Strategies for Improving SNAP Participants' Fruit and Vegetable Consumption
What Does the Research Say?
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REFERENCES

- Bartlett, Susan; Klerman, Jacob; Wilde; Olsho, Lauren; Logan, Christopher; Blocklin, Michelle; Beauregard, Marianne; and Ayesha Enver. 2014. *Evaluation of the Healthy Incentives Pilot (HIP) Final Report*. Prepared by Abt Associates for the U.S. Department of Agriculture, Food and Nutrition Service,. Available online at https://www.fns.usda.gov/snap/hip/final-evaluation-report

The Healthy Incentives Pilot (HIP) tested a way of making fruits and vegetables more affordable for participants in the Supplemental Nutrition Assistance Program (SNAP). Under HIP, SNAP participants received a financial incentive for purchasing fruits and vegetables. The HIP evaluation used a random assignment research design. Specifically, 7,500 Hampden County SNAP households were randomly selected to participate in HIP, while the remaining 47,595 households continued to receive SNAP benefits as usual. The final evaluation report presents findings on the impacts of HIP on fruit and vegetable consumption and spending, the processes involved in implementation and operating HIP, impacts on stakeholders, and the costs associated with the pilot.

- Cavanagh, Michelle; Janine Jurkowski, Christine Bozlak, Julia Hastings and Amy Klein. 2016. "Veggie Rx: an outcome evaluation of a healthy food incentive programme." *Public Health Nutrition*: 20(14), 2636–2641.

Objective: One challenge to healthy nutrition, especially among low-income individuals, is access to and consumption of fresh fruits and vegetables. To address this problem, Veggie Rx, a healthy food incentive programme, was established within a community clinic to increase access to fresh produce for low-income patients diagnosed with obesity, hypertension and/or type 2 diabetes. The current research aimed to evaluate Veggie Rx programme effectiveness.
Design: A retrospective pre/post design using medical records and programme data was used to evaluate the programme. The study was approved by the University of Albany Institutional Review Board and the Patient Interest Committee of a community clinic.
Setting: The study was conducted in a low-income, urban neighbourhood in upstate New York.
Subjects: Medical record data and Veggie Rx programme data were analysed for fifty-four eligible participants. An equal-sized control group of patients who were not programme participants were matched on age, ethnicity and co-morbidity status.
Results: A statistically significant difference in mean BMI change (P=0·02) between the intervention and the control group was calculated. The intervention group had a mean decrease in BMI of 0·74 kg/m2.
Conclusions: Greater improvement in BMI was found among Veggie Rx programme participants. This information will guide programme changes and inform the field on the effectiveness of healthy food incentive programmes for improving health outcomes for low-income populations.

- Dannefer, Rachel; Abrami, Alyson; Rapoport, Rebecca; Sriphanlop, Pathu; Sacks, Rachel; and Michael Johns. 2015. "A Mixed-Methods Evaluation of a SNAP-Ed Farmers' Market–Based Nutrition Education Program," *J Nutr Educ Behav*. 47:516-525.

Objective: Evaluate the effectiveness of the Stellar Farmers' Market program.
Design: Mixed methods including focus groups and a quasi-experiment comparing a control group of market shoppers who had never attended a class, participants attending 1 class, and participants attending 2 classes.
Setting: Eighteen farmers' markets in New York City.
Participants: A total of 2,063 survey respondents; 47 focus group participants.
Intervention: Farmers' market–based nutrition education and cooking classes paired with vouchers for fresh produce.
Main Outcome Measures: Attitudes, self-efficacy, and behaviors regarding fruit and vegetable (FV) preparation and consumption.
Analysis: Bivariate and regression analysis examined differences in outcomes as a function of number of classes attended. Qualitative analysis based on a grounded theory approach.
Results: Attending 1 classes was associated with more positive attitudes toward consuming FV; Attending 2 classes was associated with greater FV consumption and higher self-efficacy to prepare and consume produce. Respondents attending 2 classes consumed almost one-half cup more FV daily than others. These associations remained after controlling for age, race/ethnicity, education, and gender.
Conclusions and Implications: Offering nutrition education and cooking classes at farmers' markets may contribute to improving attitudes, self-efficacy, and behaviors regarding produce preparation and consumption in low-income populations.

- Freedman, Darcy A.; Choi, Seul Ki; Hurley, Thomas; Anadu, Edith and James R. Hébert. 2013. "A farmers' market at a federally qualified health center improves fruit and vegetable intake among low-income diabetics." *Preventive Medicine* 56 (2013) 288–292.

Objective. A 22-week federally qualified health center (FQHC)-based farmers' market (FM) and personal financial incentive intervention designed to improve access to and consumption of fruits and vegetables (FVs) among low-income diabetics in rural South Carolina was evaluated.
Methods. A mixed methods, one-group, repeated-measures design was used. Data were collected in 2011 before (May/June), during (August), and after (November) the intervention with 41 diabetes patients from the FQHC. FV consumption was assessed using a validated National Cancer Institute FV screener modified to include FV sold at the FM. Sales receipts were recorded for all FM transactions. A mixed-model, repeated measures analysis of variance was used to assess intervention effects on FV consumption. Predictors of changes in FV consumption were examined using logistic regression.
Results. A marginally significant ($p=0.07$) average increase of 1.6 servings of total FV consumption per day occurred. The odds of achieving significant improvements in FV consumption increased for diabetics using financial incentives for payment at the FM (OR: 38.8, 95% CI: 3.4–449.6) and for those frequenting the FM more often (OR: 2.1, 95% CI: 1.1–4.0).
Conclusions. Results reveal a dose–response relationship between the intervention and FV improvements and emphasize the importance of addressing economic barriers to food access.

- Lin, Biing-Hwan and Joanne F. Guthrie. 2007. *How Do Low-Income Households Respond to Food Prices?* EIB 29-5. U.S. Dept. of Agriculture, Economic Research Service. https://naldc.nal.usda.gov/download/35365/PDF

The potential effectiveness of a price intervention for promoting healthier food choices was estimated using estimates of price elasticity for low-income consumers, as well as information on current consumption compared with the recommended level. Results indicated that a 10-percent discount in the price of fruits and vegetables would increase the amount purchased by 6-7 percent.

- Mancino, L., Guthrie, J., Ver Ploeg, M. and B-H Lin. 2018. *Nutritional Quality of Foods Acquired by Americans: Findings from USDA's National Household Food Acquisition and Purchase Survey.* Economic Information Bulletin No. (EIB-188), February 2018.

We use data from the USDA's National Household and Food Acquisition and Purchase Survey to describe the nutritional quality of foods purchased and acquired by a nationally representative sample of Americans. We compare the nutritional quality of foods purchased and acquired by households that participate in USDA's Supplemental Nutrition Assistance Program (SNAP) to the foods of other low-income, SNAP-nonparticipating households and those of higher income households. We also compare the nutritional quality of foods purchased and acquired by households with low access to healthy food retailers to households with better access, for the population as a whole, and for the SNAP-participating and -nonparticipating subgroups previously described. Similarly, we compare nutritional quality of foods obtained from supermarkets and other grocery retailers to foods prepared away from home at restaurants, fast-food establishments, schools, and other sources for the whole population and for defined subgroups. We find that lower nutritional quality of household food acquisitions was associated with SNAP participation status and limited household access to healthy food retailers. More reliance on food prepared away from home was also associated with lower nutritional quality, especially for higher income households.

- Olsho, Lauren EW; Klerman, Jacob A; Wilde, Parke E; and Susan Bartlett. 2016. *Financial incentives increase fruit and vegetable intake among Supplemental Nutrition Assistance Program participants: a randomized controlled trial of the USDA Healthy Incentives Pilot.* American Journal of Clinical Nutrition;104:423–35.

Background: US fruit and vegetable (FV) intake remains below recommendations, particularly for low-income populations. Evidence on effectiveness of rebates in addressing this shortfall is limited.
Objective: This study evaluated the USDA Healthy Incentives Pilot (HIP), which offered rebates to Supplemental Nutrition Assistance Program (SNAP) participants for purchasing targeted FVs (TFVs).
Design: As part of a randomized controlled trial in Hampden County, Massachusetts, 7500 randomly selected SNAP households received a 30% rebate on TFVs purchased with SNAP benefits. The remaining 47,595 SNAP households in the county received usual benefits. Adults in 5076 HIP and non-HIP households were randomly sampled for telephone surveys, including

24-h dietary recall interviews. Surveys were conducted at baseline (1–3 mo before implementation) and in 2 follow-up rounds (4–6 mo and 9–11 mo after implementation). 2784 adults (1388 HIP, 1396 non-HIP) completed baseline interviews; data were analyzed for 2009 adults (72%) who also completed $1 follow-up interview.
Results: Regression-adjusted mean TFV intake at follow-up was 0.24 cup-equivalents/d (95% CI: 0.13, 0.34 cup-equivalents/d) higher among HIP participants. Across all fruit and vegetables (AFVs), regression-adjusted mean intake was 0.32 cup-equivalents/d (95% CI: 0.17, 0.48 cup-equivalents/d) higher among HIP participants. The AFV–TFV difference was explained by greater intake of 100% fruit juice (0.10 cup-equivalents/d; 95% CI: 0.02, 0.17 cup-equivalents/d); juice purchases did not earn the HIP rebate. Refined grain intake was 0.43 ounce-equivalents/d lower (95% CI: 20.69, 20.16 ounce-equivalents/d) among HIP participants, possibly indicating substitution effects. Increased AFV intake and decreased refined grain intake contributed to higher Healthy Eating Index–2010 scores among HIP participants (4.7 points; 95% CI: 2.4, 7.1 points).
Conclusions: The HIP significantly increased FV intake among SNAP participants, closing 20% of the gap relative to recommendations and increasing dietary quality. More research on mechanisms of action is warranted. The HIP trial was registered at clinicaltrials.gov as NCT02651064.

- Payne, Collin and Niculescu, Mihai. 2018. "Can healthy checkout end-caps improve targeted fruit and vegetable purchases? Evidence from grocery and SNAP participant purchases," Food Policy, vol. 79(C), pages 318-323.

Grocery shoppers face time and attention constraints when shopping that may contribute to decreased purchase and consumption of fruits and vegetables. We created and tested a healthy checkout strategy that made fruits and vegetables both convenient and salient. Specifically, cashiers were trained to suggestive sell pre-packaged, convenient, low-cost, pairs of fruits or vegetables located at the checkout aisle end-cap. Overall and Supplemental Nutrition Assistance Program participant purchases of targeted fruits and vegetables significantly increased within treatment stores and between the treatment stores relative to the control store. A significant decreasing trend in overall produce sales in the control store was found, but not for treatment stores. Further pilot testing of healthy checkout strategies is needed to provide additional evidence of efficacy and to understand better how economically sustainable these strategies are for retailers.

- Prell, Mark and David M. Smallwood. 2017. *Comparing Alternative Mechanisms to Increase Fruit and Vegetable Purchases*. EIB-170 U.S. Dept. of Agriculture, Economic Research Service. https://www.ers.usda.gov/publications/pub-details/?pubid=83051)

Participants in USDA's Supplemental Nutrition Assistance Program (SNAP) typically consume less than the amounts of fruits and vegetables (FVs) recommended by the Dietary Guidelines for Americans. The study considers three economic mechanisms to incentivize purchases of FVs: a bonus for FV spending; a rebate for FV spending; and a Cash Value Voucher (CVV) redeemable for FVs up to a fixed dollar amount. This USDA Economic Research Service (ERS) report uses neoclassical economics to provide a unifying conceptual framework for explaining the effects of

these mechanisms, using simplified abstract models. In principle, all three mechanisms can increase FV purchases for the average SNAP consumer. Distributional effects matter in addition to average effects; SNAP consumers who purchase no FVs (in a typical month) can be a sizable subgroup that is important for analysis. For that subgroup, implementing a CVV tends to increase purchases by more than other mechanisms. If the nonpurchasing subgroup is a large proportion of SNAP households, a CVV also tends to be the mechanism that increases average FV purchases the most. If the subgroup is relatively small, a rebate or bonus may promote average FV purchases the most.

- Vericker, Tracy, Dixit-Joshi, Sujata; and Jeffrey Taylor, et al. The Evaluation of Food Insecurity Nutrition Incentives (FINI) Interim Report. Prepared by Westat, Inc. for the U.S. Department of Agriculture, Food and Nutrition Service, May 2019. Project Officer: Eric Sean Williams. Available online at: https://www.fns.usda.gov/snap/evaluation-food-insecurity-nutrition-incentives-interim-report

The Food Insecurity Nutrition Incentive (FINI) grant program provided $100 million to fund and evaluate projects that were intended to increase fruit and vegetable purchases among Supplemental Nutrition Assistance Program (SNAP) participants by providing incentives at the point of purchase. Grants were awarded in Fiscal Years (FYs) 2015, 2016, 2017, and 2018 to state and local governmental entities and nonprofit organizations. An independent evaluation measured the impact of FINI on two primary outcomes, increasing fruit and vegetable (1) expenditures and (2) consumption among SNAP households, and on several secondary outcomes. The pilot projects are not included in the evaluation. This report presents the results of the process evaluation and outcome evaluation through September 2017. Key findings include:
• Except for participants who had previously shopped at a farmers market that offered incentives, awareness of the local incentive program tended to be low.
• Although, FINI increased monthly household fruit and vegetable expenditures by 12 to 16 percent in three of the four study groups, about one-quarter to one-half of SNAP households reported spending less of their own money on fruits and vegetables as a result of the incentive.
• FINI had no measurable impact on SNAP participants' consumption of fruits and vegetables.