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## Implementation of a Prediabetes Class in the Primary Care Setting

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## **Executive Summary**

### **Implementation of a Prediabetes Class in the Primary Care Setting**

#### **Introduction of the Problem**

Prediabetes leads to type 2 diabetes if left untreated, but this progression can be prevented or dramatically delayed with the initiation of moderate lifestyle modifications (American Diabetes Association [ADA], n.d.). Multiple practice recommendations and global and national initiatives stress the importance of patient education to slow this progression. Ideally, these lifestyle modifications are discussed during provider visits. However, 15-20-minute appointments do not allow for adequate conversations regarding the numerous topics that impact disease progression. Nurses play a fundamental role in educating patients and nurse-led patient education can potentially improve treatment adherence, patient satisfaction, and patient understanding (Sonneborn, 2023). The project was completed at two clinical sites in the same healthcare system to provide patient education and support to halt diabetes disease progression.

#### **Literature Review**

The literature review aimed to define prediabetes and establish why this diagnosis requires immediate intervention. Patient benefits of prediabetes education and the barriers preventing it were identified and examined along with critical elements to include in the prediabetes education class. The shift from prediabetes to diabetes does not happen overnight. This transition period is an ideal time for health promotion and disease prevention education aimed at preventing or delaying the development of type 2 diabetes (ElSayed et al., 2022b). The patient's risk of developing serious diabetes complications increases the longer the patient has prediabetes. These complications include blindness, amputations, heart disease, renal disease,

metabolic syndrome, stroke, and type 2 diabetes among others (Corgatelli, 2022; ADA, 2021; Centers for Disease Control [CDC], 2020b; Mayo Clinic, 2021).

Wu et al. (2019) report a low occurrence of patient/provider face-to-face discussions regarding lifestyle modifications during office visits. Patients with prediabetes are typically asymptomatic (Gopalan et al., 2018). Due to the lack of symptoms, time with the provider is typically spent discussing more pressing health issues. The World Health Organization (WHO) (2016) states that primary care services and population-based programs should be responsible for interventions targeting modifiable risk factors such as weight loss, diet, physical activity, and smoking cessation. Educating patients with prediabetes is critical since elevated blood glucose levels are already beginning to impact morbidity and mortality at this stage (WHO, 2016).

## **Project Methods**

This project aimed to improve patient education by offering a free, nurse-led, prediabetes education class. The target population was adults with an already established diagnosis of prediabetes. The goal was to increase patient knowledge of prediabetes and discuss lifestyle modifications. This quality improvement (QI) project was implemented in a rural primary care clinic in Southern Illinois. The clinic comprises nine physicians and six advanced practice nurses (APRNs) who serve about 2,800 patients a month. A two-hour prediabetes course and patient handouts were developed. The following topics were discussed: prediabetes and type 2 diabetes risk factors and diagnosis, nutrition, physical activity, stress, sleep, smoking cessation, the importance of follow-up, and available community resources.

In June 2023, I attended the monthly provider meeting and two nurse meetings. The project's purpose was explained, class dates were identified, and providers and nursing staff were encouraged to recommend the class to their patients. Flyers were created and placed in the

clinic. Initially, six classes were scheduled during July, August, and September of 2023. Due to a lack of interest in the first several classes, the project expanded. Four more classes were scheduled at the initial project site. In addition, approval was received to expand to another larger, urban outpatient facility within this same healthcare system. Eight classes were offered at this facility. The larger facility has family medicine and adult medicine clinics. The family medicine clinic has seven physicians and six ARPNs and serves approximately 2,100 patients per month. The adult medicine clinic has six physicians and four ARPNs and serves approximately 2,000 patients per month.

Eighteen classes were held between July and November 2023, with 33 participants and multiple support people attending. There were eleven no-shows. To service more patients, classes were offered on different days of the week with class times in the morning, afternoon, and evening. Class participants were given a questionnaire at the beginning and end of the class. In addition, patients were asked if they would be willing to participate in a follow-up phone call three months after attending the class. All participants agreed and volunteered their contact information.

## **Evaluation**

The intervention successfully increased patient knowledge about prediabetes and how lifestyle modifications can prevent or delay disease progression. Survey responses, comments verbalized after the class, and statements made during the three-month follow-up phone call indicate that class participants felt the class was beneficial and helped them realize the significance of their prediabetes diagnosis. Eighteen (54.5%) participants were lost to follow-up with only 15 participating in the follow-up phone call three months after class participation.

At the beginning and end of class, participants were asked to describe their risk of developing diabetes as very low, about 50/50, or very high. Before class, 45.5 percent stated very low, 48.5 percent stated 50/50, and only 6.1 percent stated very high. End-of-class responses varied significantly with only 9.1 percent stating very low, 60.6 percent stating about 50/50, and 30.3 percent stating very high. Participants commented 'I didn't realize prediabetes was such a big deal' and 'I didn't realize how my habits were affecting my overall health'. No participants rated their health as excellent; 48.5 percent rated their health as good, 42.4 percent as fair, and 9.1 percent rated their health as poor. After three months, the overall health rating improved, with most respondents stating their perception of their overall health had improved over the past three months.

It was encouraging to see that 21 (63.6%) class participants reported their primary care provider discussed lifestyle modifications with them during previous office visits. It was also reassuring that 12 (36.4%) class participants were already exercising more than three hours per week; however, 10 (30.3%) did not exercise at all. High-stress levels and inadequate sleep were two areas that participants were surprised to learn had such an impact on their blood sugar levels and overall health. Fourteen participants (42.4%) rated their knowledge of healthy eating habits as good, 16 (48.5%) rated their knowledge as fair, and three (9.1%) rated their knowledge as poor.

Nicotine use was discussed during the class, and there were questions on the before and after-class questionnaires. Nicotine use only pertained to six participants; three were current nicotine users and three were former cigarette smokers. The three current smokers have tried to quit at least twice before with one having attempted four times. On the end-of-class questionnaire, all three stated they would probably not quit smoking.

At the end of class, participants were asked if they were interested in referrals to various community resources. One participant wanted to speak with a Registered Dietitian Nutritionist (RDN) and four were interested in more information about the local Diabetes Prevention Program (DPP). A referral for the RDN was placed in the electronic health record (EHR). Of the four interested in the DPP program, one started the year-long program in January of 2024.

After learning about how lifestyle changes can improve their health and decrease the chances of developing type 2 diabetes, participants were asked to rank their likelihood of making these changes using a 5-point Likert Scale. The results were encouraging.

#### *After-Class Questionnaire Results*

<b>Likert Scale Questions</b>	<b>Extremely Likely n (%)</b>	<b>Maybe n (%)</b>	<b>I'm not sure n (%)</b>	<b>Probably Not n (%)</b>	<b>Not at all n (%)</b>
Eat Healthier	18 (54)	15 (46)	0 (0)	0 (0)	0 (0)
Increase Activity	20 (61)	9 (27)	0 (0)	4 (12)	0 (0)
Decrease Stress	16 (49)	13 (39)	4 (12)	0 (0)	0 (0)
Improve Sleep	16 (49)	17 (51)	0 (0)	0 (0)	0 (0)

There were several limitations to this project. Due to miscommunication, the flyers for the initial six classes were only posted in the exam rooms. When new flyers were made to include the added classes, they were placed in the waiting rooms, exam rooms, laboratory area, convenient care, and in the building used by specialty providers to increase visibility. Another limitation is the lack of a DPP within an hour of the urban clinic. The extra classes at the urban clinic were added quickly, which did not allow attending the clinic provider meeting to discuss the classes before their start. A short PowerPoint presentation was given by the office manager about two weeks after the first class. The timing of the classes was another limitation. For most

participants, the three-month follow-up period covered the November to January holidays which patients identified as a barrier to healthy eating, stress, and less time for physical activity.

### **Impact on Practice**

An immediate impact for these clinics was the creation of an additional resource for patient education regarding a rapidly increasing health concern for this nation. Another immediate impact was the provider buy-in received when permission was granted to use standing orders for any referrals requested by class participants to community resources such as the RDN and local DPP. The predicted long-term impact of continuing the prediabetes class is increased patient knowledge, increased patient involvement in their health, and improved patient outcomes.

Ongoing implementation of this project should focus on increasing class participation. This could be done by adding a referral prompt in the EHR or a flag in the EHR to assist providers in identifying patients with prediabetes. In addition, after the first prediabetes patient/provider conversation, it would be beneficial for the provider to have a warm hand-off to a nurse to briefly discuss available resources such as the prediabetes class, RDN, and DPP.

### **Conclusion**

The participants attending the class were pleased with class content, reported it motivated them to make changes to improve their health, and categorized it as a ‘real eye opener.’ Within this organization, RDNs and Diabetes Nurse Educators currently provide regular diabetes classes with similar content to the prediabetes class so this could become part of their normal job responsibilities. This would be a cost-benefit due to long-term health improvement.

### **Author Contact Information**

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