

### INTRODUCTION

Reinvestment Partners is a non-profit with a mission to promote healthy and just communities by working with people, places, and policy. Reinvestment Partners first began working on Food is Medicine programming in 2018, launching a produce prescription program at one health center in Durham, NC. Since then, the Reinvestment Partners' Eat Well program has grown to include three types of Food is Medicine interventions — healthy meals, healthy grocery boxes, and produce prescriptions — and has expanded into a national program. Today, the Eat Well produce prescription program is one of the largest produce prescription programs in the United States. The program has served more than 150,000 participants, who have spent over \$30M on fruits and vegetables.

Reinvestment Partners believes that everyone with a diet-related disease should have access to the foods they need to be healthy. We are committed to the goal of making healthy food a covered health benefit by meeting the business, regulatory, and healthcare standards of the industry. The long-term integration of Food is Medicine interventions into the healthcare sector will require a strong evidence base detailing how these interventions affect health outcomes, healthcare utilization, and healthcare costs.

Reinvestment Partners is working with top-tier research institutions to conduct rigorous studies on our produce prescription programs, including a number of randomized controlled trials. To date, Reinvestment Partners' produce prescription programs have been part of fifteen studies that are completed or in progress. This research brief summarizes our produce prescription program findings to share with the Food is Medicine community, researchers, and policy makers.

#### **How does Eat Well work?**

Eat Well provides scalable and customizable produce prescriptions by leveraging technology and online enrollment. Eat Well produce prescriptions can be offered in dollar amounts and durations that meet the needs of providers and patients, and thousands of clients can be quickly enrolled in a short period of time. Once enrolled, participants receive an Eat Well card in the mail. The Eat Well card is a prepaid debit card that allows participants to purchase fresh, frozen, and canned fruits and vegetables without added sugar, salt, and fat at a network of major food retailers nationwide. Funds automatically load on the card each month for the length of the program.

### RESEARCH PARTNERS

















### REINVESTMENT PARTNERS' PRODUCE PRESCRIPTION RESEARCH

Over the last decade, there has been growing interest and investment in Food is Medicine in the United States. Reinvestment Partners' produce prescription programming and research has followed a similar developmental trajectory as Food is Medicine progress

at the national level. We have been proud to be part of the community of practitioners and researchers demonstrating that Food is Medicine interventions are both feasible and impactful. Reinvestment Partners has focused our Food is Medicine work in four key areas:

- Programming: We develop and implement Food is Medicine programs that are scalable and accessible to patients across geographies and lines of business.
- **Integration:** We ensure that all of our programming can be easily integrated into existing healthcare workflows and processes.
- Research: We conduct rigorous research to demonstrate the impact of Food is Medicine programs on fruit and vegetable consumption, health outcomes, and healthcare utilization and costs.
- **Advocacy:** We advocate for state and federal policies that facilitate the integration of Food is Medicine interventions into the healthcare system.

Reinvestment Partners' research has grown in scale and complexity over time.

Our initial phase of research focused on examining the implementation, scalability, and impacts on fruit and vegetable purchasing patterns of our produce prescription programs.

More recently, we have moved onto the more complex task of determining program impacts on health outcomes, healthcare utilization, and cost effectiveness for healthcare payers.

Viability & Scalability

Impact on Fruit & Vegetable Purchasing

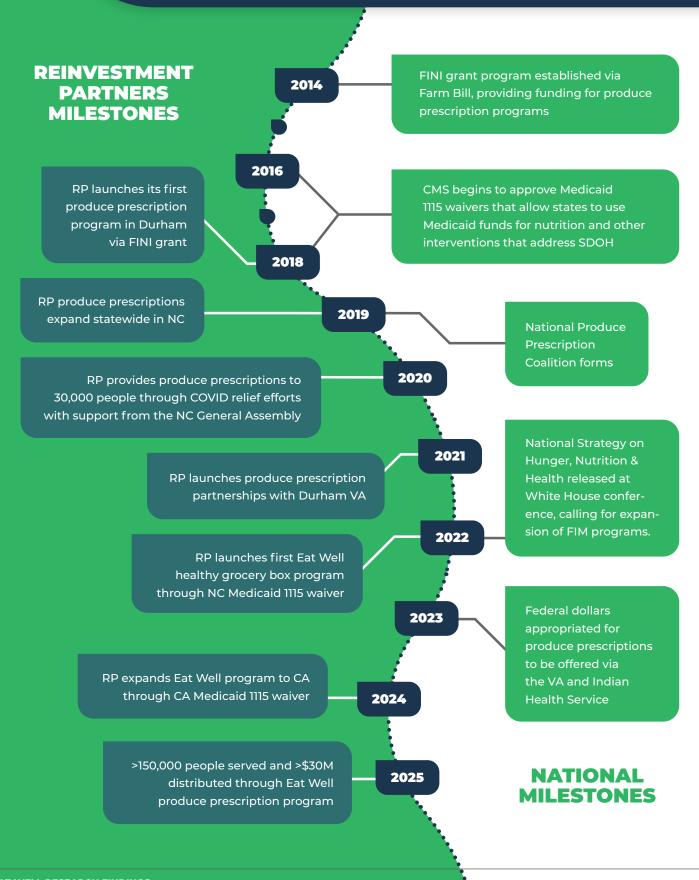
prescription?
Produce prescription

What is a produce

Produce prescriptions provide access to fruits and vegetables for patients with diet-related health conditions. Patients are referred by a health care provider or health insurance plan and receive a voucher or debit card that allows them to purchase fruits and vegetables from retailers.

Impact on Health Outcomes & Healthcare Utilization

# FOOD IS MEDICINE



## VIABILITY & SCALABILITY

A key part of evaluating Food is Medicine programs involves assessing viability and scalability in real-world conditions. In addition to being helpful and appealing to participants, programs must be able to meet the business and regulatory requirements of the healthcare sector. Over the last seven years, Reinvestment Partners has demonstrated that our Eat Well produce prescription program is able to meet each of these criteria:

 Eat Well participants report high levels of program satisfaction: Third party surveys of Eat Well participants show a Net Promoter Score of 95.

Eat Well is

easy to use:

Participants love that the Eat Well card is simple to use and that they can choose where to shop and what to buy. This ease of use is reflected in high program

utilization rates.

and customizable: Eat Well leverages technology and online enrollment to provide produce prescriptions that are scalable and customizable. Thousands of patients can easily be enrolled in a matter of weeks and produce prescriptions can be offered in variable dollar amounts and durations that meet the needs of providers and patients. In addition, we can utilize data to target very specific patient populations, whether identified by medical condition, food security status, income, insurance eligibility, or geographic location.

• Eat Well is scalable

 Eat Well meets key regulatory and business requirements:

All Eat Well enrollment systems and processes are HIPAA compliant; we are able to provide detailed, individualized usage reporting to payers; and we can bill for services via claims systems.

In a pilot with the Durham VA,

>90%

of participants purchased fruits and vegetables with their Eat Well card and more than half of all participating veterans spent more than 75% of their total benefit.

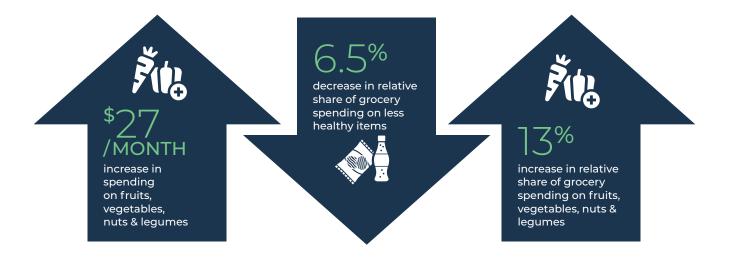
## IMPACT ON FRUIT & VEGETABLE PURCHASING

Multiple studies of Reinvestment Partners' produce prescription programs have demonstrated that participants significantly increase their spending on fruits and vegetables. They also increase the diversity of produce they purchase, while notably decreasing the portion of their grocery spending dedicated to unhealthy food. Key findings show:

- Participants purchase significantly more fruit and vegetables.<sup>1,2,3,4</sup>
- Participants purchase a greater variety of fruits and vegetables.<sup>2</sup>
- Participants report increased ability to purchase the fruits and vegetables they want as well as more capacity to purchase food overall and meet household expenses.9
- Participants change their overall food purchasing patterns, spending a greater

- proportion of their food budget on healthy food and **decreasing their proportion of spending on unhealthy food,** including sugar sweetened beverages.<sup>13</sup>
- Participants purchase the equivalent of one (1) additional serving of fruits and vegetables per person per day.<sup>1</sup>
   Public health research has demonstrated that each additional serving of fruits and vegetables consumed per day decreases the risk of death from any cause by 5%.<sup>5</sup>

These studies make an especially important contribution to Food is Medicine research at the national level due to their scale. One of the studies, led by a University of North Carolina at Chapel Hill researcher, compared the purchasing data of over 19,000 low-income shoppers in a Reinvestment Partners produce prescription program with over 86,000 low-income shoppers not in the program.<sup>3</sup> Results from the study showed the following changes in shopping behaviors as a result of program participation:



# IMPACT ON HEALTH OUTCOMES & HEALTHCARE UTILIZATION

Reinvestment Partners is currently conducting research focused on health outcomes and healthcare utilization. In collaboration with academic and healthcare partners, we are examining the impact of our produce prescription programs on diet-related diseases such as hypertension, diabetes, and obesity, as well as on healthcare utilization and associated costs. This phase of research is ongoing, with multiple studies in progress, including several randomized controlled trials

"My Eat Well card helped me tremendously to include lots of vegetables, fruits and dry beans in my diet. And because of this healthy eating I was able to lose about 25 lbs."

### Highlights of initial results include:

- For adults with high blood pressure and food insecurity, participation in a Reinvestment Partners produce prescription program resulted in significantly lower blood pressure at both 6 months and 18 months as compared to participants receiving food boxes.<sup>6</sup>
- Durham VA patients participating in a
  Reinvestment Partners produce prescription
  program experienced a modest decrease in
  Alc levels, BMI, and systolic and diastolic blood
  pressure. In addition, participation may have
  had a positive impact on reducing ED visits
  (Durham VA, publication forthcoming).
- Participants in Reinvestment Partners' produce prescription programs reported that they were over one-third more likely to go to their healthcare provider for primary care as a result of program participation.<sup>9</sup>
- There was a statistically significant 36% reduction in the odds of non-admission ED utilization for patients with no to mild comorbidities after enrollment in a Reinvestment Partners produce prescription program.<sup>7</sup>
- Evaluators of the North Carolina Healthy
   Opportunities Pilots found that participation
   in the Healthy Opportunities Pilots (which included
   both Reinvestment Partners' produce prescription
   and food box services) led to a decrease of \$85 per
   month in total cost of care on a per-patient basis.<sup>8</sup>

## THE PATH FORWARD: SCALING WITH PRECISION

Reinvestment Partners is continuing to invest in research to understand how produce prescriptions impact patients and influence health outcomes, healthcare utilization, and healthcare costs.

We seek to maximize impact and value for patients, providers, and payers by reaching the patients who are most likely to benefit from produce prescriptions, and reaching them at the largest scale possible.

We envision a future in which produce prescriptions and other Food is Medicine programs are a covered health benefit and are utilized across the United States to reach food insecure patients with diet-sensitive medical conditions. When implemented in an efficient and targeted manner, we believe that Food is Medicine interventions can reduce healthcare costs and improve participant health and wellbeing. Understanding when and how to implement Food is Medicine programming is key to making this vision a reality. Reinvestment Partners is eager to work alongside others in the field to advance Food is Medicine research.



"I feel I have more healthier food choices now since Eat Well. I have never been able to afford fruit and vegetables before until Eat Well. I'm diabetic. But since Eat Well, exercise, and taking my meds I'm no longer diabetic, I'm pre-diabetic. Eat Well has made a positive, important change in my health. I'm healthier, I've lost weight, and I'm doing just fine."

### **REINVESTMENT PARTNERS RESEARCH STUDIES**

Reinvestment Partners' produce prescription programs have been part of fifteen studies conducted with independent, third-party research partners. The table below provides more detail on each of these studies and the accompanying publications.

| DESCRIPTION                     |   | RESULTS  | STATUS  |
|---------------------------------|---|--|---|
| Reach:<br>Eligibility:          | Pre-post study 711 Atrium Health members Medicaid-insured, history of ED utilization, resident of Mecklenburg County, NC Compare odds of ED utilization before and after enrollment in a Reinvestment Partners produce prescription program Atrium Health   | There was a statistically significant 36% reduction in the odds of non-admission ED utilization between the 6-month periods before and after enrolling in the program for participants with no to mild comorbidities.  | Study<br>conducted<br>2021-2022.<br>Publication:<br>Mayfield<br>et al., 2024  |
| Reach:<br>Eligibility:<br>Goal: | Retrospective cohort study  19,722 low-income produce prescription program participants, compared with 86,034 low-income shoppers in a control group  SNAP beneficiary, impacted by COVID-19 pandemic, NC resident  Evaluate the impact of participation in a Reinvestment Partners produce prescription program on fruit & vegetable purchasing and overall food purchasing patterns  University of North Carolina at Chapel Hill  | <ul> <li>Program participation led to a statistically significant increase in spending on fruits, vegetables, nuts and legumes of \$26.95/mo, effectively doubling spending on these items.</li> <li>Spending on healthy food groups increased as a percentage of overall food and beverage spending, while spending on less healthy food groups declined as a percentage of overall food and beverage spending.</li> </ul>  | Study conducted 2019-2021. Publication: Lowery et al., 2022                   |
| Reach:<br>Eligibility:<br>Goal: | Retrospective cohort study  667 & 1,440 low-income produce prescription program participants, compared with 30,000+ low-income shoppers in a control group  SNAP beneficiary, diet-related health condition, patient of Federally Qualified Health Center in NC  Evaluate the impact of participation in a Reinvestment Partners produce prescription program on fruit & vegetable purchasing and overall food purchasing patterns  University of North Carolina at Chapel Hill | <ul> <li>Program participation led to a statistically significant increase in spending on fruits, vegetables, nuts and legumes of \$24.34/mo (Berkowitz) and \$27.42/mo (Lo), translating to one additional serving of fruits and vegetables per person per day.</li> <li>While the proportion of total food and beverage spending on healthy food increased, the proportion of spending on unhealthy food decreased, as did total spending on sugar-sweetened beverages.</li> </ul> | Study conducted 2019-2022. Publications: Berkowitz et a 2021; Lo et al., 2024 |

|                   | Prospective cohort study  699 low-income health center and outpatient clinic patients in Durham, NC  | <ul> <li>High levels of program utilization were associated with significant increases in fruit and vegetable spending and in the variety of fruits and vegetables purchased.</li> <li>Program participation had no statistically significant impact on diabetes control measures.</li> </ul> | Study conducted 2018-2019. Publication: Xie et at., 2021        |
|-------------------|--|---|---|
| Eligibility:      | Diabetes diagnosis, SNAP beneficiary   |   |   |
| Goal:             | Evaluate the impact of participation in a<br>Reinvestment Partners produce prescription<br>program on fruit and vegetable purchasing<br>and diabetes-related health outcomes                                     |   |   |
| Research Partner: | Duke University  |   |   |
| Type of study:    | Evaluation   | <ul> <li>Participants purchased a greater variety of fruits and vegetables than usual and appreciated the freedom of choice built into the program.</li> <li>Program benefits freed up funds for other necessary expenses.</li> </ul>   | Study   |
| Reach:            | 200 low-income produce prescription program participants   |   | conducted<br>2020.  |
| Eligibility:      | SNAP beneficiary, impacted by COVID-19 pandemic, NC resident   |   | Publication:<br>Lu et al., 2022                                 |
| Goal:             | Quantitative and qualitative assessment of impact of Reinvestment Partners produce prescription program on food security and dietary intake, as well as an evaluation of participant experience with the program |   |   |
| Research Partner: | University of North Carolina at Chapel Hill  |   |   |
|                   | Retrospective cohort study 2,346 Durham VA Health Care System veterans   | <ul> <li>Participants experienced a modest decrease in Alc levels, BMI, and systolic and diastolic blood pressure.</li> <li>Preliminary results indicate that program participation may have had a positive impact on reducing ED visits.</li> </ul>  | Study<br>conducted<br>2021-2023.<br>Publication<br>forthcoming. |
|                   | At risk of food insecurity   |   |   |
| Goal:             | Evaluate the impact of participation in a<br>Reinvestment Partners produce prescription<br>program on health outcomes and healthcare<br>utilization for veterans   |   |   |
| Research Partner: | Durham VA Health Care System   |   |   |
|                   | Comparative interrupted time series evaluation 13,227 Medicaid members participating in the NC Healthy Opportunities program, compared with 73,469 Medicaid beneficiaries reporting a health-related social need | Participation in the Healthy     Opportunities Pilots (which     included both Reinvestment     Partners' produce prescription and     food box services) led to a decrease     of \$85 per month in total cost of     care on a per-patient basis.   | Study<br>conducted<br>2021-2023.<br>Publication:<br>Berkowitz   |
| Eligibility:      | Healthy Opportunities participant  |   | et al., 2025a   |
| Goal:             | Evaluate the impact of participation in produce prescription, food box, and other social service interventions on health outcomes and healthcare costs   |   |   |
| Research Partner: | Sheps Center for Health Services Research at<br>the University of North Carolina at Chapel Hill  |   |   |

| Reach:<br>Eligibility:<br>Goal: | Cross-sectional survey study 726 patients at NC health clinic SNAP and/or Medicaid beneficiaries, diet related disease and/or pregnant Evaluate the impact of participation in two Reinvestment Partners produce prescription programs on ability to afford produce and other household needs, where participants shopped for food, and participant health status and behaviors University of North Carolina at Chapel Hill | <ul> <li>Participants report increased ability to purchase the fruits and vegetables they want as well as more capacity to purchase food overall and meet household expenses.</li> <li>Participants reported that they were over one-third more likely to go to their healthcare provider for primary care.</li> </ul> | Study<br>conducted<br>2022-2023.<br>Publication:<br>Reimold et al.,<br>forthcoming                      |
|---------------------------------|---|--|---|
| Reach:<br>Eligibility:<br>Goal: | Randomized controlled trial 2,155 patients at Duke University Health System Diabetes diagnosis and at risk of food insecurity  Evaluate the impact of participation in the Eat Well produce prescription program on Alc, BMI, and healthcare utilization  Duke University Health System   | No clinically significant differences<br>in cardiometabolic or healthcare<br>utilization outcomes between<br>participants as compared to a usual<br>care control group.  | Study conducted 2023-2024. Publication: Drake et al., 2024 (protocol). Results publication forthcoming. |
| Eligibility:<br>Goal:           | Randomized controlled trial  458 UNC Health System patients  Hypertension, food insecurity  Compare the effectiveness of produce prescriptions, food boxes, and lifestyle counseling  University of North Carolina at Chapel Hill   | Produce prescription program participation resulted in significantly lower blood pressure at both 6 months and 18 months in comparison to food boxes.  | Study conducted 2021-2023. Publication: Berkowitz et al., 2025b   |
| Reach:<br>Eligibility:<br>Goal: | Prospective cohort study 500 WellCare of North Carolina members Sickle cell or chronic kidney disease diagnosis, at risk of food insecurity Examine the impact of participation in the Eat Well produce prescription program on health outcomes, ED and inpatient admission rates, and avoidable ED visits WellCare of North Carolina   | TBD  | Study to be<br>completed<br>in 2026   |

| Type of study:    | Pre-post study  | TBD | Study to be        |
|-------------------|---|-----|--------------------|
| Reach:            | 500 Novant Health patients in Mecklenburg<br>County, NC   |     | completed in 2025. |
| Eligibility:      | 60+, food insecure, and have a diabetes or bariatric surgery history  |     |                    |
| Goal:             | Examine the impact of participation in the Eat Well produce prescription program on diabetes markers and healthcare utilization   |     |                    |
| Research Partner: | Novant Health   |     |                    |
| Type of study:    | Randomized controlled trial   | TBD | Study to launch    |
| Reach:            | 900 Duke University Health System patients  |     | in 2025            |
| Eligibility:      | Congestive heart failure diagnosis, recent ED visit or hospitalization, food insecure   |     |                    |
| Goal:             | Evaluate the impact of participation in the Eat<br>Well produce prescription program (with and<br>without intensive nutrition coaching) on health<br>outcomes and healthcare utilization                      |     |                    |
| Research Partner: | Duke University Health System   |     |                    |
| Type of study:    | Randomized controlled trial   | TBD | Study to launch    |
| Reach:            | 1,500 Durham VA Health Care System veterans   |     | in 2026.           |
| Eligibility:      | Hypertension diagnosis, recent hospitalization or ED visit, food insecure   |     |                    |
|                   | Evaluate the impact of participation in the Eat Well produce prescription program on hypertension and other diet-related health outcomes, as well as on healthcare utilization.  Durham VA Health Care System |     |                    |

### REINVESTMENT PARTNERS RESEARCH PUBLICATIONS

**Berkowitz** SA, Ammerman AS, Knoepp P, Anderson III RE, Taylor L, Lumpkin J, Jedele JM, Xue K, Qaqish B, DeWalt D. Food Insecurity Interventions to Improve Blood Pressure: A Randomized Comparative Effectiveness Trial [Conference presentation]. Abstracts from the 2025 Annual Meeting of the Society of General Internal Medicine. *J Gen Intern Med.* 2025;801. doi.org/10.1007/s11606-025-09516-4

**Berkowitz** SA, Archibald J, Yu Z, et al. Medicaid Spending and Health-Related Social Needs in the North Carolina Healthy Opportunities Pilots Program. *JAMA*. 2025;333(12):1041–1050. doi:10.1001/jama.2025.1042

**Berkowitz** SA, Curran N, Hoeffler S, Henderson R, Price A, Ng SW. Association of a Fruit and Vegetable Subsidy Program With Food Purchases by Individuals With Low Income in the US. *JAMA Netw Open.* 2021;4(8):e2120377. doi:10.1001/jamanetworkopen.2021.20377

**Drake** C, Granados I, Rader A, et al. Addressing cost barriers to healthy eating with Eat Well, a prescription produce subsidy, for patients with diabetes and at risk for food insecurity: Study protocol for a type I hybrid effectiveness-implementation pragmatic randomized controlled trial. *Contemp Clin Trials*. 2024;145:107655. doi:10.1016/j.cct.2024.107655

**Lo** AE, Curran N, Mullen S, Ng SW. A produce prescription program for patients with low incomes in North Carolina resulted in increased produce purchases. *Prev Med.* 2024;187:108097. doi:10.1016/j. ypmed.2024.108097

**Lowery** CM, Henderson R, Curran N, Hoeffler S, De Marco M, Ng SW. Grocery Purchase Changes Were Associated With A North Carolina COVID-19 Food Assistance Incentive Program. *Health Aff (Millwood)*. 2022;41(11):1616-1625. doi:10.1377/hlthaff.2022.00902

**Lu** I, Sheppard B, Ng SW, Burstein S, Charles E, Williams T, De Marco M. Did A Fruit and Vegetable Incentive Program Support low-income Households in North Carolina during the COVID-19 Pandemic? A Mixed Methods Assessment of the Healthy Helping Program and Other Pandemic-Related Food Assistance. *Journal of Hunger & Environmental Nutrition*. 2022;18(3),415–434. doi:10.1080/19320248.2022.2108742

**Mayfield** CA, Robinson-Taylor T, Rifkin D, Harris ME. A Clinical-Community Partnership to Address Food Insecurity and Reduce Emergency Department Utilization Among Medicaid-Insured Patients in North Carolina. *J Public Health Manag Pract.* 2024;30(1):133-139. doi:10.1097/PHH.000000000001821

**Reimold** A, Ostrowski J, Feng A, Charles E, Elliot D, Smith D, Mayfield C, Ng SW. "I don't have to choose between everything": Produce prescription programs enable patients with limited resources to shift purchases and improve health behaviors. Publication forthcoming.

**Xie** J, Price A, Curran N, Østbye T. The impact of a produce prescription programme on healthy food purchasing and diabetes-related health outcomes. *Public Health Nutr.* 2021;24(12):3945-3955. doi:10.1017/S1368980021001828

### **CITATIONS**

- Berkowitz SA, Curran N, Hoeffler S, Henderson R, Price A, Ng SW. Association of a Fruit and Vegetable Subsidy Program With Food Purchases by Individuals With Low Income in the US. JAMA Netw Open. 2021;4(8):e2120377. doi:10.1001/ jamanetworkopen.2021.20377
- Xie J, Price A, Curran N, Østbye T. The impact of a produce prescription programme on healthy food purchasing and diabetes-related health outcomes. Public Health Nutr. 2021;24(12):3945-3955. doi:10.1017/ S1368980021001828
- Lowery CM, Henderson R, Curran N, Hoeffler S, De Marco M, Ng SW. Grocery Purchase Changes Were Associated With A North Carolina COVID-19 Food Assistance Incentive Program. Health Aff (Millwood). 2022;41(11):1616-1625. doi:10.1377/ hlthaff.2022.00902

- Lo AE, Curran N, Mullen S, Ng SW. A produce prescription program for patients with low incomes in North Carolina resulted in increased produce purchases. Prev Med. 2024;187:108097. doi:10.1016/j.ypmed.2024.108097
- Wang X, Ouyang Y, Liu J, et al.
   Fruit and vegetable consumption and mortality from all causes, cardiovascular disease, and cancer: systematic review and dose-response meta-analysis of prospective cohort studies [published correction appears in BMJ. 2014;349:5472]. BMJ. 2014;349:g4490. doi:10.1136/bmj.g4490
- 6. Berkowitz SA, Ammerman AS,
  Knoepp P, Anderson III RE, Taylor
  L, Lumpkin J, Jedele JM, Xue K,
  Qaqish B, DeWalt D. Food Insecurity
  Interventions to Improve Blood
  Pressure: A Randomized Comparative
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- Mayfield CA, Robinson-Taylor T, Rifkin D, Harris ME. A Clinical-Community Partnership to Address Food Insecurity and Reduce Emergency Department Utilization Among Medicaid-Insured Patients in North Carolina. J Public Health Manag Pract. 2024;30(1):133-139. doi:10.1097/PHH.00000000000001821
- Berkowitz SA, Archibald J, Yu Z, et al. Medicaid Spending and Health-Related Social Needs in the North Carolina Healthy Opportunities Pilots Program. JAMA. 2025a;333(12):1041– 1050. doi:10.1001/jama.2025.1042
- Reimold A, Ostrowski J, Feng A, Charles E, Elliot D, Smith D, Mayfield C, Ng SW. "I don't have to choose between everything": Produce prescription programs enable patients with limited resources to shift purchases and improve health behaviors. Publication forthcoming.

