



Parkview Health



Faith Farms

Produce Rx Pilot Program Evaluation Report



Indiana
Department
of
Health



Table of Contents

Executive Summary.....	3
Produce Rx Pilot Grants.....	6
Evaluation Methodology.....	7
Overview of Available Data.....	8
Program Outcomes.....	9
Grantee Interviews: Program Implementation.....	14
Grantee Interviews: Key Findings.....	16
Limitations of the Evaluation.....	20
Strengthening Produce Rx in Indiana.....	21
Appendix A: Evaluation Methodology Details.....	25
Appendix B: Survey Respondents at Baseline.....	28
Appendix C: Promising Practices from GusNIP.....	30



Executive Summary

Produce Rx Overview

In March 2022, the Indiana Department of Health's Division of Nutrition and Physical Activity launched the Produce Rx Pilot Grants, offering \$5,000 to \$20,000 to organizations in Indiana. This initiative aimed to support communities affected by the COVID-19 pandemic, focusing on improving access to nutritious food. Funded by the Centers for Disease Control and Prevention (CDC) the grants supported organizations and healthcare partners that prescribe fresh produce to individuals facing diet-related health issues and/or recovering from COVID-19. This report highlights the outcomes from seven grantees and features interviews with six, showcasing the initiative's positive impact on these communities.

Key Takeaways:

- Participants reported an increase in fruit and vegetable consumption at follow-up compared to baseline. Specifically, program participants reported consuming daily more servings of both fruit and vegetables.
- More than two-thirds of participants reported that they “strongly agreed” with statements affirming they increased the amount of fruit and vegetables they enjoyed, cooked, and bought.
- There was a 22% decrease in respondents who were food insecure at follow-up compared to baseline, suggesting that participation in Produce Rx helped increase food security.
- There was a statistically significant decrease in the percent of participants with A1C levels in the diabetes range at follow-up compared to baseline. There were also significant decreases in the average change in BMI and A1C levels from baseline to follow-up, although there were no statistically significant trends observed for weight status.

Supporting the Expansion of Produce Rx Programs in Indiana

- Produce Rx program administrators were often nurses, registered dietitian nutritionists (RDNs), and other patient support health care professionals. Future program administrators will benefit from additional technical support focused on project management and data collection.
- Grantees reported high levels of participant retention, although they had little data to support this. Future Produce Rx programs should be required to track and report specific elements of participant retention.



Executive Summary

- Several different nutrition education models were used by the pilot projects. Limited information is available on the extent to which any of the models were more effective than others.
- Two primary models were used for pilot program produce distribution: a voucher/card model for redemption at grocery stores and/or farmer's markets and a voucher for produce box model. The barriers to implementing these approaches were specific to the type of distribution model used.
- Women were most likely to participate in the Produce Rx pilot programs as a "food gatekeeper" for their families. It is likely that other family members benefitted from the program, too.

Strengthening Produce Rx in Indiana

Outcome data suggest Indiana's Produce Rx pilot programs increased fruit and vegetable consumption, improved food insecurity, and led to positive changes in A1C levels. The following recommendations are offered to further strengthen the delivery of these programs in Indiana.

- **Identify Produce Rx Priorities for Indiana.** IDOH should develop a set of program parameters for consistent implementation of Produce Rx programs funded by DNPA. Moreover, these parameters should align with current GusNIP requirements to ensure alignment with research-based practices.
- **Develop participant-level data collection strategies.** IDOH should develop data collection strategies to encourage and support evaluation of Produce Rx programs in Indiana. Produce Rx programs should also collect demographic data, which can provide important information on health differences and the utility of Produce Rx as a culturally relevant intervention.
- **Monitor program implementation data and follow up with programs when needed.** IDOH should develop tracking tools and build staff capacity that allows them to monitor implementation among grantees. Program enrollment, produce distribution/redemption, and participation in nutrition education activities should be closely monitored by IDOH.
- **Integrate Produce Rx into Health First Indiana through training and technical assistance.** Now that Produce Rx is emerging as an evidence-based approach to improving health indicators associated with obesity, DPNA should develop resources and create awareness of this approach among local health departments.



Executive Summary

- **Increase awareness of Produce Rx as a community-based approach to prevention among Indiana's not-for-profit hospitals.** Under the Affordable Care Act, not-for-profit hospitals seeking tax exemption are required to regularly survey and respond to community health needs. Three of Indiana's Produce Rx pilot programs were led by or partnered with regional healthcare systems, highlighting the variety of roles these organization could have in expanding Produce Rx across the state. These healthcare systems serve as models for reaching large groups of individuals who ultimately benefitted from Produce Rx, and their results should be shared with other systems that may not yet be aware of Produce Rx.
- **Develop sustainable funding sources for Produce Rx.** Greater awareness of the impact of Produce Rx and other Food is Medicine programs among healthcare providers and policymakers is necessary to secure sustainable funding.



Produce Rx Pilot Grants

In March 2022, the Indiana Department of Health launched the Produce Rx Pilot Grants, offering \$5,000 to \$20,000 to organizations aimed at supporting communities impacted by COVID-19, focusing on improving access to nutritious food. Funded by the CDC, the grants enabled organizations to prescribe fresh produce to individuals with diet-related health issues and/or those recovering from COVID-19. This report highlights outcomes from seven grantees and includes interviews with six, illustrating the initiative's positive impact.

Two funding tracks were available to applicants for IDOH's Produce Rx Pilot Program: (1) an Implementation Track; and (2) a Planning and Capacity Building Track. Implementation Track applicants could support an already-designed Produce Rx program in partnership with a healthcare provider and food/retail partners. Implementation Track applicants were required to demonstrate their capacity to facilitate programming and collect and report data and participant-level data. Planning and Capacity Building Track applicants could use funding to build knowledge and capacity around future Produce Rx programming or promote existing Produce Rx programs.

A total of 11 Produce Rx Pilot Grants were awarded by IDOH (see Table 1), nine of which were Implementation Track grants, and two of which were Planning and Capacity Building Track grants. This report includes a summary of outcome data from seven Implementation Track grantees and interview data from six grantees. Recommendations for strengthening Indiana's infrastructure to support Produce Rx as a public health intervention are also offered.

Table 1. 2022-2023 Produce Rx Pilot Grantees

Type of Organization	Grantee Name
Regional Health System	• Parkview Health, Hancock Health, Reid Health
Federally Qualified Health Center (FQHC)	• Maple City Health Center , Wabash Valley Health Center
Local Public Health Department (LHD)	• Marion County Public Health Department, Vanderburgh County Health Department
Urban Farm	• Flanner House, Faith Farms
Healthcare Foundation	• Franciscan Health Foundation
Land-grant University	• Purdue Extension



Evaluation Methodology

Methodology for the evaluation included multiple data collection strategies to describe program implementation, participants, and outcomes of the Indiana's Statewide Produce Rx Pilot program in 2022-2023. The evaluation was guided by key questions aligned with formative and summative inquiry. Formative evaluation questions focused on the extent to which key elements of the project were implemented efficiently and effectively and the characteristics of the participants served in each community. Summative evaluation questions focused on the extent to which changes occurred in participant attitudes, behaviors, and biometric indicators. An overview of the data collection methods is presented below, and a detailed description of the evaluation methodology is included in [Appendix A](#).

Formative Evaluation Data Collection

- *Review of Programmatic Data:* Limelight Analytics analyzed program records and data collected by grantees to describe who was served by the program and the services provided to them.
- *Review of Quarterly and Final Reports from Grantees:* Limelight Analytics reviewed the quarterly and final reports submitted by Implementation Track grantees to assess key indicators of program implementation, including service delivery and program participants served.
- *Interviews with Grantees:* Interviews were conducted to gather details on program delivery, facilitators of and barriers to program implementation, and resources needed to sustain produce prescription programming.

Summative Evaluation Data Collection

- *Analysis of Pre/Post Participant Surveys:* Limelight Analytics conducted statistical analyses to determine practical and statistically significant changes in indicators included in surveys administered to participants baseline and at the end of the project.
- *Analysis of Biometric Data Collected by Grantees:* Limelight Analytics analyzed pre-to-post program changes in biometric indicators collected by local grantees (e.g., BMI and A1C). Parametric statistics were used to identify statistically significant changes (when sample sizes were sufficient).



Overview of Available Data

Produce Rx grantees were asked to collect and enter participant-level data into REDCap, IDOH's survey platform. Program participants were able to opt-out of the data collection process, which did not affect their ability to participate in the program. Participants completed pre- and post-surveys to assess their fruit and vegetable consumption habits, attitudes toward consuming, preparing, and purchasing fruit and vegetables. Surveys also captured demographic information, including food insecurity, household size, and SNAP participation.

Pilot grantees measured biometric indicators, including BMI and A1C levels, at the beginning and end of the program. Pre- and post survey data and biometric indicators were available for six pilot program grantees. The number of participants for whom data were available varied between pilot program. As shown in Table 2, 71% of the available survey data and 83-84% of the biometric data were collected by one program, Reid Health. As a result, the data from this program strongly influence overall outcome results.

NOTE: A summary of survey respondent characteristics and baseline biometric indicators is presented in [Appendix B](#).

Table 2. Data Collected from 2022-2023 Produce Rx Grantees

Pilot Program Grantee	# of Participants with Pre & Post Survey Data	# of Participants with Pre & Post BMI Data	# of Participants with Pre & Post A1C Data
Hope Healthcare (Purdue Extension)	4	4	4
Family Medicine of Cloverdale/Greencastle (Purdue Extension)	6	6	5
Wabash Valley Health Center	10	10	8
Maple City Health Center	16	0	0
Marion County Public Health Department (Eskenazi Health Center)	20	20	16
Hancock Health	21	21	20
Reid Health	188	302	287
Total	265	363	340

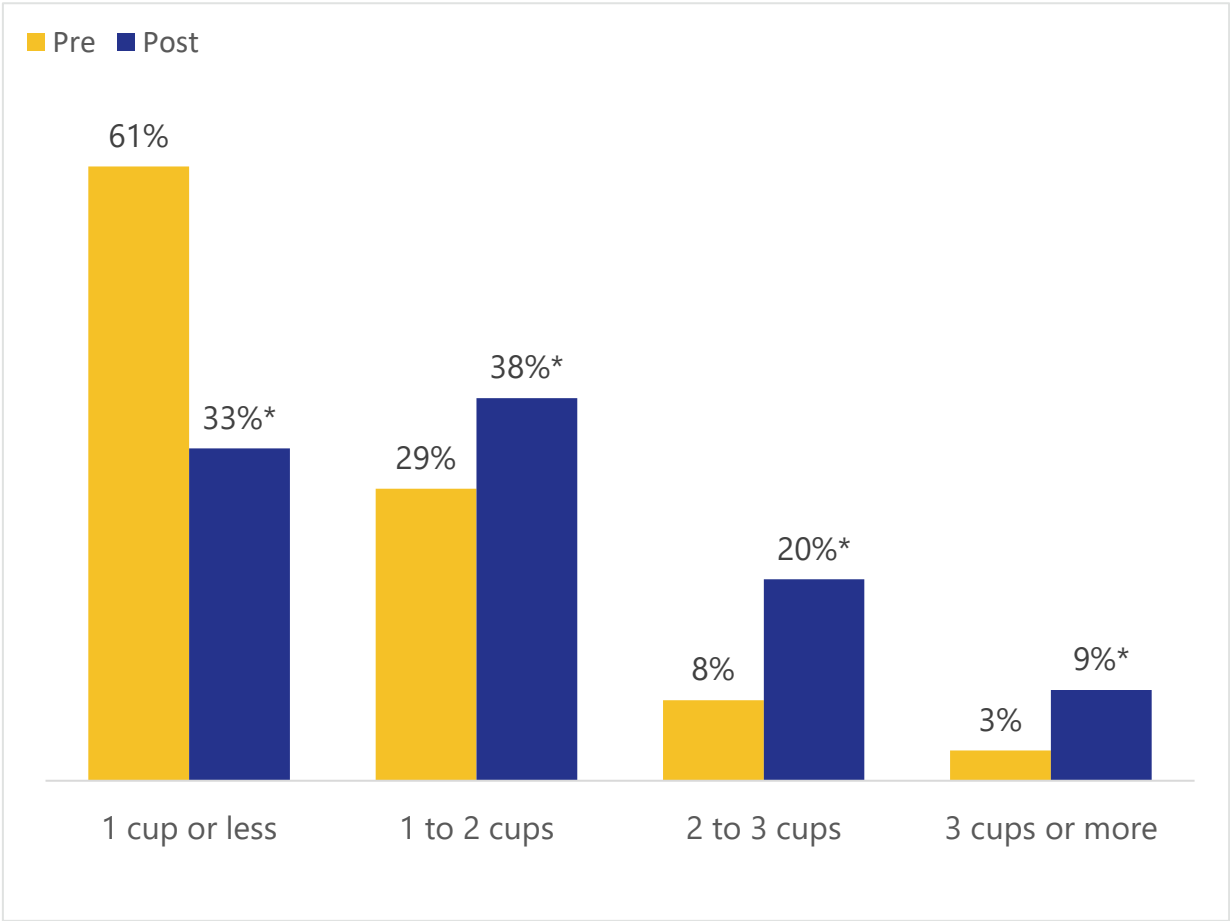


Program Outcomes

Daily Fruit Consumption (n=265)

Participants reported an increase in fruit consumption at follow-up compared to baseline. Increases for the "2-3 cups" and the "3 cups or more" categories were statistically significant, suggesting that Produce Rx participation was associated with higher daily fruit intake. Conversely, the "1-2 cups" and the "1 cup or less" categories showed a statistically significant decrease, which suggests that participants who were consuming lower amounts of fruit prior to the program were likely to move into higher consumption categories at follow-up.

Figure 1. Daily fruit consumption at baseline and follow-up (n=265)



*Denotes a statistically significant change ($p \leq .05$)

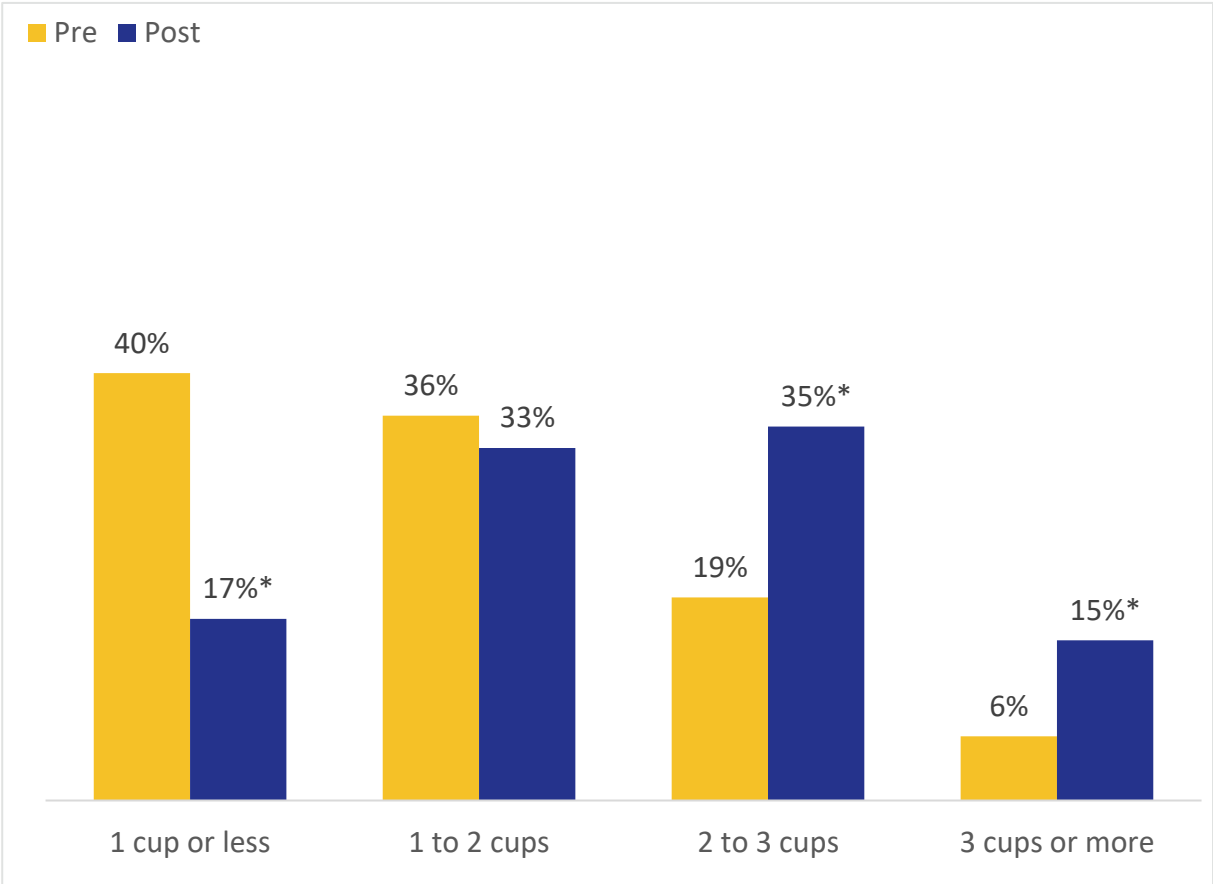


Program Outcomes

Daily Vegetable Consumption (n=265)

Participants reported an increase in vegetable consumption at follow-up compared to baseline. Increases for the "2-3 cups" and "3 cups or more" categories showed statistically significant increases, while the "1 cup or less" categories showed a statistically significant decrease. These trends suggest that participants were likely to move from the less frequent consumption categories to the more frequent consumption categories after participating in Produce Rx.

Figure 2. Daily vegetable consumption at baseline and follow-up (n=265)



*Denotes statistically significant change ($p \leq .05$)



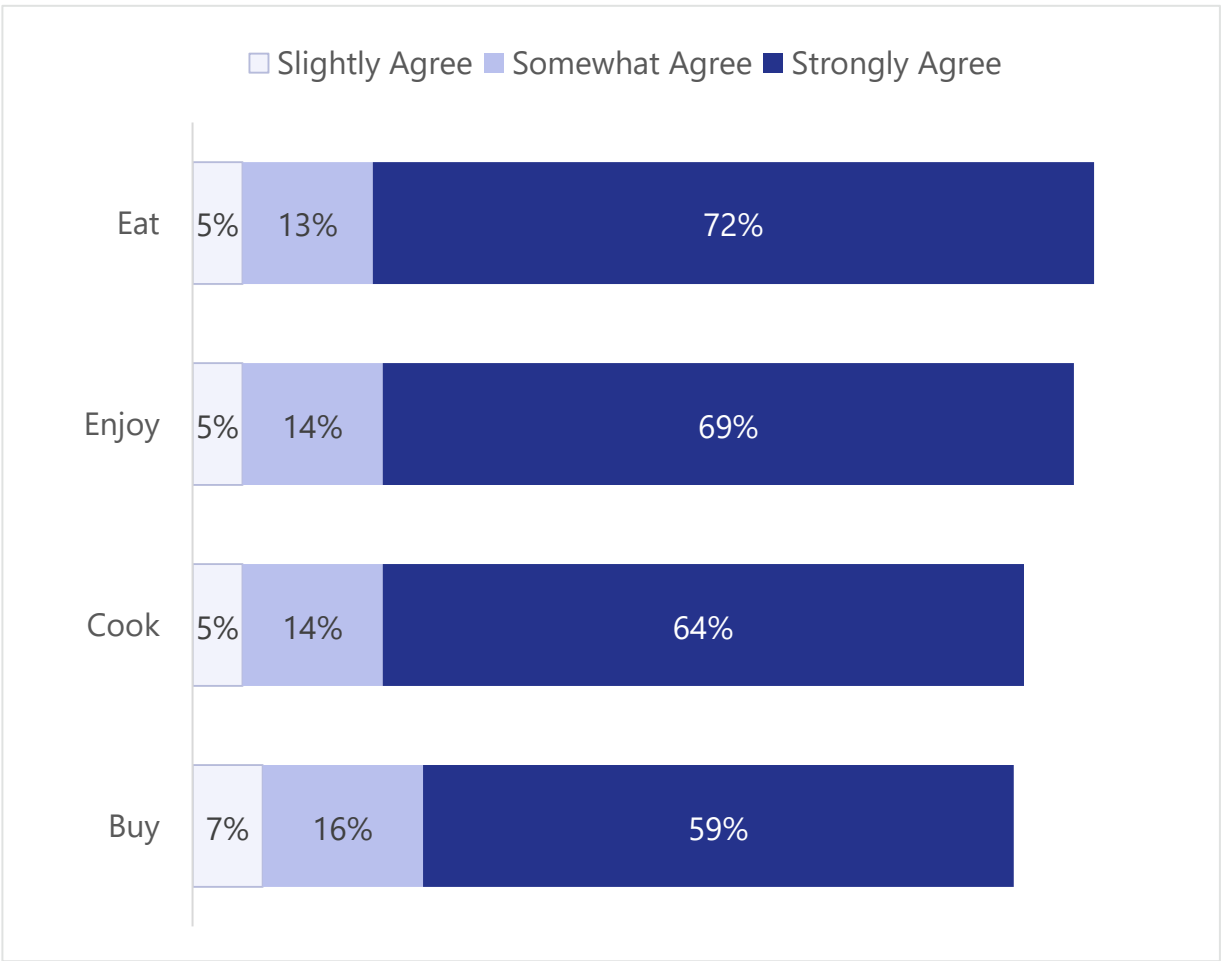
Program Outcomes

Post-Program Fruit & Vegetable Behaviors

More than two-thirds of participants reported they “strongly agreed” with statements affirming an increase in the number of servings of fruits and vegetables they regularly ate, enjoyed, cooked, and bought.

Figure 3. Fruit & Vegetable Behaviors (n=264)*

Extent to which participants agreed with the statement: “After completing this program, I have INCREASED how many vegetables and fruit that I regularly...”



*Other response options included Slightly Disagree, Somewhat Disagree, Strongly Disagree, Unsure/Neutral.

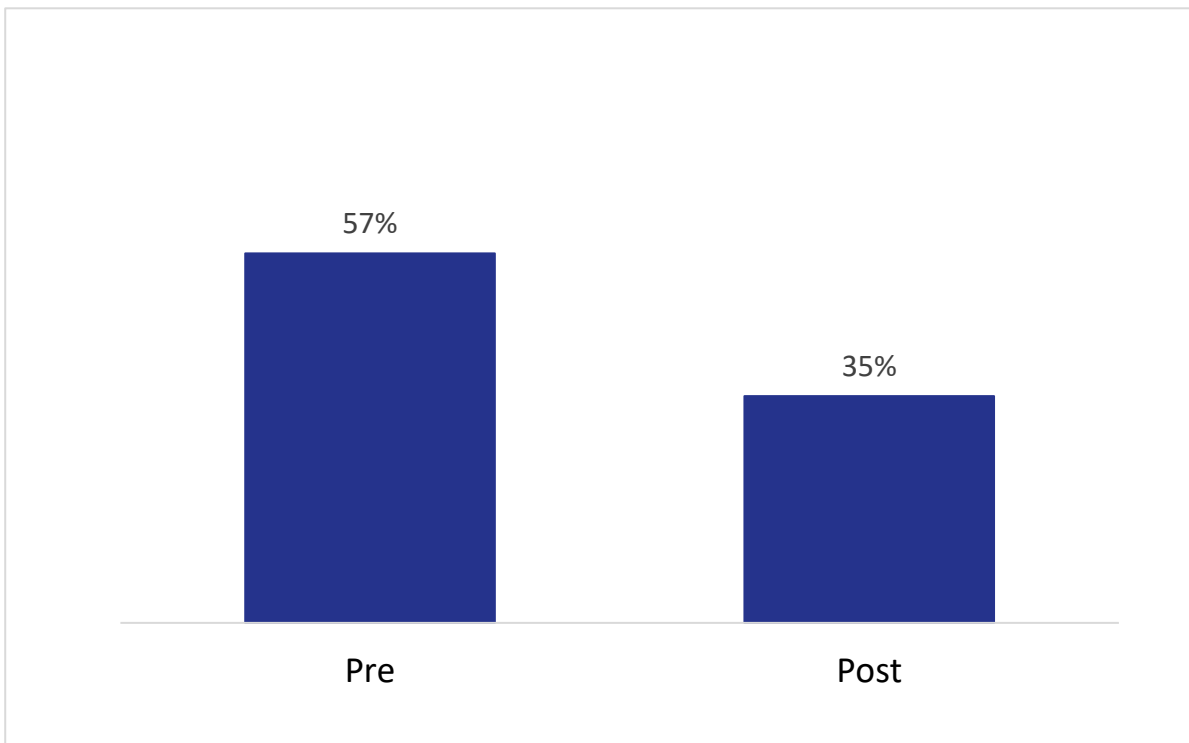


Program Outcomes

Changes in Food Insecurity

Participants were asked three food insecurity questions based on USDA’s U.S. Household Food Security Survey¹. If participants responded “often” or “sometimes” to at least one of the questions, they were considered food insecure. There was a 22% decrease in the percent of respondents who were food insecure at follow-up compared to baseline, suggesting that participation in Produce Rx helped improve food security.

Figure 4. Food Insecurity at baseline and follow-up (n=262)



“Food Insecure” = Participant Responded “Often” or “Sometimes” to at least one of three food insecurity questions.

1. U.S. Department of Agriculture, Economic Research Service. *U.S. Household Food Security Survey Module*. September 2012.



Program Outcomes

Biometric Outcomes

There was a statistically significant decrease in the percent of participants with A1C levels in the diabetes range at follow-up compared to baseline. There were also significant decreases in the average change in BMI and A1C levels from baseline to follow-up. There were no statistically significant trends observed for weight status. It should be noted that the time between baseline and follow-up varied between grantees, affected the opportunity to influence biometric outcomes.

Table 3. Biometric Indicators Summary

Biometric Indicator	Baseline Average	Follow-Up Average	Change	% of Participants who Improved	Average Time between Baseline & Follow-Up
BMI (n=363)	35.4	34.8	- 0.6**	61%	285 days
A1C (n=340)	7.5	7.2	- 0.3*	59%	313 days

*Denotes statistically significant change ($p \leq .05$); **Denotes statistically significant change ($p \leq .001$)

Figure 5. BMI categories† at baseline and follow-up

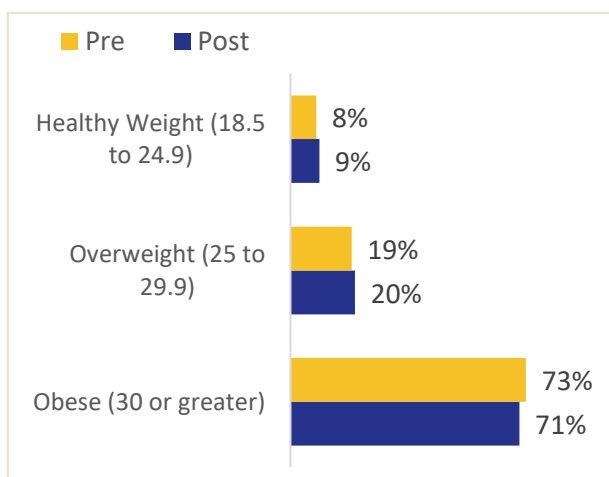
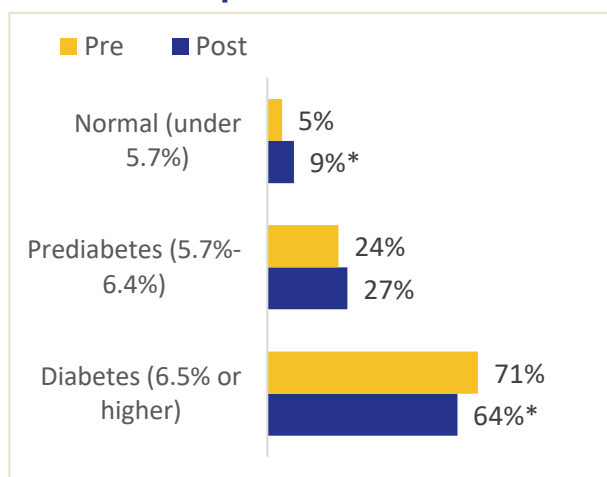


Figure 6. A1C categories‡ at baseline and follow-up



†Adult BMI Categories from the Center for Disease Control and Prevention (CDC); BMI is a calculation of person's weight divided by the square of their height.

‡A1C ranges from the American Diabetes Association; A1C measures the blood glucose levels as a percent over the past two to three months.



Grantee Interviews: Program Implementation

Limelight Analytics conducted interviews with representatives of six organizations that implemented programming in 2022-2023. The aim of the interviews was to gather information and details on program delivery, facilitators of and barriers to program implementation, and resources needed to sustain and/or expand produce prescription programming in their communities. The tables below summarize voucher distribution practices used in their programs. Three grantees used electronic cards or paper vouchers for redemption at grocery stores and/or farmer's markets, and three grantees used vouchers for produce box redemption.

Table 4. Pilot programs using electronic card or paper voucher distribution models

Program Details	Vouchers or Cards	Duration	Frequency	Amount	Redeemed at Grocery Stores	Redeemed at Farmer's Market
Maple City Health Care	Vouchers	6 months	Weekly	\$15		✓
Marion County Public Health Department (MCPHD)	Cards	12 months	Monthly	\$90	✓	
Parkview Health	Vouchers & Cards	6 months	Monthly	\$50	✓	✓

Table 5. Pilot programs using vouchers for produce box redemption

Program Details	Frequency	Duration	Value	Sourced locally
Faith Farms	Weekly	6 months	\$40	✓
Purdue Extension	Weekly	16 weeks	\$20-\$30	
Vanderburgh County Health Department	Weekly	12 months	\$40	✓



Grantee Interviews: Program Implementation

Nutrition Education Delivery

Delivery of nutrition education was also discussed during the interviews with pilot program grantees. As shown in Table 6, all grantees provided nutrition education to program participants either in-person or online. Some programs offered a hybrid approach in which participants completed several online modules and then attended a small number of in-person sessions. Nutrition education was not always required throughout the entire length of the program but instead tended to be concentrated within the first few months of the intervention. None of the program staff interviewed reported using a specific, evidence-based curriculum, although it appeared that many elements of their educational approaches were consistent with evidence-based models.

Table 6. Nutrition Education Details

Program Details	Duration	Frequency	In-Person or Virtual	Cooking Demos	Taste Testing	Individual Coaching
Faith Farms	6 months	Bi-monthly	Both	✓		
Maple City Health Care	6 months	Weekly	In-Person		✓	✓
MCPHD (Eskenazi Health)	4 months	Monthly	Both	✓		✓
Parkview Health	6 months	4 sessions	Both	✓		✓
Purdue Extension	10 weeks	Weekly	In-Person	✓	✓	
Vanderburgh County Health Department	12 months	4 months: weekly, 2 months: bi-weekly, 6 months: monthly	Virtual			✓



Grantee Interviews: Key Findings

Several key findings emerged from the interviews that may be helpful to consider as Indiana strengthens its infrastructure and capacity to deliver Produce Rx programs. These findings are related to potential service-delivery barriers, technical assistance needs, and data collection.

Key Finding #1

Produce Rx program administrators were often nurses, registered dietitian nutritionists (RDNs), and other patient support health care professionals. Future program administrators will benefit from additional technical support focused on project management and data collection.

Most program administrators were clinicians with extensive experience working directly with patients to support healthcare and nutrition needs. While this is certainly an asset to Produce Rx programs (which are intended to improve nutrition habits and health outcomes), these clinicians did not always have the administrative experience managing budgets, project implementation timelines, and multiple types of data collection. In fact, most program administrators only collected data required by the Indiana Department of Health for the Pilot Program Grants, and several were unable to fulfill even those responsibilities.

The clinical experience of most program administrators provided them with key advantages to recruit and engage participants, which likely led to the levels of success they reported when asked about program implementation. Program administrators reported high levels of program engagement among participants and noted that they frequently received feedback about how much participants (and their family members) appreciated being involved. Future Produce Rx projects (especially those in smaller communities) will likely benefit from additional technical assistance to support project management, data collection, and reporting.

Key Finding #2

Grantees reported high levels of participant retention, although they had little data to support this. Future Produce Rx programs should be required to track and report specific elements of participant retention.

During the interviews, all grantees reported that participants were highly engaged in the program and that retention levels were high. Although many acknowledged that a few participants opted to drop out of the program, only one program collected data to support



Grantee Interviews: Key Findings

this hypothesis. In fact, few programs collected any systematic data on the extent to which participants attended nutrition education sessions and/or used their vouchers to redeem their produce boxes.

Given the multi-faceted nature of Produce Rx programs (e.g., produce procurement, nutrition education sessions, and possibly clinical appointments), monitoring program participation should include tracking attendance and engagement in multiple activities. Future Produce Rx programs will benefit from detailed instructions from IDOH on what should be tracked and how the data should be recorded. In addition, programs may benefit from guidance on how to integrate information from electronic medical records (EMRs) to systems and databases used to monitor Produce Rx implementation.

Finally, program retention metrics are essential to demonstrate the efficiency of public health interventions. These data can be used to identify the characteristics of those participants who are most (and least) likely to successfully complete these programs. In addition, detailed information on program attrition can identify timepoints at which participants are most likely to leave the program, if they leave the program at all. These data will allow future programs and state agencies to modify Produce Rx programs in ways that will help increase overall engagement and ensure extended participation among those who will benefit from the programs the most.

Key Finding #3

Several different nutrition education models were used by the pilot projects. Limited information is available on the extent to which any of the models were more effective than the others.

Because participation in all pilot projects was time-limited (e.g., 6 months, 1 year), but desired behavior changes (buying and eating more produce) are long-term, nutrition education appears to be an important component of the Produce Rx programs. It stands to reason that what participants learn, the extent to which they develop positive attitudes toward eating fruit and vegetables, and their perceived sense of self efficacy will ultimately determine if they continue to buy and consume produce once they are no longer provided vouchers to procure it.

One of the original aims of the evaluation was to use outcome data and information about program delivery (including nutrition education) to identify which implementation strategies impacted participants behavior and biometric indicators the most. However, given the variety of approaches used to implement the pilot programs and the number of participants served by each (e.g., most programs for which outcome data are available



Grantee Interviews: Key Findings

served approximately 20 participants, with the exception of Reid Health, which served more than 150), we were unable to conduct analyses to examine the relative efficacy of the different approaches to program implementation, including nutrition education.

Future evaluation efforts, in Indiana and elsewhere, should more rigorously assess the models of nutrition education programming delivered, and the associated behavioral, motivational, and health outcomes of each. Moreover, the assessment of both intermediate and long-term outcomes should be included in well-resourced research projects to allow for the assessment of these same outcomes after participants are no longer directly engaged in Produce Rx programs.

Key Finding #4

There were two primary models used for produce distribution in the pilot programs: a voucher/card model for redemption at grocery stores and/or farmer's markets and a voucher for produce box model. The barriers to implementing these approaches were specific to the type of distribution model used.

As shown earlier in this report, Produce Rx pilot program staff interviewed for the evaluation described two different approaches to providing produce to participants. Half of the pilot programs used paper vouchers or debit cards to be redeemed at grocery stores and/or farmer's markets, and the other half distributed vouchers to be redeemed for boxes of produce. Debit cards were typically re-loaded monthly, while vouchers for produce boxes were distributed weekly.

When asked about the challenges to implementation, different pressure points were identified depending on the model used. First, pilot programs that used a debit card or voucher redeemed at grocery stores and/or farmer's markets were likely to have faced administrative challenges establishing third-party contracts with financial technology companies, ensuring the debit cards worked properly at all point-of-sale retailers, and distributing them securely and quickly to program participants. Although all the grantees interviewed as part of the evaluation were ultimately able to overcome these challenges, the time commitment to doing so was noteworthy.

Produce Rx pilot programs that distributed vouchers redeemable for produce boxes to their participants often reported that this process was labor-intensive and required subcontracting with a local organization specializing in this type of work or required a regular cadre of volunteers and/or staff to assemble the boxes and make them available for pick-up. In addition, grantees that distributed vouchers for produce boxes also noted that, more than once, their staff made deliveries when participants were unable to pick up their boxes.



Grantee Interviews: Key Findings

Moreover, the perishable nature of much of the produce in the boxes made this task time-sensitive. Most often, participants were unable to pick up their produce boxes when transportation was not available (participants often relied on relatives for transportation) or they were experiencing a health challenge.

Key Finding #5

Women were most likely to participate in the Produce Rx pilot programs, but as a “food gatekeeper” for their families, it is likely that other family members benefitted from the program, too.

Although pilot programs did not track participant-level data on sex during implementation, grantees shared in the interviews that most participants (sometimes up to 80-90%) were women. This difference was not a consequence of the referral process (men and women were equally likely to be referred to the program from their healthcare provider), but rather during the enrollment process. In other words, women were far more likely to choose to enroll in Produce Rx programs upon referral.

Program managers also noted, that because women are often primarily responsible for procuring and cooking food for their families (e.g., serving in a “food gatekeeping” role), the benefits of the program often reached beyond the participants of record to their spouses and extended family members. Related to this, grantees often reported that family members sometimes attended nutrition education sessions with participants and helped them pick up produce boxes. In this way, participation in Produce Rx programs appeared to be a “family affair” for some participants, which may have its own benefits through social facilitation and support. Eventually, it may be important to know if program participants whose families are more involved in the program are more likely to participate for longer periods of time and/or engage more deeply in the various program components (e.g., nutrition education).

It would also be helpful for future research and evaluation efforts to identify how Produce Rx programs could be structured and/or delivered to encourage more men who qualify medically to enroll as participants. It may be possible that enrollment at the family level, may serve to support more men who would benefit from the program but don’t see themselves procuring or preparing food for themselves and/or their family. Similarly, Produce Rx outreach may benefit from including extended family members such as spouses and children of adults who qualify for the program.



Evaluation Limitations

Participant Pre- and Post-Surveys

- **Uncertainty about measurement timeframe:** Pre- and post-program survey data were not time-stamped. Therefore, the evaluation team was unable to document the length of time between baseline and follow-up surveys. While many programs likely delivered these surveys at the beginning and end of the program term, records do not exist to confirm this.
- **Survey administration methodology is unknown:** Although baseline and follow-up surveys were collected by several pilot programs, it is not clear if the data were collected over the phone, using an online survey, or through face-to-face surveys. Moreover, some of these methods are more likely to produce bias than others.
- **Limited data available on program implementation:** Few details of program implementation were consistently documented and reported by pilot programs. These details include the demographic characteristics of participants enrolled in the program (e.g., age, sex, race, ethnicity), the extent to which participants completed various elements of program delivery, and the content included in nutrition education sessions. As such, it's difficult to determine which elements of implementation were associated with important health outcomes. Additionally, not all grantees reported data.
- **Survey data does not include those who left the program rarely:** Because data on program retention were not collected by pilot programs, it is likely that all post-program survey data come from participants who completed all six or 12 months of the program term. This limits the ability to assess trends in outcome data based on levels of program engagement, utilization of incentives, or participation in nutrition education sessions.

Interviews

- **Interviews were only conducted with organizations that continued to implement Produce Rx programming (often with an extension grant from IDOH):** Unfortunately, the evaluation team was unable to conduct interviews with grantees who had implemented programming in 2022-2023 and chose not to continue (or were unable to continue) programming in subsequent years. As such, the interview results do not reflect the experiences of program teams that implemented for one year but then were not able to extend their programming beyond the first year. As a result, the evaluation team was unable to learn more about the barriers that prevented longer-term program implementation.



Strengthening Produce Rx in Indiana

Outcome data collected by Indiana's Produce Rx Pilot Programs suggest participants increased their fruit and vegetable consumption, improvements in food insecurity, and positive changes in A1C levels. Taken together with the ongoing Produce Rx research and promising practices identified by GusNIP, the following recommendations are offered to DNPA to further strengthen the delivery of Produce Rx programs in Indiana.

1. Determine Produce Rx priorities for Indiana.

Although research is still being conducted to determine which Produce Rx model yields the highest levels of program engagement and favorable outcomes, IDOH should develop a set of program parameters to create consistent implementation for Produce Rx programs funded by DNPA. Moreover, these parameters should align with current GusNIP requirements (see [Appendix C](#)) and best practices to create synergy with national momentum and ensure alignment with research-based practices. IDOH should consider developing and recommending specific implementation strategies for the following program components; (1) Program duration and dosage; (2) Nutrition education curricula and practices; (3) Qualifying diagnoses for program participation; and (4) Income eligibility requirements for program participants.

2. Develop participant-level data collection strategies.

Because Produce Rx is a relatively new approach to disease prevention, research supporting the efficacy of the program is still emerging. As such, IDOH should develop data collection strategies to encourage and support evaluation of Produce Rx programs in Indiana and disseminate crucial results to external stakeholders and potential funders. In alignment with similar data collection efforts around the United States, IDOH should consider the following data collection and evaluation strategies:

- Review current pre- and post-survey data completed by participants and determine key outcome categories. Ensure questions and response options are valid and align with best practice for self-report data. Key outcome categories should include, among others, fruit and vegetable consumption and food insecurity. Other questions should focus on program satisfaction, produce use, and quality of produce.
- Identify priority biometric indicators and help programs identify how to best access these data from their healthcare providers. In the past, pilot programs collected BMI and A1C, although several grantees also collected other indicators such as blood pressure.
- Develop a standardized data collection timeline and protocol. Grantees should collect data before participants participate in the program and again once the program is completed. IDOH should also recommend data collection strategies (e.g., hard copy surveys, phone interviews, electronic surveys) to grantees based on their populations. Pre- and post-surveys should be submitted to IDOH on a regular schedule identified prior to the beginning of the project.



Strengthening Produce Rx in Indiana

- Identify key demographic indicators to be measured for each program participant. IDOH should also develop and train grantees on consistent strategies to collect demographic characteristics from program participants.

3. Monitor program implementation data and follow up with programs when needed.

IDOH should develop tracking tools and ensure adequate staff capacity that allows them to monitor implementation progress among grantees. Program enrollment, produce distribution/redemption, and participation in nutrition education activities should be key areas that are closely monitored by IDOH staff. These metrics will also help local project managers, and their teams reflect on implementation progress and opportunities to improve efficiency and efficacy and better understand the reach and Produce Rx models used in Indiana.

4. Integrate Produce Rx into Health First Indiana through training and technical assistance.

Health First Indiana (HFI), created by Senate Enrolled Act 4-2023, is an initiative intended to transform public health across the State. Counties are encouraged to determine the health needs of their community and implement evidence-based programs focused on prevention. Counties are given funding to address core service areas (e.g., maternal and child health, trauma and injury prevention, chronic disease prevention) and they are expected to assess progress toward key performance indicators in each focus area addressed by their plan. Now that Produce Rx is emerging as an evidence-based approach to improving health indicators associated with obesity, DPNA should develop resources and create awareness of this approach among local health departments and their partners (e.g., local healthcare providers) who participate in HFI.

5. Increase awareness of Produce Rx as a community-based approach to prevention among Indiana's non-profit hospitals.

Under the Affordable Care Act, non-profit hospitals seeking tax exemption are required to regularly survey and respond to community health needs. This obligation expands hospitals' roles beyond providing clinical care and calls for them to engage with their communities, which often involves partnering with local health departments and prevention-focused organizations and councils. Three of Indiana's Produce Rx pilot programs were led by or partnered with regional healthcare systems, highlighting the variety of roles these organization could have in expanding Produce Rx across the state. Both Reid Health and Parkview Health were recipients of a Produce Rx pilot program grant from IDOH, and Parkview Health also implemented Produce Rx programming through support from a GusNIP grant. These healthcare systems serve as models for reaching large groups of individuals who ultimately benefitted from Produce Rx, and their results should be shared with other systems that may not be aware of Produce Rx.



Strengthening Produce Rx in Indiana

Because healthcare systems already have systems developed to collect and manage patient data, as well as the administrative capacity to track and contact patients, they are well-positioned to serve in leadership or support roles for Produce Rx.

6. Develop sustainable funding sources for Produce Rx.

There is a pressing need to better understand the health and cost benefits of Produce Rx and other Food is Medicine programs. Therefore, securing sustainable funding for Produce Rx will require increased visibility of these programs and the outcomes among healthcare providers and policymakers throughout the state.



Appendices

- A. Evaluation Methodology Details
- B. Survey Respondents at Baseline
- C. Baseline Biometric Indicators



Appendix A

Evaluation Methodology Details

Evaluation methodology included multiple data collection strategies to describe program implementation, participants, and outcomes of the Indiana's Statewide Produce Rx Pilot program. The evaluation was guided by a set of key questions aligned with formative and summative inquiry. Formative evaluation questions focused on the extent to which key elements of the project were implemented efficiently and effectively and the characteristics of the participants served in each community. Summative evaluation questions focused on changes that occurred in participant attitudes, behaviors, and biometric indicators.

Formative Evaluation

The formative evaluation addressed a set of key questions related to the implementation of the program by local grantees, services and supports provided to program participants, and the characteristics of program participants. Data were also collected on the facilitators and barriers to program implementation, and the extent to which those factors varied by community, program delivery model, and participants served. Formative evaluation questions addressed through the evaluation include:

Program Participants:

- How many participants were served by the Produce Rx program?
- What were the characteristics of Produce Rx participants?
- What diagnoses/health issues qualified them to participate in the Produce Rx program?
- What did retention rates look like overall, for each grantee, and across program models?

Program Services and Supports:

- What was the duration of each cohort served by the grantees?
- How often did participants receive or procure produce?
- What quantity of produce was available for participants?
- How frequently did participants receive nutrition education services?
- What models of delivery and which curricula were used to deliver nutrition education?
- To what extent did grantees perceive these models as more/less effective?

Facilitators of and Barriers to Program Implementation:

- To what extent did the delivery of previous Produce Rx programming facilitate the implementation of programming for the Pilot Produce Rx programming?
- What other facilitators of program implementation were encountered by local grantees?
- What barriers to program implementation did local grantees face?
- To what extent are local grantees sustaining programming initiated/supported by the Produce Rx Pilot Grant?
- Are there additional plans for sustainability that have not been pursued?



Appendix A

Evaluation Methodology Details

Formative Evaluation Data Collection Strategies:

- *Review of Programmatic Data:* Limelight Analytics analyzed program records and data collected by grantees to describe who was served by the program and the services provided to them. IDOH requested participant-level data from all pilot program grantees, although only a subset of them were able to provide complete data for the evaluation.
- *Review of Quarterly and Final Reports from Grantees:* Limelight Analytics reviewed the quarterly and final reports submitted by Implementation Track grantees to assess key indicators of program implementation, including service delivery and program participants served.
- *Interviews with Grantees:* Limelight Analytics conducted interviews with representatives of organizations that implemented programming in 2022-2023. The aim of the interviews was to gather additional details on program delivery, facilitators of and barriers to program implementation, and resources needed to sustain and/or expand produce prescription programming in their community.

Summative Evaluation

The summative evaluation addressed a set of key questions related to changes in participants' attitudes, behaviors, and biometric indicators. Data were collected by pilot programs using pre- and post-program surveys and biometric measurements taken before and after program participation. Summative evaluation questions addressed by the evaluation include:

Changes in Participants' Attitudes & Beliefs

- To what extent did the Produce Rx program change attitudes toward fruit and vegetable consumption among participants?
- To what extent did the Produce Rx program change participants' perceptions of self-efficacy related to eating fruit and vegetables?

Changes in Participants' Behaviors

- To what extent did the Produce Rx program change fruit and vegetable consumption among participants?
- To what extent did participants buy, eat, cook, and enjoy fruit and vegetables after participating in the program?

Changes in Participants' Biometric Indicators

- To what extent were changes observed in participants' biometric indicators (e.g., BMI and A1C)?



Appendix A

Evaluation Methodology Details

Summative Evaluation Data Collection Strategies

- *Analysis of Pre/Post Participant Surveys:* Limelight Analytics conducted statistical analyses to determine practical and statistically significant changes for indicators included in surveys administered to participants by pilot program grantees at baseline and at the end of the project.
- *Analysis of Biometric Data Collected by Grantees:* Limelight Analytics analyzed pre-to-post program changes in biometric indicators collected by local grantees (e.g., BMI and A1C). Parametric statistics were used to identify statistically significant changes (when sample sizes were sufficient).

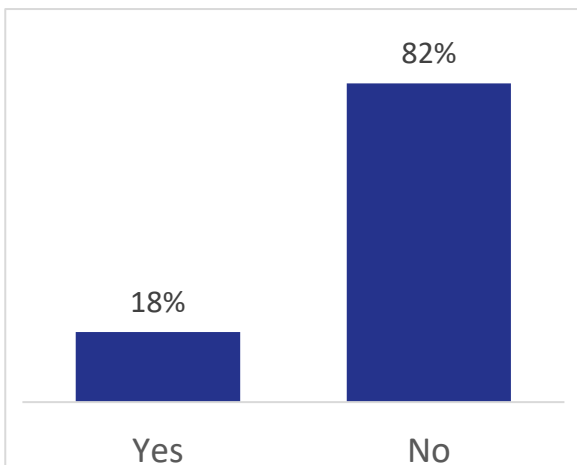
Appendix B

Survey Respondents at Baseline

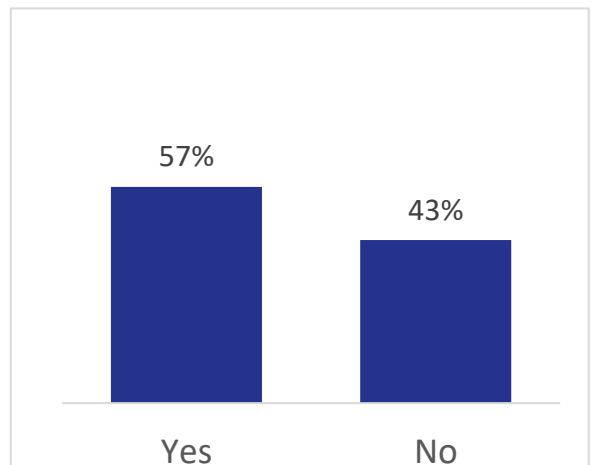
SNAP Eligibility, Food Insecurity, and Household Size at Baseline

Pre-and post survey data were available for 264 participants. Over 80% of participants were not receiving SNAP benefits, although 57% were identified as food-insecure. Most participants (72%) either lived alone or with one other person. Additional demographic indicators, including sex and age, were not collected.

SNAP participation at baseline among survey respondents (n=264)

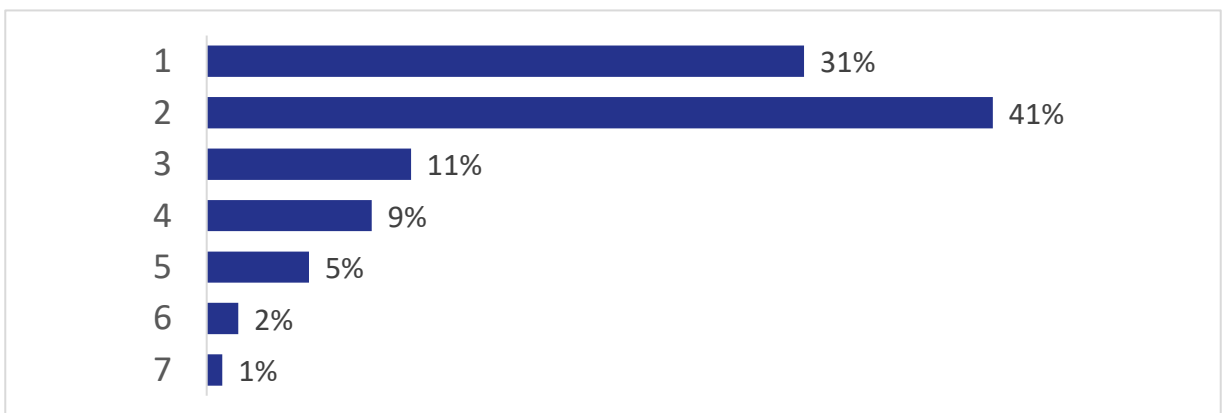


Food insecurity* at baseline among survey respondents (n=264)



*Responded 'often' or 'sometimes' to at least one of three food insecurity questions

Household size at baseline among survey respondents (n=243)



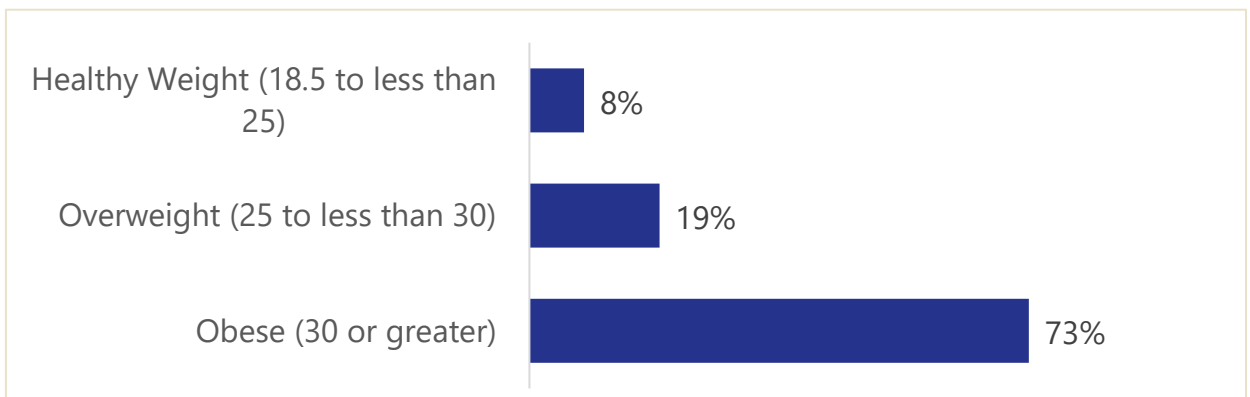
Appendix B

Baseline Biometric Indicators

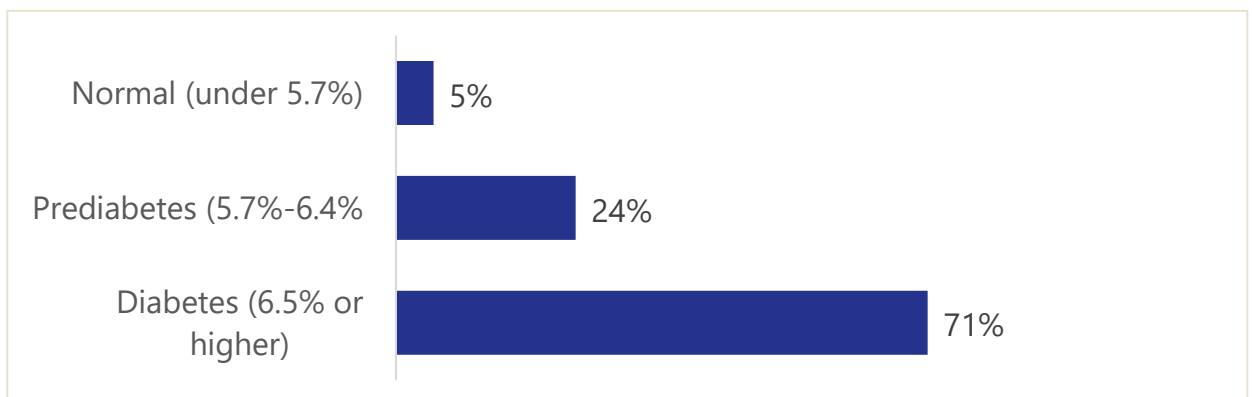
Weight Status and A1C Levels

Produce Rx participants were frequently referred to the program and received a produce prescription following a disease-state diagnosis. Most grantees provided produce prescription and nutrition education to participants who were diagnosed with diabetes by a health care provider, although some also considered obesity and cardiovascular disease as qualifying diagnoses, too. Baseline data showed that 70% of participants had biometric measurements within the diagnostic ranges for obesity and/or diabetes.

Weight status[†] at baseline among participants



A1C levels[‡] at baseline among participants



[†]Adult BMI Categories from the Center for Disease Control and Prevention (CDC); BMI is a calculation of person's weight divided by the square of their height.

[‡]A1C ranges from the American Diabetes Association; A1C measures the blood glucose levels as a percent over the past two to three months.



Appendix C

Promising Practices from GusNIP

GusNIP Programming and Impact

The Gus Schumacher Nutrition Incentive Program (GusNIP) program supports food and nutrition security among low-income communities and aims to strengthen local economies and healthcare systems. GusNIP supports the following types of direct-service programming: (1) Nutrition Incentive (NI) projects that provide incentives to individuals using USDA's Supplemental Nutrition Assistance Program (SNAP) or Nutrition Assistance Program (NAP) benefits to purchase FVs, (2) Produce Prescription (PPR) projects that coordinate with a healthcare entity, such as a clinic, to provide incentives in the form of prescriptions for fresh FVs. A recent report released in August 2024² highlights the national impact of GusNIP-funded projects from September 1, 2022, through August 31, 2023 (a timeframe that overlaps with the implementation of DNPA's Produce Rx pilot programs).

In the effort to identify research-based practices, that can strengthen the implementation of Produce Rx programming in Indiana, the following highlights from the GusNIP Impact Findings are presented.

GusNIP Program Implementation

- Only fresh fruit and vegetables (FV) were eligible for redemption in programs funded through GusNIP, although programs could seek exceptions to provide non-fresh fruit and vegetables to accommodate cultural preferences, seasonality, or availability of fresh fruit and vegetables in a geographic area. Most programs designated fresh FV only and all FV (fresh, canned, frozen, dried, plants, seeds) as eligible for redemption.
- The most common redemption method for GusNIP-funded Produce Rx programs was paper vouchers or coupons, followed by a debit card, and then produce boxes.
- In 2022-2023, there was a 74.6% produce redemption rate compared to a 53.4% redemption rate in the previous year. Produce redemption also showed cyclical changes, with the lowest rates observed in December, and the highest rates observed in August.
- Nutrition education most often focused on purchasing, preparing, and eating FVs and included cooking demonstrations, one-on-one or small group nutrition education, partnering nutrition education, e-interventions, and food navigation or tours. Other program services included resource referrals, produce delivery and transportation, COVID testing and vaccines, health fairs, and voter registration.
- Marketing for Produce Rx programs included on-site signage or announcements, direct mail/email/phone, online advertisements and multilingual promotions.

2. GusNIP NTAE. *Gus Schumacher Nutrition Incentive Program (GusNIP): Impact Findings Y4: September 1, 2022 to August 31, 2023*. Prepared for U.S. Department of Agriculture, National Institute of Food and Agriculture; 2024. Accessed [date] <https://www.nutritionincentivehub.org/gusnip-ntae-impact-findings>



Appendix C

Promising Practices from GusNIP

GusNIP Process Monitoring and Evaluation

- GusNIP-funded programs were required to screen participants for income eligibility and diet-related health conditions, including diabetes, prediabetes, CVD, hypertension, and obesity. They were also required to collect demographic characteristics of program participants: location, age, sex, race/ethnicity, food security.
- Key outcomes assessed by GusNIP-funded Produce Rx programs include increases in food security and increases in FV intake.
- It is unknown which aspects of Produce Rx programming are most strongly associated with increased FV consumption.
- GusNIP-funded Produce Rx programs are continuing to work to access to electronic health records data to efficiently assess program outcomes. Preliminary data suggest that participation in Produce Rx programs increases the use of preventive care services, decreases emergency room visits, and decreases hospitalizations.

Current Produce Rx Research

Current research projects that assess the implementation and outcomes of Produce Rx programs include the following:

- Projects that assess the impact of Produce Rx on health care visits, hospitalization, and ER visits;
- Recent Produce Rx studies have shown mixed results for favorable A1C management; additional studies are underway to evaluate the impact of GusNIP-funded programming on changes in diabetes indicators.
- Ongoing research is investigating the combinations of project characteristics (FV redemption through boxes v. debits cards), strategies (transportation v. partnering with markets), and contexts (urban v. rural) to assess participant engagement.

