



Policy Brief: New Study Demonstrates Positive Health Impacts of Mid-Ohio Farmacy Program

Newly published research in the Journal of Operations Management shows promising results of the Mid-Ohio Farmacy program. The study found the program helps stabilize patient health outcomes and curbs the progressive risk of chronic conditions.¹

WHAT IS MID-OHIO FARMACY?

Mid-Ohio Farmacy is a partnership between Mid-Ohio Food Collective and local health care providers that seeks to improve health through better food access. Patients referred to the Farmacy program can come once per week to a participating food pantry in central Ohio to pick up fresh produce for themselves and their household. No appointment is necessary, and there is no cost to the patient. Providers can refer food-insecure patients whose income is at or below 200% of the federal poverty level (FPL = gross income at or below \$31,200 for a family of four), the threshold for receiving services at a food pantry.

RESEARCH FINDINGS

The research study found that the food and health partnership model of care like that in the Mid-Ohio Farmacy program helps stabilize patient health outcomes, curbing the progressive risk of chronic conditions such as obesity. The study also found evidence of a potential dose-response relationship whereby patients who had more comorbid conditions at the time of referral and visited a food pantry 11 or more times within a year after they were referred experienced a significant reduction in their BMI and a marginally significant reduction in their HbA1c.¹





CLINICAL AND COST IMPACTS

The clinical and cost significance of these findings as a result of regular access to food is not to be understated. A 1% reduction in HbA1C has been associated with a 2% reduction in all-cause total health care costs and a 13% reduction in diabetes-related total health care costs \$429 and \$736 per year in 2017 dollars, respectively.² This research highlights the unique and critical role food banks and other non-profits play. They are front-line responders providing direct service for health-related social needs and making a direct impact on the 80% of factors that impact people's health outside of clinical care.³

WHY THIS RESEARCH MATTERS

The connection between food insecurity and health outcomes is widely known. Research shows the risk of clinical diabetes is nearly 50% higher among adults living in food-insecure households compared with adults living in food-secure households, while adults from food-insecure households had a 21% higher risk of clinical hypertension than adults from food-secure households.⁴ In addition to the stress of not having reliable access to affordable, nutritious food, food insecurity is associated with poor chronic disease management and increased health care costs.⁵ Black and Latinx people are at higher risk for diabetes, hypertension, and obesity than white people, and food insecurity increases their risk of experiencing these poor health outcomes.⁶ Mid-Ohio Farmacy, an innovative partnership between health care providers and community food pantries, provides one avenue for improving health by increasing access to nutritious food.

WHO WERE THE STUDY PARTICIPANTS?

The patient population in this research study included adults diagnosed with chronic metabolic conditions, including obesity, hypertension, or diabetes who were also referred to the Mid-Ohio Farmacy program. Approximately 80% of patients in the study were at or below the federal poverty level (FPL); 99% earned 200% or less of the FPL, thus qualifying for food relief services. Patients enrolled in the program could access produce for their whole household on a weekly basis but acquiring that produce was ultimately up to the patient. Through this study, we sought to understand how enrollment in and use of the Farmacy program impacted patients' health outcomes in a population free to make their own decisions about accessing and consuming food.

IMPLICATIONS FOR THE FUTURE/POLICY RECOMMENDATIONS:

This evaluation suggests that Farmacy-referred patients experienced improvements in both body weight and HbA1c within a clinical setting. However, it does not capture downstream benefits, such as indirect health care savings and improved overall health on individuals and their households. We recommend the following to support broader, population-level benefits:

- **Expand the Mid-Ohio Farmacy Model to Additional Food Banks and Health Care Entities:** Screening for food insecurity in health care settings is already mandated/happening widely. The ability to refer food-insecure patients to a reputable, reliable organization with the infrastructure to support and fulfill those referrals is critical to improve the health of the most vulnerable populations. We recommend updating





regulations to make such referrals easier for health care providers to make and for community-based organizations to receive. Communities would also benefit from public and/or corporate financial support of programs such as Farmacy, which would allow for the model's scalable expansion into other regions and states. Our research shows the model to be sustainable and financially efficient for patients, food banks, and the health care system as a whole. It addresses food insecurity and improves health outcomes for patients by leveraging existing health care and hunger relief infrastructure.

- **Make Healthy Food Referral a Reimbursable Service:** Improving health outcomes associated with chronic conditions saves money at the patient level and throughout the health care system. Programs such as Mid-Ohio Farmacy incur costs to manage these programs and connect patients to resources. These organizations should be sustainably funded by state and/or federal entities, such as Medicaid, or Managed Care Organizations, to ensure food banks can fulfill the referrals and demand for their services that will result in lower health care costs across the board.

¹ Lowrey, John, et al. "Toward health promotion and prevention: Evidence from a food and Health Partnership model of care." *Journal of Operations Management*, vol. 70, no. 6, July 2024, pp. 1007–1038, <https://doi.org/10.1002/joom.1321>.

² Lage, Maureen J., and Kristina S. Boye. "The relationship between hba1c reduction and healthcare costs among patients with type 2 diabetes: Evidence from a U.S. claims database." *Current Medical Research and Opinion*, vol. 36, no. 9, 17 July 2020, pp. 1441–1447, <https://doi.org/10.1080/03007995.2020.1787971>.

³ "Health Factors." *County Health Rankings & Roadmaps*, www.countyhealthrankings.org/health-data/health-factors. Accessed 20 Sept. 2024.

⁴ Seligman, Hilary K., et al. "Food insecurity is associated with chronic disease among low-income NHANES participants." *The Journal of Nutrition*, vol. 140, no. 2, Feb. 2010, pp. 304–310, <https://doi.org/10.3945/jn.109.112573>.

⁵ "State-Level and County-Level Estimates of Health Care Costs Associated with Food Insecurity." *Centers for Disease Control and Prevention*, Centers for Disease Control and Prevention, 11 July 2019, www.cdc.gov/pcd/issues/2019/18_0549.htm.

⁶ Walker, Rebekah J., et al. "Influence of race, ethnicity and social determinants of health on diabetes outcomes." *The American Journal of the Medical Sciences*, vol. 351, no. 4, Apr. 2016, pp. 366–373, <https://doi.org/10.1016/j.amjms.2016.01.008>.





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