



2020 Montana Provider Prediabetes Awareness Survey Results and Next Steps

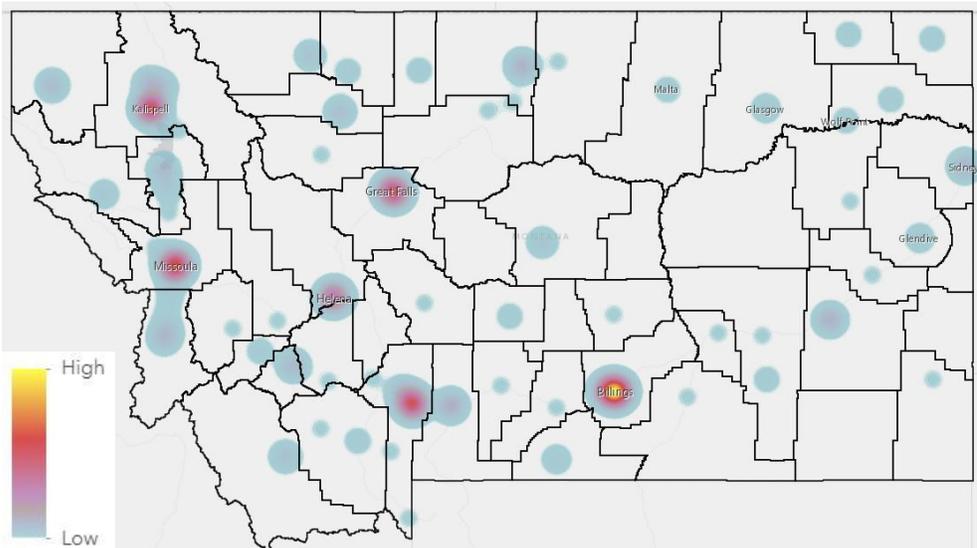
Prediabetes is a serious condition experienced by a sizeable portion of the population. According to the latest [Montana Behavioral Risk Factor Surveillance System](#)* data from 2017, 7.4% of Montana adults reported having been diagnosed with prediabetes. However, the CDC estimates that, nationwide, only one in five adults with prediabetes have been diagnosed. A report by the [American Diabetes Association \(2020\)](#) estimated that, overall, 34.7% of Montana’s adult population—282,000 people—are living with prediabetes, thus indicating a disparity between diagnosed and undiagnosed Montana adults.

The National Diabetes Prevention Program (DPP) is an evidence-based lifestyle change program with proven ability to prevent or delay diabetes onset in at-risk people. [A 10-year study of participants](#) in the National DPP trial showed a 58% reduction in development of type 2 diabetes with the intensive lifestyle intervention that the program provides. The National DPP is available throughout Montana at 21 sites in-person and via distance learning. For more information on the National DPP, visit the Centers for Disease Control and Prevention’s [website](#), the MDP’s Diabetes Prevention [website](#), and the Montana Diabetes Program’s (MDP’s) Diabetes Prevention [story map](#).

The MDP is committed to preventing or delaying type 2 diabetes among Montanans at high risk. The MDP works with healthcare providers to improve [screening and testing for prediabetes and referral to lifestyle change programs](#) like the National DPP. In June 2020, the MDP sent a paper survey and explanatory letter to 3,381 healthcare providers across Montana to collect information on Montana healthcare provider knowledge and practices on prediabetes clinical measures, patient care, and the National DPP. The survey, derived from [Keck et al. \(2019\)](#), was sent to all advanced practice registered nurses (APRNs), physicians, physician assistants (PAs), and psychologists registered as licensed in Montana, according to the [Wyoming-Idaho-Montana \(WIM\) Tracking database](#).

Surveys were sent in a one-time mailing with no postcard reminders. Of these 116 were returned to sender, yielding a 3,265 potential sample size. Of this potential sample, 474 (14.5%) were returned by the time of data analysis (end of July 2020). Responses were returned by providers from all over Montana (Figure 1). Data were analyzed using SAS 9.4 to derive descriptive statistics. Results and implications to providers and patients are presented in this report. Additional provider survey data products will be located on the [MDP Diabetes Prevention website](#) as available.

Figure 1. Map of Respondents to Provider Survey



* Informational hyperlinks, including to cited references, are located throughout the report in [blue text](#).

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Provider Characteristics



Figures 2a through 2d show the breakdown of responding provider characteristics. Fewer providers who are newer to their practice (less than five years) responded to the survey. Otherwise, there was a fairly even distribution of responses across other experience ranges (Figure 2a). Physicians were the primary respondents by license type, followed by APRNs (Figure 2b).

More than one in four providers (26.5%) came from independent practices, and nearly one in four (24.8%) came from “other” facility types, including federally qualified health centers, community health centers, rural health clinics, hospital-owned or hospital-based clinics, community mental health centers, university/student health centers, local health departments, integrated health clinics, and other assorted clinics (Figure 2c).

Two in five providers (40.4%) practice family medicine. Nearly two in five (39.1%) providers practice “other” specialties, including orthopedics, pediatrics, emergency and urgent care medicine, hospitalists, ophthalmology and optometry, psychiatry, radiology, cardiology, dermatology, oncology, immunology, and geriatrics (Figure 2d).

Figure 2a. Years in Practice of Responding Providers

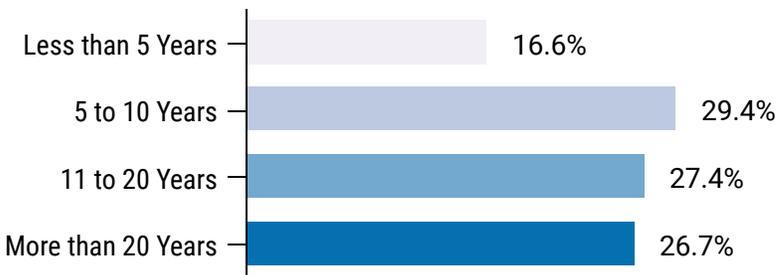


Figure 2b. License Types of Responding Providers

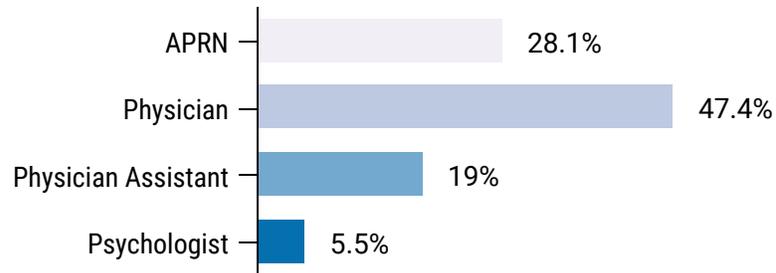


Figure 2c. Facility Types of Responding Providers

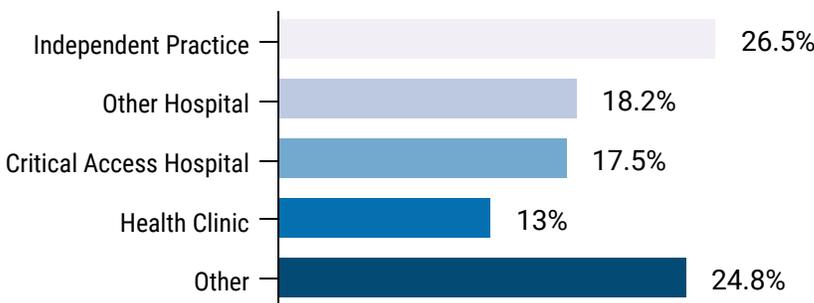
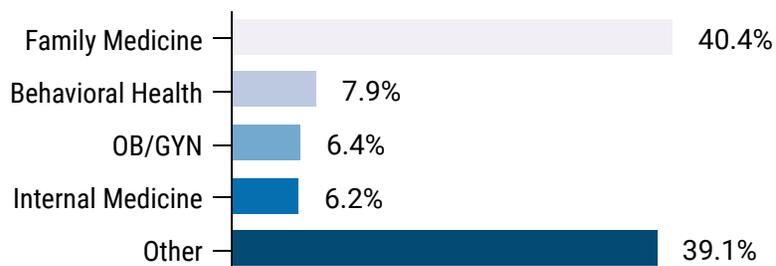


Figure 2d. Primary Specialties of Responding Providers



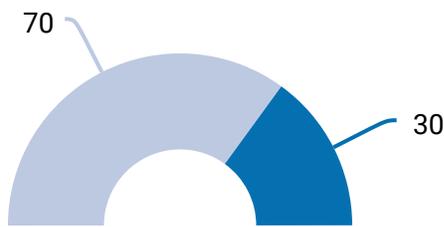
Provider Clinical Knowledge of Prediabetes

Figures 3a through 3e show the percentage of providers responding correctly and incorrectly to the following questions about prediabetes diagnostic criteria and screening recommendations:

- What is the fasting glucose range indicative of prediabetes? (Figure 3a)
- What is the hemoglobin A1C range indicative of prediabetes? (Figure 3b)
- What is the proportion of weight loss recommended for people with prediabetes (PWPD)? (Figure 3c)
- How many minutes of physical activity/week should be recommended for PWPD, assuming no other health issues? (Figure 3d)
- How often should patients be screened for prediabetes? (Figure 3e)

Responses were considered correct if they coincided with the American Diabetes Association’s clinical guidelines, except in the case of fasting glucose, for which the World Health Organization (WHO) guidelines also were accepted. Correct responses are shown in each figure’s legend.

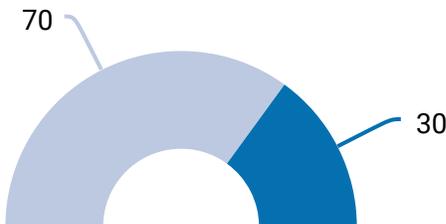
Figure 3a. Fasting Glucose Range



- % Incorrect
- % Correct (100-125 mg/dL or 110-125 mg/dL (WHO))

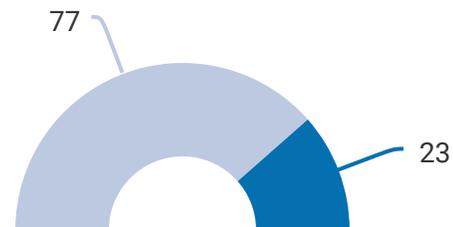
Results demonstrate that providers are most familiar with the screening frequency criterion for prediabetes but that the two clinical indicators and recommendations for weight loss and exercise are less familiar to most responding providers. The MDP is creating an educational campaign to help familiarize providers of all license types and specialties with these criteria and recommendations, so when opportunities present themselves, any provider can open a conversation with patients about their prediabetes risk and options for lifestyle modification.

Figure 3b. Hemoglobin A1C Range



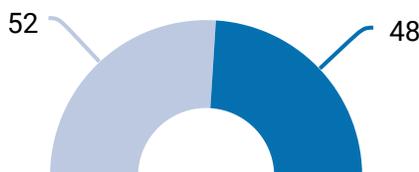
- % Incorrect
- % Correct (5.7-6.4%)

Figure 3c. Recommended Weight Loss



- % Incorrect
- % Correct (5-7% body weight)

Figure 3d. Recommended Exercise



- % Incorrect
- % Correct (150 minutes per week)

Figure 3e. Screening Frequency



Percentages do not equal 100% due to rounding

- % Incorrect
- % Correct (yearly)

Provider Beliefs about Prediabetes

Respondents were asked to respond to seven statements to clarify their attitudes toward prediabetes. They were asked to choose whether they disagreed, somewhat disagreed, somewhat agreed, or agreed with these statements:

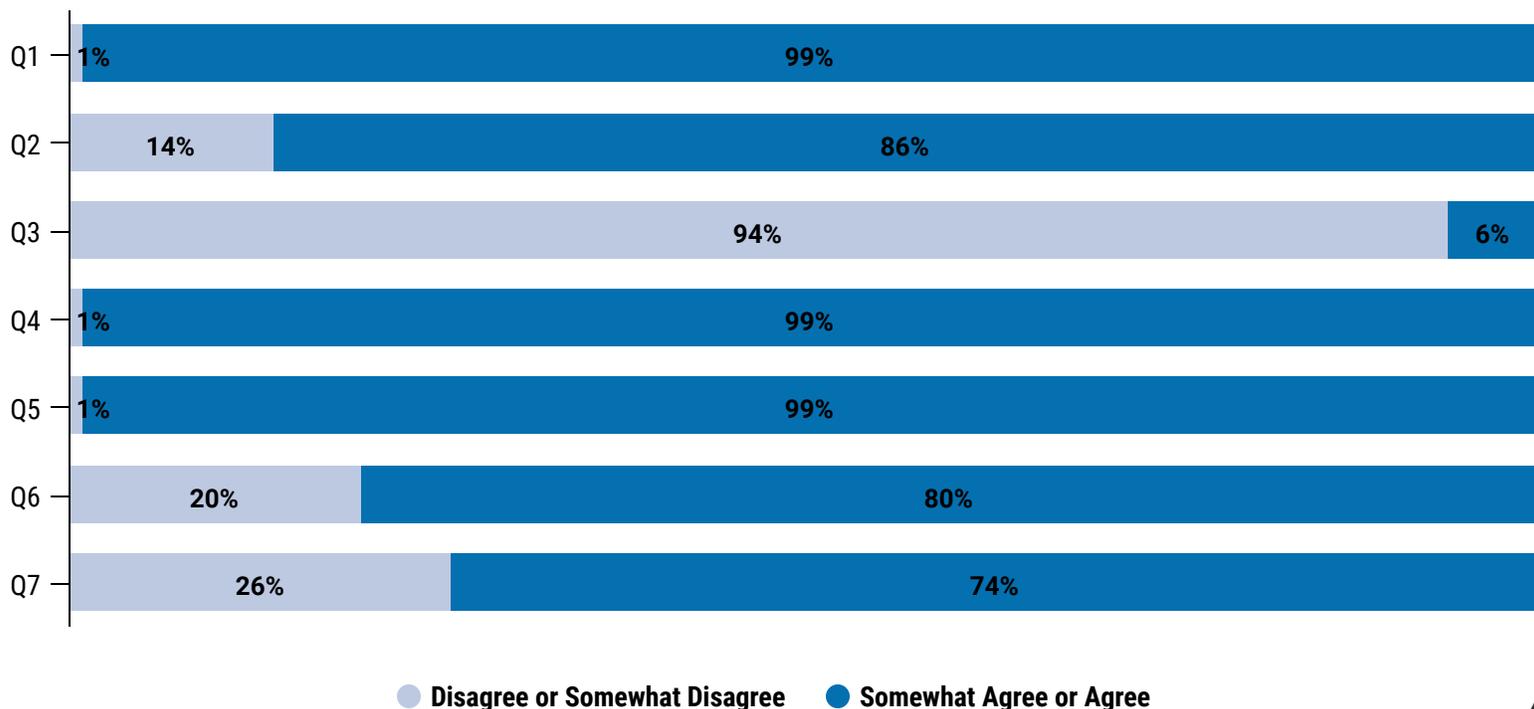
- Q1. Prediabetes is a significant public health issue.
- Q2. Most primary care providers consider screening for prediabetes to be a high priority.
- Q3. The diagnosis of prediabetes leads to unnecessary investigation/testing.
- Q4. Diagnosing prediabetes is an effective way to increase patient awareness of their need for lifestyle modification.
- Q5. Evidence supports the effectiveness of treating prediabetes with lifestyle modification.
- Q6. Using metformin will reduce progression to diabetes.
- Q7. I am confident in my ability to help my patients manage their prediabetes.

The results are shown in Figure 4, with the disagree and somewhat disagree responses combined and the somewhat agree and agree responses combined. Responding provider attitudes indicate a strong belief that prediabetes is a significant public health issue and that screening for it is a high priority. Respondents believe that a diagnoses of prediabetes will not lead to unnecessary testing, but is an effective means of improving patient awareness of the need to engage in lifestyle modification, which also is seen by respondents as an effective way of treating prediabetes.

All of these attitudes are supported in peer-reviewed literature, which has indicated that provider beliefs about the [legitimacy of prediabetes as a clinical condition](#), as well as beliefs in the effectiveness of lifestyle modification to reduce patient risk of developing diabetes, impact their screening and treatment behaviors for prediabetes.

Responding providers also report less belief that metformin is an effective way to reduce progression to diabetes (although it has been [shown effective in patients](#) in certain high-risk groups) and less confidence in their ability to effectively help their patients manage their prediabetes, a result that the MDP aims to improve through provider outreach, education, and partnership.

Figure 4. Provider Beliefs about Prediabetes



Clinician-Reported Frequency of Prediabetes Care Practices

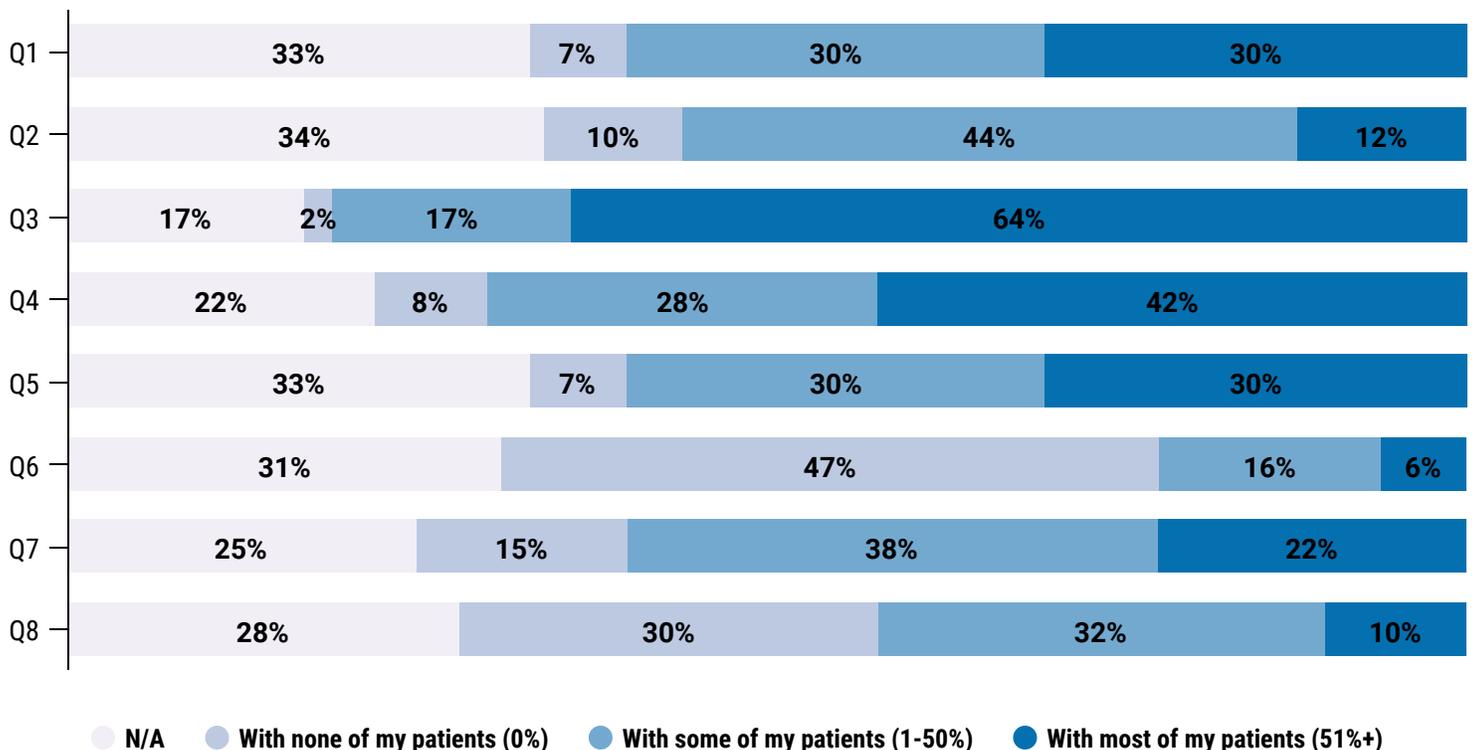
Respondents were asked to respond to eight statements about the frequency with which they practice various elements of prediabetes care with their patients. They were asked to choose whether the practice is not applicable (N/A) to their practice or whether they engaged in the practice with none (0%), some (0-50%), or most (51%+) of their patients.

- Q1. Discuss the use of diabetes medications as a treatment option.
- Q2. Prescribe a diabetes medication.
- Q3. Recommend physical activity targets supported by national guidelines.
- Q4. Have patients set a weight-loss goal of 5% to 7% of their current weight.
- Q5. Recommend nutritional counseling.
- Q6. Create a behavioral contract.
- Q7. Provide pamphlets or other written resources.
- Q8. Refer to a CDC-recognized National Diabetes Prevention Program (DPP).

The results are shown in Figure 5. Many responding providers view various aspects of prediabetes care as not applicable to their patient care practices. Many others engage in these practices with none of their patients. Studies from medical specialties as widely varied as cardiology ([Carris et al., 2019](#)), orthopedics (for example, [Gehling et al., 2016](#), and [Stolarczyk et al., 2017](#)), and ophthalmology ([Aro et al., 2019](#)) show the positive benefits of preventing diabetes onset to helping patients manage their specific and overall health.

While some of these practices might not be applicable to certain providers (such as medication prescription), many of them, such as recommending physical activity targets and weight loss goals, providing educational materials, and referring to the National DPP, are within the purview of all healthcare providers. The MDP's goal is to help all providers feel comfortable taking advantage of diabetes prevention opportunities during patient visits, with the view that more diverse and positive reinforcement will encourage patients to make beneficial lifestyle changes.

Figure 5. Clinician-Reported Frequency of Prediabetes Care Practices



National DPP Knowledge and Referral

Respondents were asked to respond to seven statements about their knowledge of the National DPP and their referral practices to this evidence-based lifestyle modification program. They were asked to respond with no, somewhat, or yes to these questions:

Q1. I am familiar with the National DPP.

Q2. I know how to refer a patient to the National DPP.

Q3. I am aware of local organizations (including within my healthcare system) that offer the National DPP.

Q4. I am aware of insurance plans that pay for the National DPP.

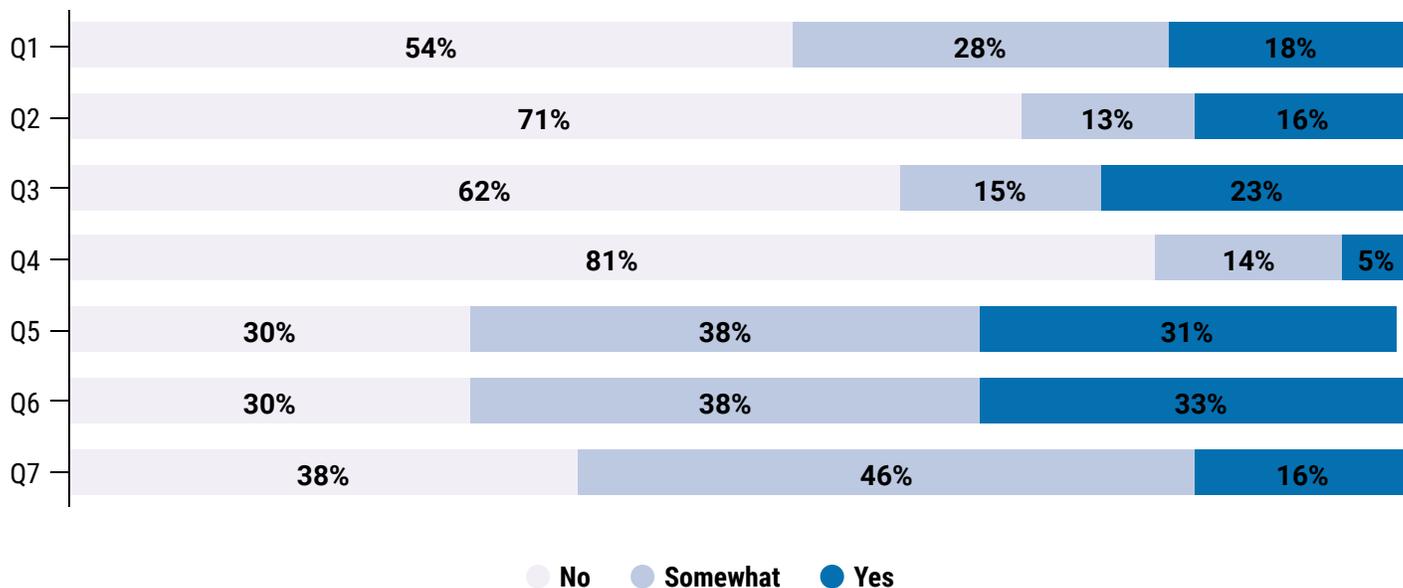
Q5. I expect patients with prediabetes who complete the National DPP to have long-term, positive change in their health behaviors (Percentages do not equal 100 due to rounding).

Q6. I expect patients with prediabetes who complete the National DPP to have a reduced chance of progressing to diabetes (Percentages do not equal 100 due to rounding).

Q7. I expect patients with prediabetes who complete the National DPP to have a resolution of their prediabetes.

The results are shown in Figure 6. Results indicate that while some providers are aware of and refer their patients to the National DPP, most respondents likely could benefit from better outreach and education about local National DPP availability, referral mechanisms, insurance coverage, and likely outcomes of patient participation and completion of the program. This information will be provided in the coming months by the MDP, as well as by local, professionally trained National DPP lifestyle coaches, all of whom are associated with healthcare systems, a unique feature of Montana's program.

Figure 6. Provider Knowledge of and Referrals to the National DPP



Conclusions

More than 100 respondents indicated that they are interested in participating in a project to improve patient referrals to the National DPP. The MDP Diabetes Prevention Health Education Specialist has assessed the types of activities all of these providers are interested in engaging in. The MDP is preparing to share educational and referral materials with these providers, as well as to begin a statewide campaign targeted at both providers and patients to improve prediabetes awareness, screening, testing, referral, and participation in the National DPP in Montana. We look forward to working with you. Please contact our Diabetes Prevention Health Education Specialist, Sonja Tysk, at stysk@mt.gov or 406-444-0593 for information or to get involved.