

# Proof in produce: Voucher program may help diabetes patients manage their health

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Christina Houston, a staff member of Blue Mountain Academy, arranges produce to be sold at the farm stand at Penn State Health St. Joseph Downtown Campus. Credit: Penn State Health

What's a potential recipe for helping some patients with diabetes better

manage their health? Start with a group of family medicine residents, throw in a dash of community health workers, fold in an abundance of vouchers for fresh fruit and vegetables and mix in local produce stands in Reading, Pennsylvania.

Yield: The Veggie Rx program at Penn State Health St. Joseph Downtown Campus.

It began in 2018 when the United Way of Berks County helped Lisa Weaver, a healthy community program associate with Penn State Berks LaunchBox, and a team of clinicians from Penn State Health St. Joseph and students from Penn State Berks launch a pilot program through which patients with chronic obesity and diabetes were offered vouchers as a way to improve their access to fresh fruits and vegetables.

"Community members who seek care at our downtown campus may not have easy access to produce for one reason or another," Weaver said.

"Our goal is to provide patients with resources to find nutrition that might help them live a healthier life, and ultimately lead to improved [health](#) outcomes and decreased health care costs."

## **A passion for produce**

Weaver and her colleagues teamed up with Susan Veldheer and other researchers from Penn State College of Medicine to analyze the [pilot program](#) data and figure out if the program was achieving its intended goals.

Veldheer, an assistant professor of family and community medicine and public health sciences, is a registered dietician with a passion for produce and research. She previously analyzed 27 different produce programs, similar to Veggie Rx, from various health care organizations to see whether they were making an impact on patients' diet and health.

"We learned that many of these programs weren't designed in ways that could effectively measure their success," Veldheer said. "Through our Family and Community Medicine colleagues at Penn State Health St. Joseph, we were able to use rigorous research methods to help assess whether Veggie Rx was helping improve the health of patients with diabetes."

The Veggie Rx team worked with the researchers to answer some key questions coordinators had about the program: Were patients with chronic disease learning better nutrition? Were they redeeming the vouchers they received? Was it helping them reduce their [blood pressure](#) or blood sugar levels?

## **Prescription: fresh fruits and veggies**

For seven months, the researchers followed participants who were at least 18 years old with a diagnosis of Type 2 diabetes that met certain clinical criteria. Doctors gave participants vouchers that could be redeemed for produce from certain vendors at three farmers markets in downtown Reading—one at the Farm Stand at the Downtown Campus, another at the Penn Street Market and the last at the Boscov's Fairgrounds Farmers Market.

The participants—a significant portion of them Hispanic and Latino—received an initial set of produce vouchers—valued at two dollars each—and received more when they showed up for diabetes self-management education sessions. The classes, led by a dietitian and translated into Spanish by a community health worker, covered topics ranging from [food preparation](#) and nutrition to physical exercise.

"Hispanic and Latino individuals are more likely to be economically disadvantaged and have diabetes," Veldheer said. "When you combine those factors, they're at high risk because they may not be able to afford

the optimal nutrition they need to manage their condition."

## **Measuring success**

At the beginning and end of the seven-month period, the researchers measured patients' nutrition knowledge, body mass index, blood pressure and hemoglobin A1c—a blood test that measures average blood sugar levels over the past three months. The research team published the results of their study in the *Journal of Nutrition Education and Behavior*.

Between July 2018 and December 2019, more than 22,500 vouchers were redeemed, equaling more than \$45,000 in produce being purchased from Reading area retailers and vendors. Approximately 78% of the distributed vouchers were redeemed for fresh fruits and vegetables.

"That's a high redemption rate compared to what other similar studies have reported," Weaver said.

"We also found that voucher redemption was significantly related to a decrease in A1c, which suggests that the vouchers paired with nutrition education helped some patients better manage their diabetes while participating," Veldheer added.

## **A future of food as medicine**

The research team has big plans for Veggie Rx. They're converting to a hybrid in-person and virtual format for participants in light of the COVID-19 pandemic and hope to improve their data collection to continue evaluating whether the vouchers and diabetes self-management sessions are helping participants improve their health. They have also applied for funding from the National Institutes of Health (NIH) to conduct a clinical trial on the program. By designing a study that

accounts for other factors like attendance at nutrition education sessions, differences in voucher redemption rates and changes in medication, the researchers hope to better measure Veggie Rx's role in patients' health.

"This project supports the NIH's strategic plan for nutrition research, which seeks to improve existing evidence on the benefits of food-as-medicine programs in clinical settings," Veldheer said. "It also fits into the College of Medicine's strategic plan, which emphasizes research into new ways to manage chronic illnesses and address health disparities."

"Food access and food insecurity is a worry for many residents in Reading," Weaver said. "We hope that by providing easier access to fresh, nutritious produce it will lead to lifestyle changes and better health. We're thrilled with the results to date and look forward to continuing our strategic community partnerships needed to sustain the program long-term."

**More information:** Susan Veldheer et al, Impact of a Prescription Produce Program on Diabetes and Cardiovascular Risk Outcomes, *Journal of Nutrition Education and Behavior* (2021). [DOI: 10.1016/j.jneb.2021.07.005](https://doi.org/10.1016/j.jneb.2021.07.005)

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