

Healthy Incentives Pilot Evaluation

Public Summary

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LIST OF ACRONYMS

AMPM	Automated Multiple Pass Method
CDC	Centers for Disease Control and Prevention
COR	Contracting Officer's Representative
DGAs	Dietary Guidelines for Americans
EBT	Electronic Benefit Transfer
ECR	Electronic Cash Register
ERS	Economic Research Service
FNS	Food and Nutrition Service
HIP	Healthy Incentives Pilot
NHANES	National Health and Nutrition Examination Survey
OMB	Office of Management and Budget
ORA	Office of Research and Analysis
PLU	Price Look-Up Code
POS	Point-of-Sale
SNAP	Supplemental Nutrition Assistance Program
UPC	Universal Product Code
WIC	Special Supplemental Nutrition Program for Women, Infants, and Children

Part I: Introduction

The Healthy Incentives Pilot (HIP) will provide financial incentives to Special Nutrition Assistance Program (SNAP) households to encourage their purchase and consumption of fruits and vegetables. Authorized by the Food, Conservation and Energy Act of 2008, the Healthy Incentives Pilot (HIP) is expected to operate for 15 months in one site beginning in late fall 2011.

FNS is seeking a contractor familiar with SNAP operations with extensive skills in research design, sampling, data collection and statistical analysis to conduct an evaluation of HIP. Particularly important is experience in designing and executing randomized experiments in community settings, collecting dietary intake data, and working with SNAP administrative data. Expertise in conducting process evaluation of program implementation and operations, as well as preparing national program cost estimates is also critical.

This is a summary of the Request for Proposals (RFP) for the evaluation of HIP. This solicitation is being requested under the MOBIS schedule **SIN 874-1 Consulting Services**. This solicitation is limited to Scheduled contractors. A separate request has been issued for State SNAP agencies to implement and operate the Pilot. A copy of the Pilot Request for Applications (RFA) can be found on the SNAP website at <http://www.fns.usda.gov/snap/hip> or www.grants.gov.

This statement of work begins by providing background information on factors that led Congress to authorize and fund HIP. It then provides an overview of SNAP, plans for implementing HIP, the evaluation objectives, and preliminary specifications for the data collection and analysis.

Part II: Background

Several factors have led to HIP. One important precursor is the increasingly prominent recognition of overweight and obesity as a serious public health issue in the United States. Evidence also clearly indicates most Americans, including SNAP clients, do not consume recommended levels of fruits and vegetables—foods that are both highly nutritious and tend to have low calorie density. As SNAP has evolved to promote both food security and healthful eating, encouraging the use of nutritious foods through a variety of educational and promotional activities is now a visible and important dimension of the program. At the same time, there is concern that while fruits and vegetables are highly nutritious, low-income Americans may have difficulty affording the fruits and vegetables they need. It is in this context

that interest in testing the provision of financial incentives to SNAP participants who purchase fruits, vegetables, and other healthful foods has arisen.

Obesity as a Growing Public Health Problem

The past two decades have marked a substantial increase in the incidence of overweight and obesity in the U.S. population, as well as a growing awareness that this trend represents a significant public health problem. According to data from the U.S. Centers for Disease Control and Prevention (CDC), between 1995 and 2008, the rate of obesity in the United States, defined as having a body mass index of 30 or more, increased from 15.9 to 26.7 percent of the U.S. population.¹ Further, and of particular salience to low income nutrition assistance policy, the rates of obesity for people in low income households are 33.8 percent for households with incomes less than \$15,000 and 30.2 percent for those with incomes between \$15,000 and \$24,999. The problem is not limited to adults. A 2005 National Academy of Science panel convened to study the issue concluded, “we begin the 21st century with a startling setback—an epidemic of childhood obesity...across all socioeconomic strata...”² Data from 2003–2006 show 22.0 percent of children ages 6–11 with families below 100 percent of the poverty level were overweight (BMI at or above 95th percentile) compared to 19.2 percent of children with family income 100 to 200 percent of poverty and 13.5 percent of children with family income 200 percent of poverty or more³. Concerns about overweight and obesity have created an increased focus on issues related to healthy eating among low-income Americans and thus have substantially contributed to the policy climate in which HIP was legislated.

Importance of Fruits and Vegetables

Fruits and vegetables are intrinsically healthful foods. There has been an increased focus on the importance of fruits and vegetables to a healthful diet. The substitution of fruits and vegetables for more calorie dense choices is seen as an important component of strategies to sustain a healthy weight. In addition, most fruits and vegetables are relatively rich in a variety of vitamins and minerals. While not all findings are consistent, a preponderance of epidemiological evidence indicates eating substantial amounts of fruits and vegetables can help prevent a variety of diseases, including cardiovascular disease, type 2 diabetes, hypertension,

¹ CDC, Behavioral Risk Factor Surveillance System, as available at <http://apps.nccd.cdc.gov/brfss/>.

² National Academy of Sciences (2005). *Preventing Childhood Obesity, Health in the Balance*. Institute of Medicine: Washington, D.C.

³ National Center for Health Statistics (2009). *Health, United States, 2008 with Chartbook*. U.S. Department of Health and Human Services (Publication No. 2009-1232): Hyattsville, MD. Available: <http://www.cdc.gov/nchs/data/hus/hus08.pdf>.

several different kinds of cancer, cataracts, and macular degeneration.⁴ The importance of fruits and vegetables to a healthful diet is reflected in the most recent edition of the Dietary Guidelines for Americans (DGAs). The DGAs, recognized as a standard source of dietary information for Americans, is published every 5 years jointly by the U.S. Department of Health and Human Services and the USDA to provide dietary guidance to consumers based on the best research available. The 2005 edition of the DGAs substantially increased the recommended number of daily servings of fruits and vegetables.

Purchase and consumption of fruits and vegetables. Most Americans consume far fewer than the recommended number of fruit and vegetable servings. Based on tabulations of NHANES data for 1999–2002, the Economic Research Service (ERS) found that the average daily consumption of fruits and vegetables by low income people in the United States was 1.43 cups of vegetables and .96 cups of fruit. This was between 50 and 60 percent of age-adjusted recommendations from the Dietary Guidelines of Americans.⁵ A different ERS study found that “approximately 19 percent of all low-income households bought no fruits and vegetables, compared with only about 10 percent of higher income households with no expenditures.”⁶ The study also found that on average, low income households “spent \$3.59 per capita per week on fruits and vegetables in 2000 while higher income households spent \$5.02—a statistically significant difference.” Factors driving differences in fruit and vegetable purchases across income levels are unclear, but many speculate that lower prices for fruits and vegetables would encourage their purchase by low-income households.

Incentives for Behavior Change

There has been growing interest in environmental and policy approaches to the promotion of healthy diets. “The goal of these approaches is to influence one or more of the many factors that affect adult food purchasing decisions, such as food prices, household income, knowledge about food choices that contribute to a healthy diet, and food availability,” (p. 13).⁷ Three potential general strategies (financial incentives, nutrition education, and improving access)

⁴ See for example World Health Organization (2002). *The World Health Report 2002: Reducing Risks, Promoting Healthy Life*. WHO: Geneva, Switzerland; Hung HC, Joshipura KJ, Jiang R, et al. (2004). Fruit and vegetable intake and risk of major chronic disease. *Journal of the National Cancer Institute*, 96, 1577–84; and the literature review at <http://www.hsph.harvard.edu/nutritionsource/what-should-you-eat/vegetables-full-story/index.html#cancer>.

⁵ Dong, D., & Lin, B. (January 2009). *Fruit and Vegetable Consumption by Low-Income Americans: Would A Price Reduction Make a Difference?* (ERS Report No. 70). United States Department of Agriculture Economic Research Service: Washington, DC.

⁶ Blisard, N., Stewart, H., & Jolliffe, D. (May 2004). *Low-Income Household's Expenditures on Fruits and Vegetables*. (ERS Report No. 833). United States Department of Agriculture Economic Research Service: Washington, D.C.

⁷ Government Accountability Office (July 2008). *Food Stamp Program: Options for Delivering Financial Incentives to Participants for Purchasing Targeted Foods* (GAO-08-415). Government Printing Office: Washington, D.C. Available: <http://www.gao.gov/new.items/d08415.pdf>

have been noted and have been reviewed in the academic literature⁸ as well as by the Government Accountability Office (GAO) in their 2008 report on options for delivering financial incentives to SNAP participants.

In general, financial incentives include providing monetary rewards for purchasing a targeted good, either through lowering prices with a subsidy or giving a bonus when a given purchase amount is achieved. In the case of promoting healthful foods, the goal of providing a financial incentive is to encourage the purchase and consumption of targeted foods by making them more affordable than alternative food choices. Financial strategies can also be disincentives, for instance, when a tax is placed on certain goods that are to be discouraged. While nutrition education often takes the form of individual-level classroom instruction, information provided at the point of purchase and social marketing involving media-based strategies designed to reach target audiences can be conceptualized as environmental strategies. Changes to the environment can involve improving access to desirable foods, such as through subsidizing farmers' markets. It may also involve restricting access to foods believed to be undesirable, such as recent proposals to limit the use of SNAP benefits to purchase soda and other goods.

GAO found that while studies of nutrition promotion efforts are promising, "results vary and changes in consumption patterns as a result of [these] approaches may not be substantial enough to meet Federal dietary guidelines," (p. 14). GAO also observed that little is known about the effectiveness of efforts to increase individuals' access to targeted foods. Because SNAP is designed to provide financial resources to households for their food purchases, the impact of financial incentive approaches to encourage healthful food choices are of particular policy interest. Indeed, a main goal of the GAO study was to explore the idea of increasing SNAP households' purchases of targeted foods by incorporating financial incentives for purchasing those foods. A financial incentive was defined as an additional [SNAP] allotment tied to the purchase of certain foods targeted for promotion. GAO found "a few studies examining the effectiveness of financial incentives have demonstrated short-term positive effects on purchases of targeted foods, consumption, or weight loss," (p. 3).

USDA's Economic Research Service (ERS) reports that financial incentives may be more effective than disincentives or providing unrestricted cash or food benefits.⁹ ERS has primarily focused on modeling consumer responses to changes in the prices of fruits and vegetables; however, offering incentives to purchase targeted healthful foods shares many characteristics of lowering the price of these foods. ERS estimates of SNAP participants' response to changes in the price

⁸ See Pomerleau et al. (2005). Interventions designed to increase adult fruit and vegetable intake can be effective: A systematic review of the literature. *Nutritional Epidemiology*, 135, 2486-2495.

⁹ Stewart, H. & Blisard, N. (January 2008). *Are Lower Income Households Willing and Able to Budget for Fruits and Vegetables?*, U.S. Department of Agriculture, Economic Research Service: Washington, D.C.

of fruits and vegetables indicate that a 20 percent price reduction could raise fruit and vegetable consumption from 1.95 cups per day to an estimated 2.2 cups per day (a gain of approximately ¼ cup).¹⁰ While promising, such a change would not be large enough to bring the consumption patterns of typical adults in line with current Federal recommendations. As discussed below, HIP will examine the impact of a 30 percent incentive.

Part III: Overview of the Supplemental Nutrition Assistance Program

Purpose

SNAP is the central component of America's nutrition assistance safety net. Since its origins as the Food Stamp Program, SNAP has been focused on providing benefits that can be used to purchase food for preparation and consumption at home. The Program's objective to help low-income Americans improve their diets is reflected in the authorizing legislation:

Congress hereby finds that the limited food purchasing power of low-income households contributes to hunger and malnutrition among members of such households. Congress further finds that increased utilization of food in establishing and maintaining adequate national levels of nutrition will promote the distribution in a beneficial manner of the Nation's agricultural abundance... To alleviate such hunger and malnutrition, a food stamp program is herein authorized which will permit low-income households to obtain a more nutritious diet through normal channels of trade by increasing food purchasing power for all eligible households who apply for participation.

Eligibility and Participation

With Fiscal Year 2009 outlays of \$53.5 billion, SNAP served an average of 33.7 million participants per month. It offers the only form of assistance available nationwide to most households in financial need, irrespective of family type, age, or disability. Over the past two years, the program has grown substantially, by more than 7 million clients, illustrating its important role as a safety net which responds to economic change.

¹⁰ Guthrie, J., Lin, B., Ver Ploeg, M., & Frazao, E. (September 2007). *Can Food Stamps Do More To Improve Food Choices?* (Economic Information Bulletin No. 29-1). U.S. Department of Agriculture Economic Research Service: Washington, D.C. Note: ERS used statistical models and data from the 1987-88 Nationwide Food Consumption Survey for this analysis. Due to a low response rate to this survey, an expert technical panel concluded, with USDA concurrence, that the possibility of non-response bias cannot be ruled out. Thus, estimates based on these survey data should be interpreted with caution.

State and Federal Roles

Administratively, program policy and regulations are set nationally by FNS. Actual responsibility for operating the program rests with the State Agencies. The States develop operating procedures and are accountable for ensuring that the program is run in accordance with Federal law. States may apply for waivers of certain regulations or to alter eligibility requirements to reflect the program context in their jurisdiction.

Typically, the States operate the client database and issuance systems which support program operations, usually with the assistance of private vendors. All of the costs of program food benefits are borne by the Federal government. SNAP administrative costs are shared by the Federal government and the States, with each covering about half of most categories of these non-benefit costs. The States and the Federal government jointly operate a SNAP Quality Control System, which measures the accuracy of eligibility and benefit determinations through periodic reviews of random cases. Financial incentives or penalties can accrue to States with particularly low or high error rates, respectively.

Much of the actual day-to-day operation of the program, including most of the client contact, takes place in local SNAP offices. In many areas there is one office per county; but there are typically more local offices in densely populated urban areas. These offices typically administer Temporary Assistance for Needy Families and other low income assistance programs in addition to SNAP. In some areas of the country there has been pilot testing and implementation of a variety of application assistance and processing procedures that utilize resources outside of local offices, such as partnerships with community-based organizations and web-based applications.

Benefit Basis

Benefit levels are set with the intent that, coupled with the household's own resources, the participating households will have enough resources to purchase food consistent with the "Thrifty Food Plan," a low-cost market basket of foods determined to be adequate to achieve a healthy diet. The household must supply program staff with data and verification information about household structure, income, assets and expenses. In general, to be eligible, a household's gross income must be less than 130 percent of the Federal poverty level and its "net" income (net of certain deductions) must be below 100 percent of the poverty level. However, if a household includes an elderly person or a person receiving certain types of disability payments, it is only required to meet the net income test. There is also an assets limit for eligibility, with the value of certain assets being less than \$2000 for most households and

less than \$3000 for households with an elderly or disabled member.¹¹ If the household is determined to be eligible, it receives a monthly benefit amount based on net income level and household size.

Application, Certification, and Recertification

Typically, a household applies at a local office (although mail, online, and telephone applications are increasingly more available). Once certified, a household has to be recertified periodically to continue receiving benefits.

Benefit Issuance and Redemption

Benefits are delivered through an electronic benefit transfer (EBT) system which is used to access benefits at a centrally held account. Benefits are authorized and posted monthly. SNAP benefits can be used only to buy allowable food items¹² at authorized retailers. Virtually all supermarkets and many small food stores are authorized to accept the benefits as payment for food. In Fiscal Year 2009 more than 190,000 food retailers participated in the Program.

Nutrition Education

Under SNAP regulations (7 C.F.R. § 272.2), States have the option of providing nutrition education to participants as part of their program operations. In 2009, a substantial investment of 694 million dollars in combined Federal and non-Federal resources were approved for SNAP nutrition education. The goal of SNAP nutrition education is to improve the likelihood that eligible persons will make healthy food choices within a limited budget and choose physically active lifestyles consistent with the current Dietary Guidelines for Americans and *MyPyramid*. Specific guidance for SNAP nutrition education identifies three behavioral outcomes of education, one of which is increased fruit and vegetable consumption; stated as follows: “Eat fruits and vegetables, whole grains, and fat-free or low-fat milk products every day.” Because of the nature of SNAP nutrition education, eligible non-participants and other low-income individuals may be included in some activities.

¹¹ Many States have exercised an option to adopt broad-based eligibility policies that effectively eliminate the SNAP asset test.

¹² Eligible foods are defined as any food or food product intended for human consumption, except alcoholic beverages, tobacco, and hot foods and hot food products prepared for immediate consumption. Eligible foods are further defined as seeds and plants that are used to grow food for personal consumption, and meals prepared and delivered or served to recipients as well as equipment for hunting and fishing in certain specified areas in Alaska (7 C.F.R. § 271.2).

Part IV: Description of the Healthy Incentives Pilot

In October 2008 FNS hosted a roundtable symposium of interested stakeholders and other experts, including representatives from academic and other research institutions, private industry, Federal and State governments, retailer associations, farmers markets, and advocates as part of the planning process for the Pilot.¹³ The meeting focused on key decision points, which were discussed by three expert panels and the audience. Topic areas covered by the panels were target foods, evaluation of the impact of incentives, and EBT system requirements for delivering incentives.

Following this symposium, an FNS working group continued to consult with external organizations to obtain additional opinions and information and to seek relevant experiences and expertise upon which to design HIP. A number of important and often competing considerations framed each choice-point:

- Creating a Pilot with a strong capacity to succeed, i.e., increase purchase and consumption of healthful foods among participants;
- Meeting the legislative requirement for a rigorous evaluation that authoritatively answers the key question—do financial incentives work?
- Designing a Pilot that can be replicated widely within the current SNAP environment, and;
- Conducting the Pilot and evaluation with available resources.

As a result of this planning process, FNS has specified a number of Pilot parameters in a manner that balances competing goals and at the same time leaves some design choices to the discretion of State Agencies applying to serve as the Pilot site. Those Pilot parameters are described in brief below. More detail can be found in the Request for Applications to be a HIP site.

Policy Parameters for the Pilot

Pilot Site. One location, referred to herein as the Pilot site, will be competitively selected for HIP. (The State Agency whose application is accepted will be herein referred to as the HIP Grantee.) The Pilot site must contain 35,000-60,000 SNAP households.

¹³ Symposium materials can be found at <http://www.fns.usda.gov/snap/hip/qa-shtm#Symposium>.

Target Foods. Fruits and vegetables targeted for HIP are those allowed by Federal regulations for the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Fruit and Vegetable Voucher.¹⁴ These can be summarized as follows:

- Most fruits and vegetables are included (mature legumes and juices are not authorized).
- Included fruits and vegetables can be in any of the following forms: fresh, canned, frozen, and dried.
- In general, eligible fruits and vegetables must not have any added sugars, fats, oils, or salt.
- White potatoes are excluded, but yams and sweet potatoes are allowed.

Duration of the Pilot. SNAP participants chosen to participate in the Pilot will be eligible to earn incentives for a period of 12 months. Because implementation will be staggered over 3 months, the Pilot will operate for a total of 15 months.

Amount of the Incentive. Buying the target fruits or vegetables using SNAP benefits will result in participants earning an amount equal to 30 percent of the purchase price, which will be added to HIP participants' SNAP benefit accounts. For example, if a HIP participant uses SNAP benefits to purchase \$10 of target fruits and vegetables, the participant will earn an incentive payment in the amount of \$3 (30 percent of \$10). If the participant began the shopping trip with a balance of \$20 in his/her SNAP benefit account, his/her balance after the shopping trip will be \$13 (\$20 balance - \$10 spent + \$3 incentive = \$13.00).

Incentive Cap. SNAP households will receive a 30 percent incentive on all allowable fruits and vegetables up to a maximum amount per benefit cycle (usually a month). A cap on the total amount of incentive a household can earn in a benefit cycle will be set by FNS together with the HIP Grantee. Considerations for setting the cap on the incentive benefits include the following goals:

- Deter fraud but remain high enough that it does not constrain families with higher benefit levels;
- Be a flat cap for all HIP participants without regard to allotment level;
- Take into account the benefit levels, food prices and other considerations at the Pilot site.

What the Incentive May be Used to Purchase. Incentives may be used to purchase any SNAP-allowable food.

¹⁴ While some State WIC programs authorize fewer fruits and vegetables (e.g., fresh only or fresh and frozen only), HIP will target all forms of fruits and vegetables that meet the minimum requirements and specifications as described in the Federal regulation for the WIC Fruit and Vegetable Voucher.

Information Provided to HIP Participants. The HIP Grantee shall inform participants they are part of the target group and provide an explanation of the administrative aspects of the incentive benefit to assure that HIP participants are aware of the Pilot. Participant training will include procedural information such as how to trigger the incentive, how much they can earn, when it will become available, which retailers are participating, and for what the incentive benefits may be used.

To highlight the incentive to the participant, both the incentive amount and the accumulated monthly value of incentives must be communicated to HIP households at the point of purchase. This communication will take the form of a message on a cash register receipt. For example, the receipt could read “HIP Incentive Earned: \$__.__; Total for This Month: \$__.__” immediately above the remaining SNAP balance (the latter is already a SNAP receipt requirement). The HIP Grantee will devise an alternative method to communicate incentive earnings to participants whose SNAP benefit is redeemed using voucher transactions.

Integration with Current EBT System. HIP will utilize the EBT system currently in place for SNAP: its debit cards, Point of Sale (POS) terminals, receipts and vendor data system. Integrating incentive payments with the EBT system utilizes tested and reliable technology and provides unparalleled program integrity, security, and efficiency compared to other options. However, the system will need to accommodate the unique accounting needs of HIP at the point of sale, which differs from regular SNAP transactions. Thus, temporary changes are needed to EBT system programming, accounting and reporting for the duration of the Pilot.

Participating retailers. All SNAP-authorized retailers in the Pilot area that typically sell HIP targeted fruits and vegetables directly to households will have the opportunity to participate. HIP retailers are expected to include a diverse mix of businesses. Retailers serving the Pilot area may choose not to participate. Participating retailers will be provided financial and technical assistance to reprogram cash registers and EBT terminals, and/or develop manual systems as appropriate to accommodate necessary accounting and crediting procedures for the incentives.

Implementation at the POS. Virtually all supermarkets, convenience stores and many other retailers have electronic cash registers (ECRs) with product scanning equipment that they use for sales transactions. It is anticipated that handling HIP transactions will be relatively straightforward for these stores since ECRs can be programmed to identify HIP-allowable foods. At stores without ECRs it will usually be necessary for customers and/or store clerks to separate SNAP items between those that are HIP allowable and those that are not. In all stores, separate purchase totals will be calculated (HIP fruits and vegetables and all other SNAP-allowable foods)

and the two totals will be entered into the EBT system. The EBT transaction receipt will include information about the purchase amount, incentive earned, and account balance. However, retailers that use standalone POS terminals or manual vouchers will have to visually identify, separate and subtotal HIP eligible items. It would be burdensome to require them to do this for all SNAP customers. Therefore, these retailers will need some means of identifying HIP participants at the start of the sales transaction to ensure that participants receive the incentives to which they are entitled. Once a fruit and vegetable total is transmitted to the EBT contractor for processing, the system will verify whether the household is a HIP household, calculate the incentive earned, and credit the incentive to the household's SNAP benefit account.

There are several ways that identification of HIP participants can be done. The HIP Grantee could provide separate identification cards to participants, affix stickers to the participants' current EBT cards or rely on self identification by the clients themselves. Each has advantages and disadvantages. Regardless of the method used, participants need to be trained to identify themselves at the beginning of the purchase so that HIP eligible foods can be properly sorted and subtotaled. The method of identification is to be proposed by State Agencies in their applications.

Nutrition education and promotion. HIP participants will receive information about the Pilot and how to earn incentives. The Pilot site will be expected to continue usual nutrition education activities, as long as those activities are available to both experimental *and* control groups, as defined for purposes of the evaluation. No additional nutrition education will be provided in conjunction with HIP as currently planned. The scope of the currently funded evaluation tests only the impact of the financial incentive. However, there is potential that additional funds will be provided for testing an incentive plus nutrition education component of HIP. If this occurs, the HIP Grantee shall be required to submit commensurate SNAP-Ed plans for the period of HIP operations.

State Proposed Enhancements. In addition to meeting the basic requirements of the Pilot, State agencies may wish to submit in their applications enhancements that make the Pilot more effective or manageable. Add-on features may be submitted in States' applications so long as those features do not detract from or interfere with the goals, rigor, and integrity of the Pilot research or contradict project design requirements (i.e., available nutrition education must be the same for all SNAP participants at the site regardless of whether a SNAP participant is also a HIP participant).

Organizational Structure of HIP

Implementing, operating and evaluating HIP will require the cooperation of multiple stakeholders.

FNS. FNS will select both the Pilot site and the independent evaluation contractor. FNS will oversee the Pilot and provide direction and technical assistance both to the HIP Grantee and the evaluation contractor and coordinate their efforts. FNS will approve major aspects of the Pilot and evaluation in advance of their implementation. FNS will provide 100 percent reimbursement for incentive benefit outlays and for certain other costs associated with HIP to the HIP Grantee.

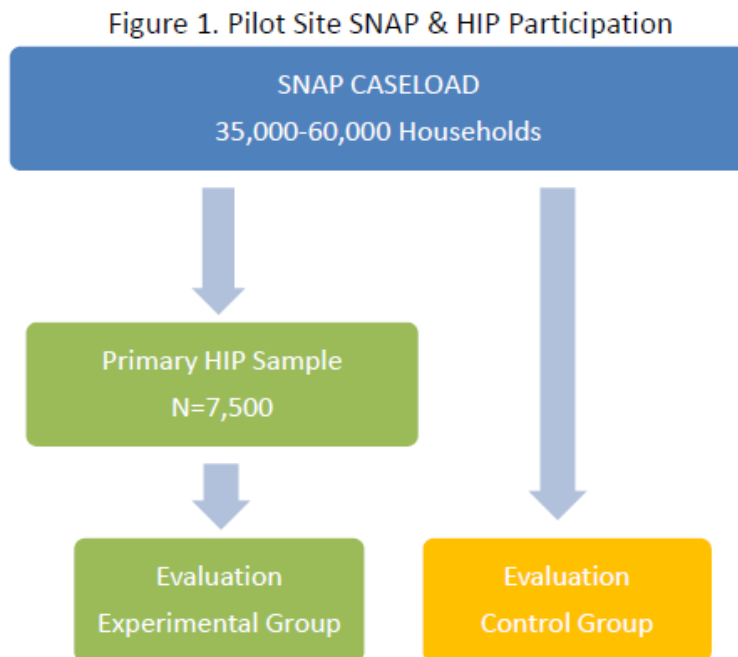
HIP Grantee. The HIP Grantee will be competitively selected based on the technical merits of its application to implement and operate the Pilot, as well as a commitment to participate and facilitate the independent evaluation. The HIP Grantee has overall responsibility for Pilot implementation and operations, but is expected to propose a team that includes the SNAP local agency(ies), retailers, EBT contractor serving the site, and other partners. Consistent with its overall supervisory responsibilities for SNAP, the HIP Grantee will implement detailed procedures needed to overlay HIP on the regular operations of the SNAP and will supervise necessary changes to the EBT system.

Local SNAP Agency. The local agency or agencies serving the Pilot site will work with the HIP Grantee and other partners during all phases of the Pilot. Responsibilities of the local agency may include training HIP participants, as well as troubleshooting and monitoring day-to-day operations. Local agency staff are also expected to support the evaluation by providing access to participant records and contact information, facilitating the selection of HIP participants and a control group via random assignment, participating in periodic interviews, and maintaining and providing records of project costs.

SNAP Participants. As shown in Figure 1, about 7,500 SNAP households in a Pilot area of 35,000–60,000 SNAP households will be randomly chosen to receive the incentive as a means of making the project a sufficiently attractive to stakeholders. Among these households, a subset will be randomly selected to be a part of the HIP evaluation¹⁵. They will be provided with a stipend for each of three rounds of data collection. Among the remaining non-HIP SNAP households, a third group shall be randomly chosen to be in the evaluation control group. The same data collection stipends will be offered to both the HIP and non-HIP evaluation samples. All SNAP households at the Pilot site will continue to receive regular SNAP food benefits as

¹⁵ See the discussion of sample size on page 23.

usual. No change will be made in the availability of nutrition education to SNAP participants at the Pilot site. All SNAP participants at the Pilot site, regardless of whether they are participating in HIP or the study control group will receive the same nutrition education.



Retailers. Participating retailers must develop, implement, and maintain whatever EBT system and check-out procedures are necessary to support HIP. Retailers must conform to the protocols specified by FNS and the HIP Grantee. These include identifying the total cost of target foods, transmitting the amount in the authorization request to the EBT vendor and printing the appropriate information on receipts. The HIP Grantee will provide financial support and training for retailer personnel (the State may enter into a contract with an appropriate partner to conduct retailer training).

The EBT Vendor. Most systems development work on EBT systems tends to be performed by private EBT vendors. The State's EBT contractor will develop, implement, and maintain changes in the EBT system required for HIP. Since significant changes in the transaction processing systems are likely to be necessary, the vendor under contract with the State chosen for the Pilot will play a significant role.

Other Partners. The HIP Grantee may engage additional partners in HIP, such as other public, non-profit and/or private organizations. The roles of additional partners along with a management plan must be specified in States' applications.

Evaluation Contractor. The Pilot will be independently evaluated by a Contractor competitively selected by FNS.

Part V: Evaluation Objectives

The overall goal of the evaluation is to assess the impact of HIP on participants' intake of fruits and vegetables. Within this general goal, however, there are several more specific objectives and questions of interest to FNS.

Objective 1: Assess the impact of Pilot participation on intake of fruits and vegetables.

1A. Did HIP participants consume more fruits and vegetables than control group households not receiving the HIP incentive?

1B. Did HIP participants consume (i) more total calories, (ii) more calories from discretionary foods, and/or (iii) more cups of meat, grains, dairy and discretionary foods relative to the DGAs/MyPyramid?

Objective 2: Identify and assess factors that influence how HIP impacted participants.

2A. Did the effects of HIP vary according to (i) household demographics and other characteristics (e.g., size of household, number of adults in household, how many household members employed, number and ages of children in household, presence of an elderly member, presence of earnings), (ii) the household food environment, (iii) dietary knowledge, attitudes, and beliefs, or (iv) general shopping patterns?

2B. How did participating households perceive HIP? What do they see as its main advantages and disadvantages? Were control group participants aware of HIP?

2C. How did participation in HIP affect participants' intentions to purchase and consume targeted fruits and vegetables during the Pilot and after the Pilot ends?

2D. Did participants consume any types of fruits and vegetables for the first time during their participation in the Pilot? What were they? Did participants intend to consume these foods again?

2E. Did participants' perceptions of fruits and vegetables change from baseline?

2F. Did HIP participants consume a greater variety of fruits and vegetables than control group participants during the Pilot?

Objective 3: Describe the processes involved in implementing and operating HIP.

3A. What steps were taken to implement HIP incentive payment procedures? What problems, if any, were encountered? How were problems resolved? What lessons were learned for future implementation in new sites?

3B. Describe recruitment and retention of HIP participants. What information was provided to SNAP participants selected to participate in HIP? Describe participants' ability to understand the availability of incentives and take advantage of them. What were participants' perceptions of changes at the checkout required to accommodate HIP? Identify any information that could be provided or procedures that could be amended or implemented that would improve the customer experience for HIP participants. Describe procedures for identifying and addressing participants' concerns and questions throughout the duration of the Pilot.

3C. How were retailers recruited to participate in HIP? How did the HIP Grantee secure retailer cooperation and establish HIP payment procedures at the retailer level. What unexpected or difficult issues were encountered? How were these issues addressed? Describe the number of eligible retailers who chose not to participate in HIP or dropped out of HIP. Describe the reasons eligible retailers gave for choosing not to participate in HIP or for discontinuing their participation. Describe participating and drop-out retailers' ability to accommodate incentive credits and redemptions.

3D. Describe HIP implementation activities undertaken by local SNAP agency staff. What resources were required? Did the local agency have adequate access to such resources? What problems were encountered and how were they addressed?

3E. Were other partners besides SNAP local agencies, retailers and their processors, and EBT systems professionals recruited to implement or operate HIP? What were the roles and responsibilities of these partners? Did any problems or concerns about partners' roles in HIP arise? How were problems and concerns addressed? Identify areas where community or other partnerships may have been helpful but were not utilized or available.

3F. What problems were encountered in establishing and maintaining partnerships among FNS, the HIP grantee (State agency), local SNAP agencies, community groups, retailers, and any other partners?

3G. Describe coordination and cooperation between the evaluation Contractor and the HIP Grantee and its partners. Did any problems or concerns related to the evaluation arise? How were they addressed? How might they have impacted the process of evaluating HIP or the evaluation findings?

Objective 4: Assess the impact on the HIP Grantee and its team of partners.

4A. Did the Pilot affect workload and operations in the local SNAP office(s) and/or operations at the State level? If so, how? Describe SNAP staff experiences and perceptions of Pilot.

4B. Describe community partners' (if engaged by the HIP Grantee) experiences and perceptions of the Pilot.

4C. Did the Pilot affect business for participating retailers and non-participating retailers? What changes in checkout procedures, stocking of products, or other retailer practices were reported? What perceptions did retailers have about customer use of the incentives? Describe retailers' satisfaction with their ability to implement and participate in the Pilot.

Objective 5: Quantify, to the extent possible, the Federal, State and local administrative and benefit costs of the Pilot.

5A. What administrative costs are associated with the initial start-up of the Pilot?

5B. What are the major costs associated with the ongoing administration of the Pilot?

5C. Overall, what is the net effect of the policy and operational changes demonstrated in the Pilot on Federal SNAP administrative expenditures and on State and local agencies' administrative expenditures?

5D. What are the costs of the incentive benefits?

5E. What would it cost to implement HIP nationwide?

Part VI: HIP Evaluation Overview

The legislation authorizing HIP (P.L. 101-246) provides for an evaluation and requires that “the independent evaluation ...use rigorous methodologies, particularly random assignment...” To that end, SNAP participants at the Pilot site shall be randomly selected into an experimental group which will receive the incentives and a control group which will not. Comparisons between these groups will form the basis for determining HIP’s impacts. Assuming the randomization process is executed properly and attrition from the study for both experimental and control groups is similar, this design will allow observed differences across groups in outcome variables to be interpreted directly as the effects of the Pilot. While this is a strong design with respect to internal validity, an important limitation is that its findings cannot be generalized to SNAP beyond the study site—at least not with statistical rigor. Even if—for example—it is observed that there are impacts at the Pilot site, we cannot know for sure whether those effects were due largely to conditions specific to that site and whether they would be observed at other potential SNAP sites as well. FNS recognizes that a different design in which a substantial number of sites, or matched pairs of sites, are randomly selected from the universe of all sites would provide generalizability. However, such an approach requires resources well beyond the funds available.

The evaluation Contractor shall implement the randomization of SNAP households to (1) HIP participant, (2) experimental, and (3) control status. The HIP participant group will include approximately 7,500 households that will be eligible to earn HIP incentives. Of these HIP participants, a subset of households will participate in the evaluation as the experimental group. Finally, the Contractor shall randomly assign a portion of the remaining SNAP caseload equal to the size of the evaluation experimental group to the control group.

Part VII: Data Collection

Obtaining the information needed to authoritatively answer the research questions specified above will require a relatively complicated, multi-faceted data collection plan. Extensive information on participant dietary intake will be necessary to support the analysis related to the main research questions, and additional client data will be needed to assess other aspects of participants’ involvement in HIP. In addition, substantial amounts of qualitative data collection, such as focus groups and interviews, will be important in examining processes related to Pilot implementation and reasons for observed household behavior, as well as assessing HIP’s effects on retailers and examining SNAP administrative costs.

Household Data

FNS anticipates three rounds of HIP participant survey data collection:

- Round 1 shall take place prior to HIP participation,
- Round 2 shall take place about 3 months into HIP participation, and
- Round 3 shall take place about 11 months into HIP participation.

24-Hour Dietary Intake Interviews. 24-Hour Dietary Intake Interviews administered using the automated multiple pass method (AMPM) will serve as the primary impact measure. The 24-hour dietary recall interview involves asking a respondent to recall, using structured prompts, all of the foods he or she has eaten over a 24 hour period, and to provide information about portion sizes consumed. The technique is widely used for clinical and research purposes and is the method of choice for collecting food intake data for the National Health and Nutrition Examination Survey (NHANES).¹⁶

The AMPM for 24-hour dietary recall uses five steps to obtain a list of foods consumed in the past 24 hours and prompt for foods that may have been forgotten. Interviews can be conducted either in-person or by telephone.¹⁷ When done in-person, they typically make use of food portion guides for obtaining information about the amounts of specific foods that were eaten. The formats of these portion size guides vary considerably in different applications, ranging from realistic depictions of key foods to more stylized measurement guides. In applications where 24-hour dietary recalls are done by phone, two-dimensional versions of the portion guides are often sent to respondents through the mail in advance of the interview.

The 24-hour dietary recall method has limitations within the context of this study. First, each interview only captures a single day of food intake; a longer time horizon—perhaps a week—would be more suitable. Second, the interview focuses on actual intakes over the day covered, and this is subject to considerable variance due to day-to-day variation in many people’s eating patterns. Third, the data are relatively expensive to collect and process. Also, the 24-hour dietary recall data are collected at the *individual* level, whereas the relevant unit for the HIP intervention is the *household*, which is also the official SNAP case unit. At the same time, individual data are presumably closely correlated with the household data, and individual data are of policy interest in themselves.

¹⁶ <http://www.ars.usda.gov/Services/docs.htm?docid=13793>

¹⁷ Recently the U.S. National Cancer Institute has developed a web-based self-administered approach to 24-hour dietary recall data collection. We have not considered this for the current application, because it is not fully tested and because its feasibility for a sample of low-income persons is unknown. See <http://riskfactor.cancer.gov/tools/instruments/asa24.html> as accessed 7/13/09.

Little is known about the uptake, timing, or other dynamics of incentivizing food purchase behavior. Key issues include how soon the effects of the HIP subsidies begin and whether they remain constant or reach a peak and taper off. It is of considerable interest to learn about this dynamic process, particularly in the context of SNAP. One consideration for timing of data collection relates to the distribution cycle of program benefits and benefit spend-down patterns¹⁸. It is unclear how the provision of incentive benefits may affect these patterns or how these patterns may affect the uptake of the incentive. Another SNAP-specific timing factor relates to program attrition, particularly for recent entrants into the program. If only followed up at 12 months, our sample would be skewed toward households with relatively long-term stays in SNAP. Based on these factors, FNS requires two rounds of impact data collection. One will take place approximately three months into HIP participation, while the other will take place approximately 11 months after the respondent began participating in HIP. Staggered implementation of the Pilot calls for participant enrollment over three months, with each participant eligible to earn incentives for 12 months.

The interviews during which dietary intake data are collected (rounds 2 and 3) will also incorporate data collection on the following set of variables:

- demographics
- attitudes and beliefs about fruits and vegetables and barriers to consuming them
- perceptions of changes in fruit and vegetable prices during the Pilot
- participation in nutrition education
- household composition (will also have been obtained at baseline)
- number of adults in the household; whether any are elderly
- number of children in the household
- participation in school meal and other nutrition assistance programs (WIC, CACFP)
- whether an adult works; full time or part time
- whether the household has a car
- typical fruits and vegetables spending from all sources
- household food environment (round 3 only)

Baseline Data Collection. There would be substantial advantages to having 24-hour dietary intake interview data for experimental and control participants at baseline, before the start of HIP. However, these data are expensive to obtain and would divert project resources from other important uses. While the full set of impact data will not be collected at baseline, the

¹⁷See summary of Cole, N., & Ellie Lee (2005). *Analysis of EBT Benefit Redemption Patterns: Methods for Obtaining, Preparing, and Analyzing the Data*. Report prepared by Abt Associates for the Food and Nutrition Service, USDA. <http://www.fns.usda.gov/oane/menu/Published/SNAP/FILES/ProgramOperations/EBTRedemption.pdf>

Contractor shall collect a modest amount of baseline data on participants via a short telephone survey that incorporates data on key variables described in the list above. In addition, a short dietary screener and questions about general shopping patterns shall be administered at baseline only.

Sample Size. FNS's requirements are that the sample sizes for comparing experimental and control groups must be sufficient to reliably detect a difference of ¼ cup of fruits and vegetables (combined) consumed in a period of 24 hours, with 80 percent power using a 95 percent one-tailed test.

To obtain an estimate of the required sample size given FNS's requirements, variances for fruit and vegetable intake were calculated using data from a recent NHANES survey on dietary intake.¹⁹ The results indicated that, after controlling for the variance due to observable household characteristics, approximately 750 experimental and 750 control completed observations are needed to meet the standard specified above. While the calculations were made on a somewhat differently defined set of fruits and vegetables than the one adopted for HIP, they represent the best available estimate of required sample size.

The estimate for a sample of 750 experimental and 750 control observations is stated in terms of completed interviews during round 3 of household data collection. Based on SNAP caseload turnover, FNS believes it is reasonable to expect there will be approximately 43 percent attrition due to case closings over the 14 months between initial sample selection and the final follow-up interview during round 3 of data collection²⁰. It is likely that additional attrition will occur due to non-response. FNS requires a second day of 24-hour intake interviewing for at least 10 percent of the sample in order to support converting the raw intake data to "usual" intakes. We assume this will be done using either the C-SIDE software developed at Iowa State University²¹ or the methods recently developed by NCI²² (See the Analysis Methods discussion, Section VIII).

¹⁹ NHANES tabulations suggest that for the low income households in the survey, respondents' use of fruits and vegetables, including fruit juices, white potatoes and legumes had a mean of 2.32 cups per day and a variance of 3.68. In addition it was found that, in regression analysis, the percentage of variance which could be explained using the household characteristics on the file was approximately 5 percent.

²⁰ See Cody, S., Castner, L., Mabli, J., & Sykes, J. (November 2007). *Dynamics of Food Stamp Program Participation, 2001-2003: Final Report*. Report Prepared by Mathematica Policy Research, Inc for the Food and Nutrition Service, USDA. <http://www.fns.usda.gov/ora/menu/Published/SNAP/FILES/Participation/Dynamics2001-2003.pdf>

²¹<http://cssm.iastate.edu/overview.html>

²²<http://riskfactor.cancer.gov/diet/usualintakes/method.html>

Other Household Data Collection. In addition to household interview data, three additional data collections for household information will be undertaken. See Table 1 at the end of this section for a summary of all data collection across respondent groups.

- Data on household structure, household income, and household SNAP benefits from SNAP case records (for all Pilot site SNAP households). Automated case record files containing eligibility and case data shall be requested by the Contractor from county or State program staff as appropriate. Once the files are obtained, data shall be extracted on relevant household and case characteristics which shall be used directly in the descriptive analysis and as covariates for the impact analysis.²³
- Data on EBT transactions and incentive benefits earned during HIP participation (for all Pilot site SNAP households). Comparing household benefit use over the 12-months of HIP participation will allow FNS to examine the dynamics of incentive benefit provision in conjunction with household benefit redemption patterns over time. Household-level data on the amount of incentives earned during HIP will be useful in providing evidence as to the overall uptake of the incentive among eligible households and what household characteristics are related to uptake of the incentive. The data will include demographic records (new account setups and updates, changes to the participant type (i.e., HIP participant, HIP evaluation group, evaluation control group); regular SNAP benefit postings transmitted by the HIP Grantee; new HIP incentive benefits created by the EBT Contractor; HIP-eligible fruit and vegetable subtotals for relevant transactions (regardless of Pilot group); voucher authorizations, clears and expirations; all POS terminal transactions (balance inquiry, purchase, refund, voucher clear, void last, reversal, etc.); other settling and non-settling financial transactions (expungements; recipient claims; adjustments, card fee payments, etc.); and the date and time of the transaction and the type of store in which the transaction took place. The evaluation Contractor shall make a formal request for these data, and FNS will transfer these data to the evaluation Contractor with identifiers that allow them to be merged with other household data.
- HIP Participant focus groups. In order to obtain insight into likely reasons for the observed impacts, the Contractor shall conduct 6 focus groups with respondents from the larger HIP Participant group concurrent with the impact data collection (3 groups during round 2 and 3 groups during round 3).

²³ Some redundancy between the baseline interview variable set and the case file variable set is planned. Some variables from the files (e.g., monthly benefit) would be less reliably obtained from the interview, while other information may be less clear in the files. Utilizing both sources helps ensure high data quality. At the same time, procedures for reconciling discrepancies will be required.

Data from Other Stakeholders

Information from other stakeholders is also essential to address the evaluation objectives.

Interviews of Store Managers and Other Senior Retailer Officials. It will be important to identify what opportunities and problems retailers at the Pilot site attribute to HIP. We anticipate two rounds of interviewing, which would take place at approximately the same time as the first and third household interviews. Respondents shall be recruited from a broad sample of types of participating stores, including supermarkets, “big box” stores, local groceries, convenience stores, and farmers markets. In larger stores, a two stage interview beginning with the manager and moving on to a clerk may be necessary. In smaller stores, managers may have sufficient experience at the checkout to complete the entire interview. The sample shall be drawn from an FNS-supplied list of SNAP retailers and will include and designate retailers both participating and not participating in HIP.

The first retailer survey shall focus on Pilot implementation while the second survey shall focus on Pilot operations. Data on the costs of HIP participation for retailers shall also be obtained (see discussion under EBT Personnel below). Part of the data in these interviews shall be obtained through closed-ended questions in order to obtain comparable information for descriptive analysis. However, there should be sufficient open-ended questions to allow respondents to discuss unanticipated implementation and operational issues. The Contractor shall complete 2 interviews each with 60 participating retailers. In addition, the Contractor shall conduct one interview each with up to 15 retailers who, after beginning Pilot participation choose not to continue. Finally the Contractor shall conduct one interview each with 15 retailers (representing the range of store types in the Pilot) who were eligible to participate but chose not to do so.

Interviews of State SNAP Staff, Local SNAP Staff and Community Partners. State SNAP personnel will be responsible for the implementation of HIP and overseeing its operations. If community partners are incorporated by the State, they shall be included in the data collection undertaken with local SNAP staff. SNAP local office staff may play a critical role in informing clients about HIP and in resolving problems from clients associated with HIP. SNAP staff may also be responsible for recruiting, training, and providing technical assistance to retailers participating in HIP. To obtain systematic information about these processes, the Contractor shall interview SNAP staff about their experiences with HIP. These interviews should include both senior program staff, such as State SNAP officials and SNAP office directors in the study area, and also line staff that have direct responsibility for informing clients about SNAP and/or for handling client problems as they arise. Most of this information will be obtained from open-

ended discussions, based on pre-specified topic guides. FNS anticipates that 25 individuals representing State SNAP staff, local SNAP staff, and community partners will be interviewed at three times (roughly corresponding with HIP participant data collection rounds 1, 2 and 3) during the Pilot.

SNAP staff interviews will also be used for obtaining cost-related data on HIP. Three sources of information shall be obtained for the analysis of Pilot costs:

- State budgets prepared by sites in responding to the HIP RFA and subsequent amendments;
- Accounting and other records maintained for the evaluation by the relevant State and local agencies;
- Interviews to clarify and elaborate on the data obtained from the first 2 sources above as necessary. These interviews will obtain information from relevant staff to garner their estimates, by activity, of the amount of labor time they have used specifically for various HIP activities. These interviews shall include staff of partner organizations if relevant tasks and associated costs have been delegated to such organizations.

Interviewing can be aided by any reporting documents or records offerors determine to be useful. Interview protocols shall include probes to follow-up on any documents and records collected. Time estimates for HIP-related work provided by respondents shall then be combined by the Contractor with site wage and overhead data by type of worker to approximate labor costs. Other direct costs shall be included in this data gathering process, as is also the case with significant non-government partners.

Interviews of State EBT Personnel, EBT Vendor Staff, and Third Party Processors. HIP operations will be closely tied to the EBT system at the site. It is of considerable policy interest to document the cost of adapting the EBT system to meet the needs of HIP and to identify any unexpected problems which arise in doing so. Initial start-up costs and any changes in ongoing EBT operational costs resulting from HIP are also of interest. The Contractor shall estimate these costs based on information collected from EBT vendor staff, SNAP EBT managers, and relevant third party processors servicing retailers. Some of these costs are likely to occur at the State level of the SNAP program, but the bulk of the cost is expected to be incurred via EBT vendor contracts to make changes to the EBT system. Additional costs will be incurred by retailers, both directly and as a function of their purchase of ECR programming solutions from third party processors. Five EBT staff (including State SNAP, EBT vendor, and Third Party Processors) interviews shall be conducted three times (roughly corresponding with HIP participant data collection rounds 1, 2 and 3) during the Pilot.

Table 1: Summary of Data Collection

Respondent Group and Method	Prior to start of HIP	Approximately 3 months into HIP	Approximately 11 months into HIP	1 Month after close of HIP
HOUSEHOLDS				
SNAP Case Record Data	√			
Baseline Telephone Survey	√			
Follow-up Interview		√	√	
Focus Groups		√	√	
EBT Transaction Data*		√	√	√
RETAILERS				
Survey/Interview	√		√	
SNAP PROGRAM STAFF & PARTNERS				
Interview	√	√	√	
Administrative Documents	√	√	√	
EBT SYSTEM PERSONNEL				
Interview	√	√	√	

*FNS and the Contractor will explore the best way to pull transaction data for HIP participants. It may be desirable to pull the data in batches a few times during the Pilot (as reflected above) or it may be more efficient to create a monthly data file until all data for participants are captured.

Part VIII: Analysis Methods

The data collection previously described supports four major analyses:

- HIP impact on SNAP participants,
- Stakeholder experiences and satisfaction,
- Implementation processes and feasibility of expansion, and
- Implementation and operational costs.

HIP Impacts on SNAP Participants

Four key impact questions are: (1) do SNAP recipients in the Pilot eat more fruits and vegetables than control group participants; (2) does HIP participants' SNAP fruit and vegetable spending increase during the course of the Pilot; (3) how, if at all, does HIP affect overall diet; and (4) do household-level factors and/or individual characteristics affect the relationship between HIP participation and individuals' fruit and vegetable intake?

While estimating HIP impacts on individual intake is of primary interest, it is a more distal outcome than household purchases and food use. Even if no difference is observed between experimental and control group participants with respect to fruit and vegetable intake, there may be effects on more proximal outcomes. While evaluation resources do not permit detailed and comprehensive measures of household food purchases and use, the Contractor shall obtain EBT transaction data on total SNAP purchases and HIP-eligible fruit and vegetable purchases for all SNAP households at the Pilot site, as well as survey data from the evaluation groups on aspects of the family food environment and individual preferences, in an attempt to elucidate these processes.

The second question focuses on substitution effects. Because the added purchasing power provided by the incentives will come in the form of SNAP food benefits, such "substitution" seems most likely to take the form of buying additional foods or more expensive food items. For example, Pilot participants who are already consuming substantial amounts of fruits and vegetables may continue to buy essentially the same amount of fruits and vegetables as before, using the increased purchasing power provided by incentive benefits to buy other eligible foods. Alternatively, HIP participants may increase their intake of fruits and vegetables but also increase consumption of less healthful foods or increase total energy (calorie) consumption.

Answering the impact questions involves merging files that contain the following data:

- Household characteristics from the SNAP automated case files,
- Baseline survey of SNAP participants,
- Dietary intake and associated data from SNAP participants collected at two time points during Pilot operations, and
- EBT transaction data on both general shopping patterns and SNAP purchases of fruits and vegetables.

Tabular Analysis.

Descriptive Variables. As background for the remainder of the analysis, the Contractor shall describe SNAP households and participants in the experimental and control groups. Variables shall include, but are not limited, to:

- Household composition—size, ages of members, and relationships to head;
- Presence of immigrants in household;
- Presence of disabled persons in household;
- SNAP benefit levels—dollar amount and percent of maximum benefit;
- Length of SNAP participation;
- Household income level and sources;
- Participation of household members in other nutrition-related programs—WIC, school meals, nutrition education;
- Race/ethnicity of household head and survey respondent;
- Education level of household head and survey respondent;
- Employment status of all household members;
- Other characteristics of survey respondent—gender, number of dependents, marital status;
- Fruit and vegetable knowledge, attitudes and consumption frequency;
- General shopping patterns—number and types of retailers used, average number and size of purchases, and benefit exhaustion;
- Other aspects of the family food environment—e.g., how family manages food preparation and meal planning tasks; and
- Household food security status and self-reported food expenditures.

Impact Variables. Intake and other measures to be tabulated by key descriptive variables described above include but are not limited to:

- Cups of fruits consumed;
- Cups of vegetables (including legumes) consumed;
- Cups of combined fruits and vegetables consumed;
- Total cups of fruits consumed as a percentage of the *MyPyramid/DGA* recommendations applicable to the respondent;
- Total cups of vegetables consumed as a percentage of the *MyPyramid/DGA* recommendations applicable to the respondent;
- Total cups of grains, meat and beans, dairy and discretionary foods consumed as a percentage of the *MyPyramid/DGA* recommendations applicable to the respondent;
- Kilocalories of discretionary foods consumed as a percentage of all food consumed;

- Total kilocalories consumed;
- Respondents consuming none, up to 1 cup, and 1 cup of more of fruits;
- Respondents consuming none, up to 1 cup, and 1 cup of more of vegetables;
- Respondents consuming none, up to 1 cup, and 1 cup of more of fruits and vegetables combined;
- Form of fruits and vegetables—fresh, frozen, canned, and dried—consumed and/or purchased;
- Presence of other ingredients in fruits and vegetables consumed; and
- HEI scores (including subscales).

Where appropriate, vegetables shall be disaggregated consistent with recommendations for intake in *MyPyramid/DGA* recommendations (i.e., dark green, orange, dry beans and peas, starchy, all other).

In producing the cross tabulations just described, the Contractor shall carry out significance tests of selected differences in means, proportions and/or frequencies. The choice of when to apply such tests shall be determined jointly by the Contractor and FNS.

Multivariate Analysis of Impacts.

The impact analysis shall include extensive multivariate analyses. These methods are intended to add depth to the impact analysis by controlling for variation in other variables that are expected to influence fruit and vegetable consumption. In addition, the multivariate analysis will provide a context to estimate the relative influence of different non-HIP factors (e.g., gender, age, work status) on fruit and vegetable consumption. Multi-stage analyses are expected to address the relationship between individual intakes and intervening factors and characteristics.

Estimating “Usual” Intakes. Regression analysis of 24-hour intake data can be misleading when used to assess whether various types of food consumed meet external dietary standards. In particular, differences across individuals reflect both variance in true eating patterns and day-to-day variation in eating. For instance, assume that everyone in the study population ate 2 cups of vegetables every other day. Then, the estimated mean obtained from 24-hour data would be correct—1 cup per day—but the unadjusted estimated variance would be too large, reflecting the day-to-day variation. To estimate usual intakes of both nutrients and foods, the Contractor shall obtain two days of intake data from a subsample. Usual intakes from nutrients shall be estimated using appropriate statistical methods, e.g., Iowa State University’s C-SIDE

(Software for Intake Distribution) or National Cancer Institute (NCI) methodology. Usual intakes from foods shall be estimated using the NCI method.²⁴

Impact Analysis Using EBT Transaction Data.

EBT data obtained for SNAP participants at the Pilot site shall be analyzed to uncover patterns of benefit redemption over time. Analyses shall compare all HIP participants with the rest of the SNAP caseload and will be further broken down into four major groups (distinguishing evaluation experimentals and evaluation controls from the larger HIP participant and SNAP caseload groups). SNAP spending on HIP-targeted fruits and vegetables and amount of HIP incentive benefits earned will be examined (as described above) as both predictors of the other impact variables and as impact variables themselves.

Additional Analyses

In addition to the basic impact analysis a number of other analyses shall be conducted to help interpret the observed effects and to provide some basis for assessing the overall policy implications of the Pilot. These supplemental analyses shall be designed to address all Evaluation Objectives described above.

Stakeholder Experiences and Satisfaction with HIP

HIP Participants. Information from both the participant surveys and focus groups shall be used for this analysis. While the survey responses provide quantitative measures, analysis of focus group transcripts shall be used to provide qualitative detail. The latter shall be fully integrated with survey findings to offer examples, context and possible explanations for survey data.

The focus group data analysis shall identify any patterns or the absence of patterns in participants' experiences with HIP. In addition, the analysis will address several aspects of satisfaction. They include the degree of participant satisfaction with HIP, what features HIP participants like and/or don't like, and whether satisfaction changed over time.

²⁴ See, for example, Carriquiry, A.L. (1999). Assessing the prevalence of nutrient inadequacy. *Public Health Nutrition*, 2, 23-23, available: <http://riskfactor.cancer.gov/diet/usualintakes/method.html>; and Dodd, et al. (2006). Statistical methods for estimating usual intake of nutrients and foods: A review of the theory. *Journal of the American Dietetic Association*, 106, 1630-1650.

State and Local SNAP Staff. Interviews with State and local SNAP staff will be a critical source of information about the Pilot. Understanding the State’s experience planning, implementing, and operating HIP will be important in informing any potential expansion of the Pilot. State and local staff perspectives on HIP implementation and operation shall be described along with respondents’ satisfaction with the Pilot.

SNAP Retailers and Third Party Processors. Survey responses from participating retailers and their processors shall be analyzed to provide a description of the Pilot experiences and satisfaction. Information on retailer experiences and opinions shall be compared by store type and other relevant characteristics.

Survey responses from authorized SNAP store managers who declined to participate in the Pilot or withdrew their participation shall be analyzed as well. The focus of the analysis is to describe the profile of stores opting out of HIP, their reasons for doing so, and their subsequent perceptions of the Pilot.

SNAP EBT and EBT Vendor Staff. Interview data from SNAP staff serve multiple purposes. One of these is to describe their experiences altering the EBT system and client transactions to accommodate HIP. The EBT contractor and appropriate State SNAP staff shall report on satisfaction with the implementation and operation of HIP, along with perceptions of SNAP client reactions to HIP—e.g., their interest in, acquisition of incentives, and queries about the Pilot—based on HIP participant interactions.

HIP Process Assessment

Implementation Analysis. Using a combination of interview responses, project communications and planning documents, figures on retailer participation, and knowledge gleaned from participation in meetings with key stakeholders, the Contractor shall conduct an analysis of the HIP implementation. Key aspects of the implementation process shall be described, including but not limited to, major activities, the associated schedule, the roles of major actors (including their interactions), setbacks experienced, and lessons learned. Steps should include initial planning, retailer recruitment, database and software development, system testing, development of any materials for training, as well as the actual training for SNAP staff, clients or retail clerks. Any difficulties arising in the implementation process and their resolution also shall be described.

Operational Analysis. A key question is whether and how relevant actions of clients, SNAP staff, the EBT vendor and retailers have changed with the introduction of the HIP. From the client

perspective, the analysis shall focus on the ability to identify HIP target foods in stores and steps at the checkout counter to purchase these items. Perceptions of changes in how SNAP purchases are handled by retailers and transaction processors shall be described as well. In addition, EBT transaction data shall be examined to identify patterns of shopping behavior with respect to retailer type and amount of SNAP benefits spent on fruits and vegetables.

Whatever functional changes occur in the local SNAP office and at the EBT vendor shall be described. For instance, a description of who provides information to participants, what information is provided and how information is provided is one aspect of this analysis. Documenting similar processes around participants who have questions or problems is another aspect of this analysis. To the extent that some aspects of EBT system procedures, such as reconciliation, change with the introduction of HIP, they shall be described as part of the operational analysis.

Cost Analysis. The Contractor shall assess the key cost components of HIP and estimate the cost of national implementation. The total costs of HIP shall be disaggregated into development costs, such as costs for changes in the EBT system, and operating costs, which are the ongoing costs incurred after HIP is fully implemented. Each of these types of costs shall be disaggregated into functional costs, such as client training or retailer recruitment. They should also be disaggregated into type of costs, such as labor, non-labor direct, and overhead costs. The Contractor shall make sure that both costs reimbursed by the USDA and any other costs incurred by major stakeholders are identified and incorporated.

In estimating the cost of national implementation, the Contractor shall distinguish between fixed and variable components, identify which factors are key to increasing or decreasing costs and carry out associated sensitivity analyses. The analysis shall incorporate one or more common metrics to facilitate comparisons across cost components and be put on a per unit basis as appropriate.