

## Assessing the Impact of a Pharmacist-led Diabetes Prevention Program at a clinic for uninsured, medically underserved patients

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**Background:** In the US, 88 million adults- more than one in three, has prediabetes which often goes unrecognized and leads to developing diabetes and associated complications<sup>1</sup>. Those living in medically underserved communities have less access to resources and healthcare education. A non-profit primary care clinic serving uninsured patients in a medically underserved area in southwest Missouri sought to address the prevalence of obesity and risk for diabetes. The National Diabetes Prevention Program showed success in preventing or delaying type II diabetes for at least 15 years in patients by making lifestyle changes and/or initiating metformin<sup>2</sup>. Approximately 700,000 people in Missouri, or 13.2% of the adult population, has diabetes. An estimated 152,000 have diabetes unknowingly<sup>3</sup>. Additionally, almost two out of every three adult Missourians are overweight or obese which increases the risk of developing diabetes<sup>4</sup>. Our objective was to proactively impact patients' health by screening for prediabetes, monitoring BMI, and educating about lifestyle changes to delay or prevent diabetes.

**Methods:** This was a pharmacist-led, single-center, quality improvement project involving pharmacy student interns. Adult patients were screened for prediabetes throughout 2020 using a survey based on the CDC's 7-question diabetes risk assessment. A home weight scale was offered and provided to patients to track their weight voluntarily. A pre-education survey was delivered to determine participants' knowledge baseline. Participants were provided with education of diabetes, nutrition, exercise, and lifestyle changes and knowledge was reassessed using the same survey. Educational interventions were documented in the electronic health record and communicated to the medical provider. If indicated, a point-of-care HgA1c test was performed. BMI was tracked before and after education. Medications were initiated if indicated through recommendations to the provider. Primary outcomes were changes in BMI and HgA1c.

**Results:** 112 patients completed the screening surveys. Of these, 72 were deemed at risk for prediabetes. The mean age of participants was 49.4 years. 43 patients at risk for prediabetes had at least two BMIs recorded throughout 2020. 29 of 43 patients showed a decrease in BMI at an average of -1.85 kg/m<sup>2</sup>. 61 participants had a baseline HgA1c drawn as part of the screening process. 25 of these patients had a HgA1c level that fell into the prediabetes range of 5.7-6.4% per ADA guidelines. 13 patients had HgA1c below the prediabetes range. Of the 12 patients receiving follow-up HgA1c in 2020, the average decrease was -1.7%.

**Conclusions:** The findings of this project, though small, show that it is possible to prevent or delay progression of prediabetes to diabetes with lifestyle changes in a medically underserved population. The COVID-19 pandemic presented unforeseen challenges with follow-up due to limited appointments and staffing. This project led to a proactive approach in screening for prediabetes and initiating diabetes medication as clinically indicated. Additionally, discussion of the project led to a partnership with the local food pantry to help identify clients at risk for diabetes that could benefit from nutrition education and establishing care at the clinic.

1. Centers for Disease Control and Prevention. *What is Diabetes?* 11 June 2020.  
<https://www.cdc.gov/diabetes/basics/diabetes.html>
2. Diabetes Prevention Program (DPP) Research Group. *The Diabetes Prevention Program (DPP): description of lifestyle intervention*. NIH external link *Diabetes Care* 2002;25(12):2165–2171.
3. American Diabetes Association. *Local Office: Missouri*. 2021.  
<https://www.diabetes.org/community/local-offices/missouri>
4. Missouri Department of Health and Senior Services. *Obesity*.  
<https://health.mo.gov/living/healthcondiseases/obesity/>