ³.

Diabetes prevention can be offered in various ways, such as through an official Diabetes Prevention Program (DPP) or other diabetes prevention resources. Individual diabetes prevention efforts often start with risk assessment and are followed by a primary care provider's action. Risk for T2DM is assessed by observing people who are at least 45 years of age or older, those who have a family history of diabetes, and those being overweight or obese. It is also important to note that today's children will likely be diagnosed with T2DM³. At-risk individuals have inadequate physical activity, hypertension, and dyslipidemia (the imbalance of lipids such as cholesterol, low-density lipoprotein cholesterol, (LDL-C), triglycerides, and high-density lipoprotein (HDL)^{6, 17}. If one is an at-risk individual, the primary care provider can perform the diagnostic tests necessary for T2DM risk assessment. Type 2 diabetes mellitus "may be diagnosed based on plasma glucose criteria, either the fasting plasma glucose (FPG) value or the 2-h plasma glucose (2-h PG) value during a 75-g oral glucose tolerance test (OGTT) or A1C"³. Those at risk for type 2 diabetes mellitus are also associated with heightened cardiovascular risk and should also undergo screening for and treatment modifiable risk factors for this disease by a primary care physician.⁴

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After T2DM risk is assessed and determined, the primary care provider may provide advice and direction, such as referring a registered dietician or a mental health counselor. Other prevention resources include group prevention efforts like a community-based organization (e.g., groups that share common goals and challenges and could help hold you accountable) ¹⁶.

Diabetes Prevention Programs (DPPs) are viable for overweight/obese individuals at high risk of type 2 diabetes mellitus. DPPs are intensive lifestyle behavior change programs recognized by the Centers for Disease Control and Prevention (CDC) that “achieve and maintain 7% loss of initial body weight and increase moderate-intensity physical activity (such as brisk walking) to at least 150 min/week” ⁴. Additionally, DPPs are defined as “research-based programs focusing on healthy eating and physical activity” ¹. The research supporting these programs is backed by evidence suggesting “that the overall quality of food consumed (as measured by the Healthy Eating Index, Alternative Healthy Eating Index, and DASH score), with an emphasis on whole grains, legumes, nuts, fruits, and vegetables and minimal refined and processed foods, is also associated with a lower risk of type 2 diabetes” ⁴. Research also shows that “moderate-intensity physical activity has been shown to improve insulin sensitivity and reduce abdominal fat in children and young adults” ⁴. Therefore, if individuals at risk for developing type 2 diabetes mellitus partake in a structured lifestyle change program like a DPP, it can “cut their risk of developing type 2 diabetes by 58% (71% for people over 60 years old)” ¹.

Management and screening for type 2 diabetes mellitus are crucial for the disease's prevention, diagnosis, and treatment. In rural areas, however, educational, personal factors (e.g., cost of care), cultural factors (e.g., lack of recommendations/guidelines that are culturally sensitive), and infrastructure (e.g., distance to health facilities) influence an individual's ability to get laboratory testing done ⁹. These implications may even restrict the primary care doctor's

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ability to determine T2DM risk and provide preventive counseling⁹. Additionally, the two more heavily targeted areas for type-2 diabetes prevention, adequate physical activity, and a healthy diet, are at alarmingly low rates in rural areas compared to urban areas⁹. People in rural areas have an increased occurrence "of inadequate physical activity and obesity"⁹. Individuals living in rural areas are also less likely to consume at least five daily servings of fruits and vegetables. Lower fruit and vegetable consumption are associated with higher obesity rates—increasing the risk of T2DM⁹. Despite all these obstacles, "T2DM prevention strategies optimized for rural populations could reduce the T2DM burden and, thereby, urban-rural health disparities."⁹ It is essential, therefore, for the people of Wyoming to understand current and future prevention methods in rural areas, such as the Rocky Mountain Region.

Methods

This project used a couple of measures in which reviews of the states in the rocky mountain region were conducted. First, to qualify rural and frontier areas, each state included in this project was input into the Rural Health Information Hub²⁰. From here, each rural health department and its most updated health report were analyzed. Information on current health rates, grants, the location of DPPs, and T2DM initiatives was discovered. Additionally, counties in each state's most rural and frontier (using the Census Bureau's definition of both as qualifying factors)^{25,6} were investigated. Their type 2 diabetes mellitus prevention resources were discovered and reviewed further. For the states who did not have a large rural population or who did not have clear T2DM initiatives, their health departments were reviewed for overall state efforts in type 2 diabetes mellitus prevention.

Colorado

Colorado has many notable type 2 diabetes mellitus prevention measures and accessible DPPs that improve T2DM prevention in its rural areas. In Colorado, 47 of 64 counties are classified as rural or frontier¹⁸. The prevalence of diabetes is higher in these areas compared with urban areas of Colorado. However, Colorado has recently implemented significant measures to prevent and manage type 2 diabetes mellitus in its rural regions. These measures of Colorado's rural healthcare system are specific grants, like the Governor's Office of Broadband passed, and programs like iCARE. In 2018, the governor of Colorado, John Hickenlooper, signed a bill to accelerate the construction of high-speed broadband internet service in rural Colorado. The bill will invest in broadband construction for five years ending in 2023, using dollars from a fund historically providing subsidies for rural telephone service. According to Colorado Rural Health Care Snapshot, "almost 1 in 4 rural families in the state lack access to the internet. (25 megabits per second download and 3 Mbps per second upload speeds)." ^{20(p5)}. With bills like the broadband bill that the Governor's Office of Broadband passed, this gap will be significantly reduced by 2023, allowing access to resources previously untenable by the rural communities seeking health information via the internet.

Laws such as these will also be crucial for the ability of individuals to access the preventive T2DM resources offered online since The American Diabetes Association identified telemedicine as an effective strategy for managing T2DM among rural patients⁹. Finally, programs like iCARE help improve critical access hospitals (CAHs) and RHCs. During the grant year, CAHs apart of the iCARE network reported 53% HbA1c testing, and around 9% reported poor HbA1c control during the same grant year^{20(p21)}. As mentioned above, this test is one of the

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many necessary in the diagnosis/management of T2DM. Additionally, 60% of iCARE communities reported controlling high blood pressure for the grant year ^{20(p21)}.

In terms of national DPPs, Colorado offers multiple programs to even most of their rural counties (Las Animas, Huerfano, and Archuleta) ¹⁰. These programs are provided in-person, online, and as a combination. These counties also offer further preventative resources such as a self-monitoring blood pressure program where they loan a blood pressure monitor to anyone needing to keep track of their blood pressure. The counties have worksite wellness screenings, including cholesterol panels, hemoglobin A1c, blood pressure checks, and pre-diabetes screening ²⁷. Furthermore, Colorado makes preventative resources and national diabetes prevention programs easily accessible for rural Colorado adults with pre-diabetes or who already have T2DM.

Montana

The majority of Montana is rural and frontier, yet they provide great T2DM preventative resources to these populations. Two counties in Montana are models for type 2 diabetes mellitus prevention in rural areas. These counties are Daniels County and Carter County. Both counties are 100% rural, with population densities among some of the lowest in Montana ²¹. Daniels County has multiple programs that offer beneficial resources to prevent T2DM diabetes. The Diabetes Education Empowerment Program (DEEP) is their first resource. This program invites anyone with diabetes or pre-diabetes to join a series of free classes that provide tips and information about controlling diabetes ¹². DEEP teaches these individuals about all aspects of diabetes prevention. These include the physical and emotional effects of diabetes, finding healthy eating habits, how to be safely active, developing skills and action plans for staying healthy, and

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ways in which patients can be influential members of their healthcare team¹². Another notable project in Daniel County is the Scobey Active Living Project.

Given the rural county's high prevalence of obesity and other risk factors associated with T2DM, Daniels County aims to decrease the prevalence of obesity and improve the health of the citizens within one city (Scobey) with its perimeter through policy, environmental changes, and community intervention¹³. This project will implement trails (a trail outside the city limits and around the perimeter of a Scobey) and specific land designated for a community garden¹³.

Finally, The Mail-a-Meal Program offered in Daniel County addresses the issue of an unhealthy diet that is a significant risk factor for T2DM in rural areas. Mail-a-Meal Program provides access to nutritious, quality food to Montanans in rural, remote, and low-population regions. The program has several drop-sites around Montana and ships boxes directly to rural households.

Next, Carter County offers its rural population access to Montana Cardiovascular Disease and Diabetes Prevention Program (CVDDPP). This program has been helping to prevent adults with a high risk for type 2 diabetes mellitus and cardiovascular disease. CVDDPP is an official DPP offered for ten months based on "research evidence that intensive lifestyle change can prevent or delay the development of diabetes by 58% among adults at high risk"¹². To enroll in this program, one must have a history of pre-diabetes, impaired glucose tolerance, or impaired fasting glucose; history of gestational diabetes or birth to a baby weighing more than 9 pounds; high blood pressure, Dyslipidemia, and a high A1C level¹². Individuals who enrolled in this program saw a decrease in these developments. The average results of CVDDPP are a "Weight loss of 15.4 pounds, blood pressure reduction from 133/81 mmHg to 127/78 mmHg, LDL cholesterol reduction from 123 mg/dL to 119 mg/DL, HDL cholesterol increased from 49 mg/dL to 51 mg/dL, and fasting blood glucose reduction from 102 mg/dL to 97 mg/dL"¹². This official

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DPP is offered in person in fourteen cities in rural Montana, and four telehealth sites currently deliver the CVDDPP ¹².

North Dakota

North Dakota has excellent action plans for the future of T2DM prevention for North Dakotans living in rural areas. Approximately 50.2% of North Dakota is rural ¹⁸. North Dakota is not the ideal state to look at when discussing type 2 diabetes mellitus prevention, considering it is one of only four states with no mandate or insurance requirement for diabetes care. Due to this, prevention, management, and medication coverage vary greatly and place an added burden on North Dakotans living with diabetes ^{15(p14)}. Despite this, The North Dakota Department of Health (NDDoH) does have action plans and activities concerning T2DM prevention that are worth noting. First, the NDDoH receives funding for the North Dakota Diabetes Prevention and Control Program through the CDC. This funding helps coordinate diabetes prevention and control activities across the state "through a variety of partners implementing multiple programs and practices" ^{15(p8)}. When possible, the North Dakota Diabetes Prevention and Control Program (NDDPCP) collaborates with other NDDoH projects to maximize the financing available for addressing the risk factors for diabetes-related to lifestyle. This funding supports Case Management Program and Exercise is Medicine.

The Case Management program supports members with diabetes by assigning a case manager who works with the member to "develop a self-management plan that aligns with the healthcare provider's treatment plan. Education on recommended care, assistance with social determinants of health, and suggestions on healthy lifestyle changes are also provided" ^{15(p10)}. Other services include a national DPP, free nutrition consults, free ongoing wellness coaching, and complimentary fitness consults ^{15(p10)}. Exercise is Medicine (EIM) is a program available for

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all qualifying members "with pre-diabetes, obesity, depression/anxiety, type 2 diabetes, metabolic syndrome, high blood pressure and high cholesterol residing in Fargo, Bismarck, and Grand Forks" ^{15(p10)}. However, the areas this program offers are only in the metropolitan regions of North Dakota. Exercise is Medicine, and the Case Management program would be incredibly beneficial to implement in rural areas, given the higher rates of these T2DM risk factors.

Additionally, the North Dakota Area Health Education Center (NDAHEC) supports rural communities from rural locations, with offices in Mandan, Park River, and Mayville. NDAHEC promotes the collaboration of schools and community organizations to engage in a comprehensive strategy to help eliminate the shortage of healthcare professionals in underserved areas and correct the uneven distribution of healthcare providers in the state. Also, the North Dakota Department of Health delivers "training to pharmacy school students on techniques for better patient care for people living with diabetes or pre-diabetes. After the medication therapy training, 25 pharmacy students rotated through five community pharmacy sites to help screen over 350 patients for pre-diabetes"¹⁴.

South Dakota

South Dakota is among the least densely populated states in the nation ¹⁸. In terms of type 2 diabetes prevention in rural areas, South Dakota does not offer its rural population many options. There are two resources worth mentioning, however: Rural Health Care Incorporation (RHCI) and the HALT program. RHCI is a regional healthcare leader that offers primary care to rural healthcare delivery sites conveniently located in central South Dakota. For T2DM, Rural Health Care Incorporation provides various primary health care services like screenings, health maintenance exams, and physical exams that are ultimately needed for chronic disease management ². The HALT program offers a more convenient way for people in rural populations

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to participate in the National DPP lifestyle modification program by allowing individuals in South Dakota access to diabetes education, resources, support, and tracking tools^{23(p2)}. This program gives individuals the resources to commit to the self-management of T2DM. South Dakota also offers a National Diabetes Prevention Program online and face-to-face in the urban areas of South Dakota. Overall, South Dakota does not have an explicit type 2 diabetes mellitus prevention action plan for its rural areas. The HALT program is a tremendous preventative measure that could be adopted in the rural populations of other states.

Utah

Utah has the lowest rural population compared to the rest of the states in the Rocky Mountain Region, with the non-metro areas making up 10.5% ¹⁸. According to the CDC, Utah does not have a diabetes action plan yet. Given its low percentage of rural regions, Utah does not have special T2DM programs offered to its rural populations either. The Utah Department of Health did partner with the Office of Rural Health and Primary Care recently. This partnership increases referrals to existing Diabetes Self-Management Education and Support (DSMES) in rural areas. It assesses the need for new DSMES sites in nine rural locations that do not currently have one" ²⁴. Utah has a National DPP lifestyle change program available to urban areas. The Utah Department of Health does have one unique method of awareness for this DPP. This text message campaign increases awareness around the National DPP, and "from September 2020 to September 2021, nearly 30,000 people were reached through evidence-based engagement strategies" ²⁴. Therefore, while not being a model for T2DM prevention in population-lacking areas, Utah's text campaign, if adopted by rural health departments, could have significant reach in these rural communities.

Wyoming

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The majority of Wyoming comprises rural, and frontier areas; type 2 diabetes mellitus prevention resources offered in rural areas are significant in the state's T2DM prevention. Wyoming has some type-2 diabetes preventative resources and, overall, does offer in-person, national DPP in 10 of its 23 counties. Eight of those are rural counties ²⁶. Another resource The Wyoming Department of Health (WDH) provides is a no-cost, home-based virtual diabetes prevention program known as "#PreventDiabetes" to Wyoming residents at risk of the disease and its consequences ⁷.

The Chronic Disease Prevention Program (CDPP) is another resource offered to Wyoming's rural population. CDPP "works with federal agencies, state programs, and community partners to help address the risk factors associated with chronic diseases like diabetes and hypertension" ⁷. The Chronic Disease Prevention Program has an interactive app, "307 Wellness", that allows Wyomingites to track health milestones and immunizations and find information about essential screenings and local resources ⁵. Lastly, the Federal Office of Rural Health Policy funds one of the Rural Health Research Centers that focus on "policy-oriented research emphasizing the rural healthcare workforce and access to care" ²⁶. Headquartered at The University of Washington School of Medicine's Department of Family Medicine, this Rural Health Research Center comprises an office, and six independent Area Health Education Centers (AHECs) in the five WWAMI states ²⁶. The WWAMI states are Washington, Wyoming, Alaska, Montana, and Idaho ²⁶. This program alleviates healthcare personnel shortages in medically underserved rural and frontier areas.

Nonetheless, Wyoming still has rural counties needing type 2 diabetes mellitus preventive resources. By dissecting and adopting some other states' methods in the Rocky Mountain Region, Wyoming can reduce T2DM across the state. There are multiple methods that

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rural Wyoming can adopt that would make the state a better advocate in the fight against type 2 diabetes mellitus.

Recommendations

If Wyoming were to adopt a bill that invests in broadband construction, that would accelerate the construction of high-speed broadband internet service in rural areas, and access to DPPs would see improvement. In Colorado, "almost 1 in 4 rural families in the state lack internet" ²⁰. However, in Wyoming, "about 22 percent of all Wyomingites do not have access to the internet that meets the FCC's standards for 'high speed'" ¹⁹. Enacting this bill would, therefore, drastically help the rural population in Wyoming access the needed T2DM prevention resources and online DPPs available.

Wyoming could mimic Montana's DEEP program. An additional education resource that can teach individuals about diabetes prevention can be very significant in Wyoming. Twelve thousand people in Wyoming have diabetes but do not know it, significantly increasing their health risk ²². Additionally, there are 148,000 people in Wyoming, 33.6% of the adult population, who have pre-diabetes with blood glucose levels that are higher than normal but not yet high enough to be diagnosed as diabetes" ²². By teaching these individuals the physical and emotional effects of diabetes, how to establish healthy eating habits, how to be safely active, and how to develop skills and action plans for staying healthy, as the DEEP program teaches, T2DM will be able to be prevented or delayed. Additionally, implementing a program like iCARE in Wyoming's CAHs and RHCs could improve individual prevention of T2DM by improving blood pressure and A1C screening rates.

The Mail-a-Meal Program would be a great way to provide these rural and frontier areas of Wyoming with nutritious, quality food. The Mail-a-Meal Program would be executed by

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having several drop-sites around Wyoming that ship boxes directly to rural households. Doing this will eliminate one health disparity associated with rural areas and reduce the diet risk factor of T2DM.

A program like the Case Management program would also be a great thing to acquire in health centers in Wyoming. By adopting this, Wyoming could support its members seeking individual-gearred prevention by assigning a case manager. This case manager works with the individual to develop a self-management plan that aligns with the healthcare provider's treatment plan. This is especially helpful for people who possibly do not know what to do and are not ready to commit to a Diabetes Prevention Program. Having this direct guidance is essential in some instances.

Exercise is Medicine is another model T2DM preventive resource for Wyoming. EIM can connect health care with evidence-based physical activity resources for Wyomingites with pre-diabetes, obesity, depression/anxiety, type 2 diabetes mellitus, metabolic syndrome, high blood pressure, and high cholesterol. Once again, implementing a program like this would help individuals create a healthy, active lifestyle, another preventative method for T2DM.

One key thing that would have a considerable impact on rural residents and their knowledge of type 2 diabetes mellitus preventive resources and available DPP is a text message campaign. In Utah, this text message campaign reached nearly 30,000 people. In Wyoming, "one in three American adults has pre-diabetes and, according to recent data, 35,000 people in Wyoming have been told they have pre-diabetes" ⁷. Therefore, if health departments were to adopt this campaign style, the number of Wyomingites this could reach would be substantial.

Conclusion

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By observing how other states in the Rocky Mountain Region conduct their prevention programs in their least populated areas, Wyoming can adopt specific components and join the fight against type 2 diabetes mellitus. Though Wyoming was just as progressive, if not more progressive, in T2DM prevention resources as states like South Dakota, Utah, and North Dakota, all these states offered unique ideas that could resonate with rural and frontier populations in Wyoming. Overall, Wyoming is on an upward climb to reduce the increasing prevalence of T2DM in the state. Still, it could be even more impactful if Wyoming tweaks its current programs to involve specific components of other states' programs or the grants offered to its CAHs and RHCs. Then, the Wyoming Department of Health and the Rural Department of health could also mimic programs like DEEP, Mail-A-Meal, EIM, and HALT and pass specific bills like Colorado's Governor's Office of Broadband. In conclusion, these T2DM preventative resources and programs could potentially eradicate existing health disparities and obstacles that make the fight against T2DM in rural areas hard--reducing T2DM prevalence and making Wyoming healthier.

References

1. About the National Diabetes Prevention Program. Centers for Disease Control and Prevention. <https://www.cdc.gov/diabetes/prevention/about.htm>. Published October 30, 2022. Accessed October 1, 2022.
2. About RHCI. Rural Health Care, Inc. <https://www.ruralhc.net/about-rhci/>. Published December 2, 2022. Accessed October 1, 2022.
3. American Diabetes Association Professional Practice Committee; 2. Classification and Diagnosis of Diabetes: Standards of Medical Care in Diabetes—2022. *Diabetes Care* 1 January 2022; 45 (Supplement_1): S17–S38. <https://doi.org/10.2337/dc22-S002>
4. American Diabetes Association Professional Practice Committee; 3. Prevention or Delay of Type 2 Diabetes and Associated Comorbidities: Standards of Medical Care in Diabetes—2022. *Diabetes Care* 1 January 2022; 45 (Supplement_1): S39–S45.
5. Cancer and chronic disease prevention unit. Wyoming Department of Health. <https://health.wyo.gov/publichealth/cancer-and-chronic-disease-prevention-unit/>. Published May 5, 2022. Accessed October 1, 2022.
6. Defining rural population. HRSA. <https://www.hrsa.gov/rural-health/about-us/what-is-rural>. Published March 2022. Accessed October 1, 2022.
7. Deti K. Diabetes prevention program continuing after a successful start. Wyoming Department of Health. <https://health.wyo.gov/diabetes-prevention-program-continuing-after-successful-start/>. Published June 29, 2022. Accessed October 1, 2022.

Wyoming and T2DM Prevention

8. Diabetes prevention. Diabetes Prevention Program.
<https://dphhs.mt.gov/publichealth/Diabetes/DPP>. Published 2022. Accessed October 1, 2022.
9. Dugani SB, Mielke MM, Vella A. Burden, and management of type 2 diabetes in rural United States. *Diabetes Metab Res Rev*. 2021;37(5):e3410. doi:10.1002/dmrr.3410
10. Find a program. Centers for Disease Control and Prevention.
<https://www.cdc.gov/diabetes/prevention/find-a-program.html>. Published October 30, 2022. Accessed October 1, 2022.
11. Harvard Health. <https://www.health.harvard.edu/topics/diabetes%E2%80%AF>. Published 2022. Accessed October 1, 2022.
12. Montana Rural Health Initiative. Montana Cardiovascular Disease and Diabetes Prevention Program. Montana Rural Health Initiative.
<https://montanaruralhealthinitiative.info/?p=996>. Published July 28, 2014. Accessed October 1, 2022.
13. Montana Rural Health Initiative. Scobey Active Living Project. Montana Rural Health Initiative. <https://montanaruralhealthinitiative.info/?p=1333%E2%80%AF>. Published March 9, 2015. Accessed October 1, 2022.
14. North Dakota diabetes profile. Centers for Disease Control and Prevention.
<https://www.cdc.gov/diabetes/programs/stateandlocal/state-diabetes-profiles/northdakota.html>. Published September 15, 2022. Accessed October 1, 2022.
15. North Dakota 2022 Diabetes Report. 2022.

Wyoming and T2DM Prevention

16. On your way to preventing type 2 diabetes. Centers for Disease Control and Prevention.
<https://www.cdc.gov/diabetes/prevent-type-2/guide-prevent-type2-diabetes.html>.
Published April 6, 2022. Accessed October 1, 2022.
17. Pappan N, Rehman A. Dyslipidemia. [Updated 2022 Jul 11]. In: StatPearls [Internet].
Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from:
<https://www.ncbi.nlm.nih.gov/books/NBK560891/>
18. Rural Health Information Hub. <https://www.ruralhealthinfo.org/>. Published 2022.
Accessed December 8, 2022.
19. Schmelzer E, Peterson C. In Wyoming, access to high-speed internet depends on where
you live. *Star Tribune*. https://trib.com/news/state-and-regional/in-wyoming-access-to-high-speed-internet-depends-on-where-you-live/article_1fb35fbb-de1d-5a89-b70b-fe4a2c9322cb.html. Published September 29, 2018. Accessed October 1, 2022.
20. Snapshot of Rural Health in Colorado. October 2019.
21. Stacker. Most rural counties in Montana. Stacker. <https://stacker.com/montana/most-rural-counties-montana>. Published July 25, 2022. Accessed October 1, 2022.
22. The Burden of Diabetes in Wyoming. 2021.
23. The Connector. August 2021.
24. Utah diabetes profile. Centers for Disease Control and Prevention.
<https://www.cdc.gov/diabetes/programs/stateandlocal/state-diabetes-profiles/utah.html>. Published September 15, 2022. Accessed October 1, 2022.
25. What is rural? | National Agricultural Library. <https://www.nal.usda.gov/rural-development-and-communities/what-is-rural>. Published 2022. Accessed October 1, 2022.

Wyoming and T2DM Prevention

26. What is rural? Wyoming Department of Health.

<https://health.wyo.gov/publichealth/rural/officeofruralhealth/what-is-rural/>. Published

March 10, 2022. Accessed October 1, 2022.

27. Worksite Wellness Screenings. Las Animas - Huerfano Counties District Health

Department. <https://la-h-health.colorado.gov/services/worksite-wellness-screenings>.

Published 2022. Accessed October 1, 2022.