

Wholesome Wave's Fruit and Vegetable Prescription Program

FVRx[®]

2012

PROGRAM REPORT



Foreword

Wholesome Wave's Fruit and Vegetable Prescription (FVRx) Program has been shown to improve the health indicators and health behaviors of overweight children and pregnant women who are at risk of developing diet-related diseases, such as type 2 diabetes and heart disease.

Our 2012 data continue to build upon the promising results that we found in 2011. In 2012, when surveyed at the end of the market season, more than 90% of patients reported that they were eating more fresh fruits and vegetables. Healthcare workers who asked patients during each visit to describe their daily fruit and vegetable consumption found that 55% of patients were eating more fruits and vegetables at their final visit compared to their first. Additionally, data showed that 38% of child patients decreased their Body Mass Index (BMI), a key indicator of obesity, from the first to the last FVRx visit.

One of the reasons why we believe the FVRx Program is so successful is its community-based approach, which encourages productive and lasting partnerships between doctors, nutritionists, community health workers, farmers, farmers market operators, and community members. Additionally, we intentionally designed the program to serve the patient's family as a whole. Family members of the patients are not only encouraged to participate in program activities, but they also receive prescription benefits.

Overall, a total of 1,570 people took part in the 2012 pilot intervention. There were 380 patients, 85% of whom were children, and the remaining 15% were pregnant women. We expanded the program from 6 sites in 4 states in 2011 to 12 sites in 7 states and Washington, D.C.

We found the FVRx Program helped doctors emphasize healthy eating on a regular basis with their patients. Data showed that 90% of FVRx patients were told about the importance of fruit and vegetables by their healthcare provider at every visit. Additionally, 58% of patients completed the intervention, making at least 3 visits to the health centers and 6 visits to the farmers markets during

the FVRx season, a rate that is consistent with other obesity interventions in underserved communities.

In many communities, the FVRx Program occurs in the context of other activities to promote healthy eating and active living, such as physical activity programs and obesity clinics. Thus, FVRx can be an essential component of a community and family approach to a healthier lifestyle.

Keeping true with Wholesome Wave's mission, in addition to increasing the access to and affordability of fresh, locally grown food in underserved communities, the FVRx Program simultaneously supports small and mid-size farms. Overall, the FVRx Program brought in more than \$120,000 in additional revenue for the 26 participating markets, increasing sales for their farmers.

We would like to thank all of our dedicated FVRx partners and supporters, without whom none of our findings would have been possible. As we look to the future, we will deepen in certain communities and expand into new clinical and retail settings. We are also turning our focus towards developing strategic business plans and policy targets to ensure FVRx will serve as a self-sustaining and cost-effective disease prevention program for organizations across the nation.



Michel Nischan
CEO, President & Founder

2012 FVRx Healthcare Partners

Codman Square Health Center
El Centro Family Health, Española Clinic
Fair Haven Community Health Center
Greater Lawrence Family Health Center
Holyoke Health Center
LifeLong Medical Center
People's Community Clinic
Skowhegan Family Medicine
Thundermist Health Center
Unity Healthcare, Upper Cardozo Health Center

2012 FVRx Farmers Market Partners

CitySeed Inc.
Holyoke Farmer's Market
Codman Square Farmers Market
Columbia Heights Community Marketplace
DC Greens
Ecology Center
Española Farmers Market
Farm Fresh Rhode Island
Groundwork Lawrence
Skowhegan Farmers' Market
Sustainable Food Center

2012 FVRx Program Supporters

The Aetna Foundation
Kaiser Permanente
Newman's Own Foundation

Introduction

Obesity rates have more than doubled in adults and children since the 1970's (National Center for Health Statistics, 2009). With two-thirds of U.S. adults overweight or obese (Flegal et al., 2012), the impacts of obesity are a leading public health problem in the U.S. (Flegal et al., 2012; Ogden et al., 2012). Childhood obesity rates have tripled in the past 30 years, and more than one third of children had a Body Mass Index (BMI) at or above the 85th percentile for their age as of 2008 (Levi et al., 2011, Levi et al., 2010; Ogden et al., 2010).

Overweight and obesity increase the risk of multiple health conditions, including heart disease, cancer, Type 2 diabetes, high blood pressure, and dyslipidemia (National Heart, Lung, and Blood Institute, 1998). Obesity is one of the leading preventable causes of death nationwide, and has a significant economic impact on the health care system, with related medical costs constituting nearly ten percent of all national annual medical spending (Finkelstein et al., 2009; HHS, 2001). One study estimates that the total medical care cost of obesity in 2008 may have been as high as \$147 billion (Finkelstein et al., 2009).

The impact of obesity on disadvantaged communities has been well described (Wang & Beydoun, 2007). Socioeconomic position is negatively associated with overweight and obesity in children (Singh & Kogan, 2010; Singh, Siahpush, & Kogan, 2010; Strauss & Knight, 1999). Six of the 10 states with the nation's highest obesity rates also have the nation's highest poverty rates (Levi et al., 2011). In 2008, 35.9% of non-Hispanic black children and 38.2% of Hispanic children were overweight or obese, compared to 29.3% of non-Hispanic white children ages 2-19 (Ogden et al., 2010). At the heart of the challenge is the need to alter individual behavior, but family, community, and the environment all impact individual behaviors.

Among the factors contributing to childhood obesity is a lack of fruit and vegetable consumption. Numerous nutrition studies document the health benefits of increased fruit and vegetable consumption (Epstein et al., 2001; Ford and Mokdad, 2001; Ness

& Powles, 1997; Rolls, Ello-Martin, & Tohill, 2008). Many Americans consume fewer servings of fruits and vegetables than recommended, with lower rates of consumption in underserved communities (Cassady, Jetter, & Culp, 2007). Although this may reflect individual and family choice, community level factors, living and working conditions, and local, state, and federal policy play a large role in this choice. At the community level, physical access to healthful foods is often limited (Cassady, Jetter, & Culp, 2007). At the level of living and working conditions, families living in poverty may have limited access to equipment and supplies needed for cooking due to unstable or substandard housing conditions. At the policy level, the high price of healthful foods contributes to decreased consumption in underserved families (Caldwell et al., 2008; Herman et al., 2008).

Research indicates that a number of barriers influence fruit and vegetable consumption. Price is one important factor in food choices; because healthful foods such as fruits and vegetables often cost more, particularly in low-income neighborhoods (Cassady et al. 2007). In addition to cost, fruit and vegetable access, as well as perceived barriers to purchasing or eating fruits and vegetables, are significant predictors of consumption habits (Havas et al., 1998, Caldwell et al., 2008). One study estimated that for a low-income family of four to meet the 2005 Dietary Guidelines, they would have to spend 43-70% of their food stamps on fruits and vegetables (Cassady et al. 2007).

Programs that provide vouchers, coupons, or cash benefits to be redeemed at farmers markets can help to overcome these barriers to increase fruit and vegetable consumption, encourage low-income consumers to shop at markets they might not have otherwise known about, and try new foods (Dong & Leibtag 2010; Freedman et al., 2013). The impact of these programs on fruit and vegetable consumption has been shown to increase when educational components are included in concert with coupons (Anderson et al., 2001). Furthermore, there is evidence that increased fruit and vegetable intake during the period of coupon provision is sustained

after subsidized vouchers are removed (Herman et al., 2008). Wholesome Wave's Fruit and Vegetable Prescription Program (FVRx[®]) seeks to combine these two elements to facilitate behavioral change with overweight and obese children and their families.

This summary report provides some of the highlights of the evaluation and data collection efforts undertaken by Wholesome Wave and its partner organizations from 2012. The report addresses the evidence underlying Wholesome Wave's primary objectives of the FVRx Program, including:

1. Providing the education necessary for participating FVRx families to increase their knowledge of the importance of fruits and vegetables in a healthy diet.
2. Facilitating the increase in fresh fruit and vegetable consumption among FVRx patients.
3. Improving health outcomes (including decreasing BMI and weight) of FVRx patients.
4. Facilitating measureable change in the shopping habits of participating families, driving new sales for local farmers markets and increasing purchases of fresh fruits and vegetables.
5. Increasing patient and provider satisfaction and participation.
6. Developing multi-sector partnerships to achieve effective food access and community health and development.

About Wholesome Wave's (FVRx[®]) Program

Wholesome Wave's mission is to empower urban and rural communities by increasing access to and affordability of fresh, locally grown food, resulting in significant local economic impact. The organization's innovative programs address issues surrounding food insecurity, diet-related diseases including obesity and type 2 diabetes, and the economic viability of small and midsize farms.

Wholesome Wave's Fruit & Vegetable Prescription Program (FVRx[®]) is designed to provide assistance to overweight and obese children who are at risk of developing diet-related diseases, such as type 2 diabetes and heart disease. The program is intended to provide direct economic benefits to small and midsize farmers and bring additional resources into the local economies of underserved communities. Fruit and vegetable prescriptions are distributed by healthcare providers and redeemed at participating farmers markets for fresh, locally grown fruits and vegetables. Each dollar invested in the FVRx Program benefits the community by nourishing the consumer, boosting farmer revenue, and supporting overall community health.

FVRx Patient Flow

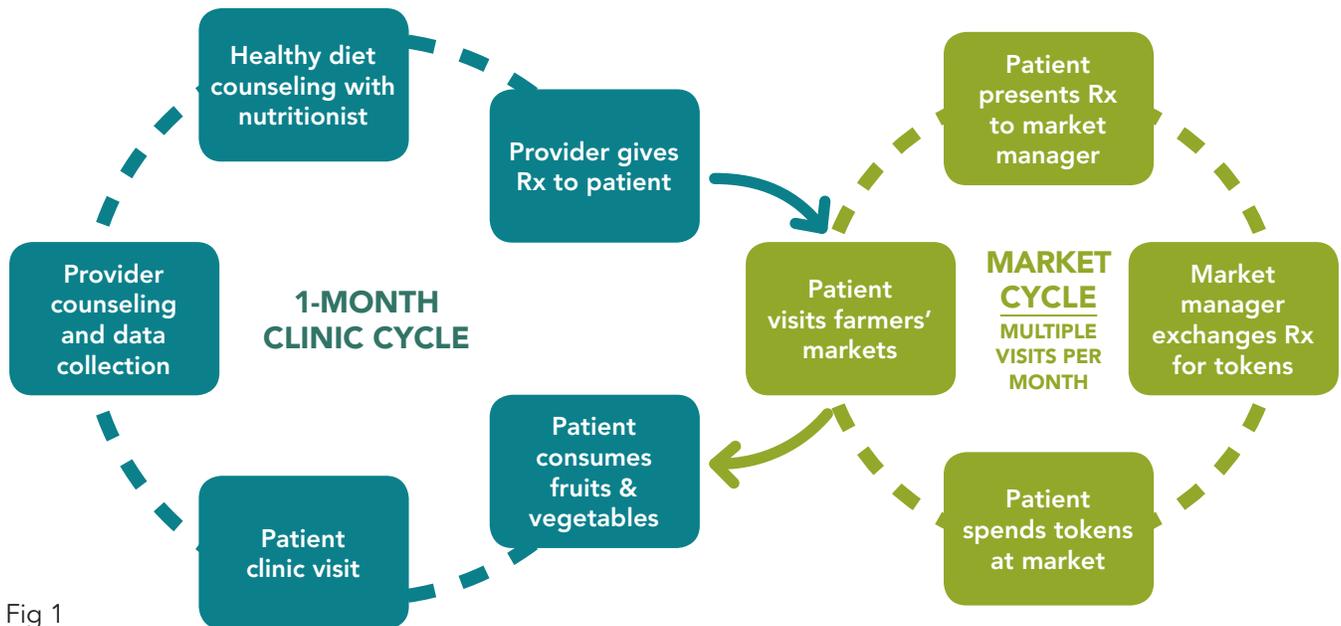


Fig 1

FVRx was launched with a feasibility study in 2010. A total of 246 participants were served through work with three healthcare partners and a statewide network of farmers markets. Results indicated promising outcomes in regard to patients' shopping and eating habits, as well as on their knowledge about the importance of fruits and vegetables in their diet. The program was expanded during its 2011 pilot season to sites in Massachusetts, Maine, California and Rhode Island. In 2012, the program worked with ten health care centers and focused primarily on pediatric patients, and also targeted pregnant women at two of the centers.

Throughout 2013, Wholesome Wave has continued to operate the FVRx partner network while expanding to include a pilot program that tests FVRx in new clinical settings. We are also turning our focus towards strategic business planning to sustainably scale the FVRx intervention. We seek to develop FVRx into an integral and cost-effective model of obesity and diet-related disease prevention for vulnerable communities.

Intervention and Methods

The FVRx Program uses health behavior change messaging in the primary care setting with farmers market vouchers for families with children who are overweight or obese, and in 2012, with pregnant women. Physicians recruit patients considered to be at-risk (overweight or obese as measured by BMI weight-for-age) from their existing patient populations.

To be eligible, pediatric index patients (between 2–18 years of age at baseline) must have a parent or guardian willing to participate, both parent/guardian and patient must consent to participation, and the patient must be able to attend at least 3 monthly clinic visits over the 4 to 6-month intervention period. During clinic visits, families (the pediatric index patient and an accompanying parent or guardian or the pregnant woman) receive obesity treatment counseling from their physician, who undertakes a health assessment and discusses healthy weight, diet, and physical activity goals (see Fig.1).

The families also speak with a nutritionist or health educator, who assesses fruit and vegetable consumption and emphasizes the replacement of unhealthy foods with fresh fruits and vegetables. At the end of each visit, a provider distributes the Fruit and Vegetable Prescription to the family (\$1 per household member per day).

Families are given information regarding the times and location of the farmers market. At the farmers market, the patient presents their prescription to the market manager, who then exchanges the prescription for tokens. Market managers are encouraged to promote the importance of eating locally grown produce when speaking with families.

Data collection and analysis is a vital component of the FVRx Program. Data collection occurs throughout the duration of the program, for approximately 16–20 weeks from May through October. Primary care providers track patients’ weight, Body Mass Index (BMI), and fruit and vegetable consumption at each visit. Participants also fill out pre- and post-surveys, gauging changes in fruits and vegetables consumption, knowledge, and shopping habits. Partnering farmers markets track prescription redemption.

Wholesome Wave’s 2012 FVRx Sites

Ten health care centers (Table 1) participated in the program, and were connected with 26 farmers markets.

The ten FVRx sites are located in rural and urban counties, ranging in size from approximately 40,000 residents to over 1.5 million residents. Many of the sites are in areas with high poverty rates in comparison to state indicators (Table 1).

Access to foods in the health center communities can be examined using indicators for the food retail environment (Table 2). These indicators show that in each health center community, the number of grocery stores was less than the statewide average.

In fact, most had less than two-thirds the number of grocery stores per 1,000 residents than at the state level.

FVRx Site	County Name	2010 Census Population	Residents with H\$<poverty rate, 2010	Residents <18 years in households with H\$<poverty rate, 2010	Students eligible for free/reduced lunch, 2009
LifeLong Medical Center	Alameda, CA	1,510,271	13.5%	17.2%	42%
Fair Haven Community Health Center	New Haven, CT	862,477	11.6%*	16.1%*	40%*
Unity Healthcare, Upper Cardozo Clinic	Washington, DC	601,723	18.8%	31.1%	70%
Skowhegan Family Medicine	Somerset, ME	52,228	18.6%*	25.7%*	57%*
Greater Lawrence Family Health Center	Essex, MA	743,159	10.4%	14.5%	36%*
Holyoke Health Center	Hampden, MA	463,490	17.1%*	25.5%**	52%**
Codman Square Health Center	Suffolk, MA	722,023	22.6%**	30.0%**	75%**
El Centro Family Health, Española Clinic	Española, NM	40,246	21.0%*	27.7%	98%*
Thundermist Health Center	Providence, RI	626,667	17.5%*	25.3%*	54%*
People’s Community Clinic	Travis, TX	1,024,266	18.8%*	24.5%	54%*

USDA, ERS, 2013: *,**,over 100%, over 150% of state level avg.

H\$=Household income

Table 2: Select food retailers by County for FVRx sites

FVRx Site	County Name	# of grocery stores per 1,000 residents (county)	% of County/State grocery stores per 1,000 residents	# of convenience stores per 1,000 residents	% of County/State grocery stores per 1,000 residents
LifeLong Medical Center	Alameda, CA	0.2407	88	0.2011	326
Fair Haven Community Health Center	New Haven, CT	0.2252	71	0.3266	308
Unity Healthcare, Upper Cardozo Clinic	Washington, DC	0.3018	62	0.2668	143
Skowhegan Family Medicine	Somerset, ME	0.2552	53	1.0403	499
Greater Lawrence Family Health Center	Essex, MA	0.1926	47	0.3259	156
Holyoke Health Center	Hampden, MA	0.2017	49	0.4203	202
Codman Square Health Center	Suffolk, MA	0.2720	67	0.3981	191
El Centro Family Health, Española Clinic	Española, NM	0.1475	88	0.5900	2,578
Thundermist Health Center	Providence, RI	0.1991	62	0.3489	259
People's Community Clinic	Travis, TX	0.1218	52	0.4405	436

USDA, ERS, 2013

Patient Households Enrolled: An Overview

- 81.9% of patients reported being on Medicaid or public health insurance, 14.7% reported having private health insurance, while 2.2% were uninsured, and 1.1% reported "other"
- Average family size is 4.2 people

- 56.3% reported that English was not the primary language spoken in the home
- 48.5% said that someone in their household received the Supplemental Nutrition Assistance Program (SNAP) benefits and 18.3% received Women, Infants, and Children (WIC) benefits

FVRx Participation in 2012

In 2012, 380 patients and their households (for a total of 1,570 family members) took part in the FVRx Program. 85% percent of these patients were children identified as obese or overweight and were taking part in a healthy weight clinic, while another 15% were pregnant women.

Of the total, 222 patients (58%) completed the intervention, making at least 3 visits to the clinic and 6 visits to the farmers markets over the 4 to 6-month intervention period. The percentage of patients completing the intervention varied from 37% to 85% amongst the 10 health clinics (Table 3).

Table 3: FVRx Patients Completing Intervention by Health Care Clinic, 2012

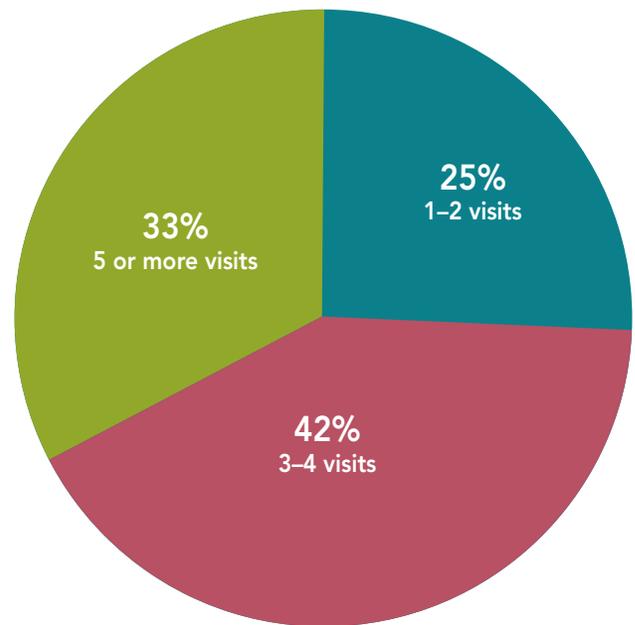
FVRx Site	% of Patients Completing Intervention
LifeLong Medical, CA	37
Greater Lawrence Family Health Center, MA	39
Holyoke Health Center, MA	44
Codman Square Health Center, MA	53
Fair Haven Community Health Center, CT	58
People's Community Clinic, TX	61
El Centro Family Health, Española Clinic, NM	62
Thundermist Health Center, RI	68
Unity Healthcare Upper Cardozo Clinic, D.C.	83
Skowhegan Family Medicine, ME	85

FVRx Gives Healthcare Providers a Chance to Put Recommendations into Practice

During clinic visits, families receive health behavior change counseling from one or more members of a primary care team that consists of a primary care provider, nutritionist, and, in some cases, a community health worker that discusses the importance of healthy eating and active living, with a focus on the importance of eating fresh fruits and vegetables. The FVRx Program gives these healthcare providers a chance to put their recommendations into action by giving families a fruit and vegetable prescription and information about participating farmers market at the end of each visit. Providers are reporting impacts of this two-pronged approach, which increase patient retention and satisfaction.

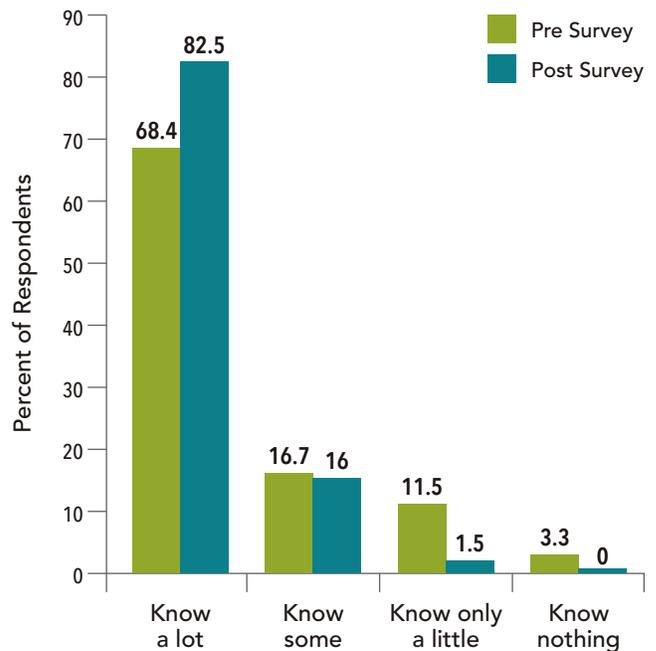
- Almost 90% of participants were told at least at every visit about the importance of fruits and vegetables directly from healthcare providers
- 63% of patients were given the FVRx prescription by a doctor or other medical provider and 29% of patients received it from a nutritionist
- 75% of FVRx patients made 3 or more clinic visits over the intervention period (Fig 3)
- Over the course of the season, surveys of patients show that patients significantly increased their knowledge of the importance of fruits and vegetables in their family’s diet (Fig 4)

Figure 3: Number of FVRx Patient Health Center Visits over Intervention Period, 2012



N=380

Figure 4: FVRx Patient Self-Reported Knowledge about the Importance of Fruits and Vegetables in Diet



N=222; McNemar chi-square tests showed significant increase (at $P < .0001$) in the number of patients reporting that they “know a lot” about the importance of FV in their diet.

Health Care Clinics Report the Power of Fruit and Vegetable Prescriptions

“The FVRx Program clearly increases our attendance rates at our healthy weight clinic. It is an obvious incentive for families to be seen. For families that use the market regularly, there seems to be at least an anecdotal sense that FVRx patients do increase their consumption of fruits and veggies.”

– Vinny Biggs, MD, Massachusetts

“Wholesome Wave made it possible for us to actually prescribe, not just ‘preach’ about, healthy, local vegetables and fruit—this is a dream come true! The win-win-win of doctors feeling inspired by empowering patients to eat healthy, the patient themselves being turned onto the bounty of fresh produce, and the farmers benefiting from the support, and all of us partnering together has been amazing!”

– Wendy Kohatsu, MD, California

“Farmers market support is excellent! By granting the FVRx, we are able to not just talk about healthy food choices, but have patients leave with an Rx in hand to implement at the local farmers market.”

– Evan Teplow, MD, Massachusetts

“The provision of fruits and vegetables as a prescription is a very important concept. The ability to discuss healthy lifestyle change and simultaneously provide the tools to make this possible creates a stronger intervention.”

– Anne Camp, MD, Connecticut

Many FVRx Patients Realize Positive Health Outcomes and a Reduction in BMI

One key indicator measured at every health clinic visit is Body Mass Index (BMI). For child patients, the average BMI was 28.3 at enrollment and 28.6 at the end of the intervention. Of those completing the intervention in the 10 health care clinics serving pediatric patients (Table 4), 37.8% decreased their BMI, ranging from 15.8% at the Greater Lawrence Family Health Center to 56.3% at Codman Square Health Center. The 70 pediatric patients who reduced their BMI did so for an average of 0.9 BMI points.

Table 4: Reduction in FVRx Child Patient BMI by Health Center, 2012

Health Care Center	% of Pediatric Patients Reducing BMI
Greater Lawrence Family Health Center, MA	15.8
Skowhegan Family Medicine, ME	27.3
Unity Healthcare Upper Cardozo Clinic, D.C.	33.3
El Centro Family Health, Española Clinic, NM	38.9
Thundermist Health Center, RI	42.9
Holyoke Health Center, MA	43.8
Fair Haven Community Health Center, CT	45.5
Codman Square Health Center, MA	56.3
All Centers	37.8

N=188

FVRx Patients Increase Fruit and Vegetable Consumption

Another key indicator collected at each health center visit is fruit and vegetable intake, which is studied in various ways.

Overall, 55.3% of patients saw an increase in their fruit and vegetable consumption from their first to their last visit. A paired-samples t-test was conducted to compare the daily fruit and vegetable intake at the first and last clinic visit, and there was a significant difference in consumption from the first visit (M=3.5, SD=1.71) and the last visit (M=4.5, SD=2.06); $t(187)=5.839$, $p < .0001$. The average change in fruit and vegetable consumption was 1 cup per day.

The percentage of those increasing fruit and vegetable consumption varied greatly by health clinic site (Table 5) from almost 30% at Unity Upper Cardozo in Washington D.C. to 74% at Thundermist Health Center in Rhode Island. Based on these 2012 results, 2013 programming focuses in depth on assessing fruit and vegetable consumption during clinic visits.

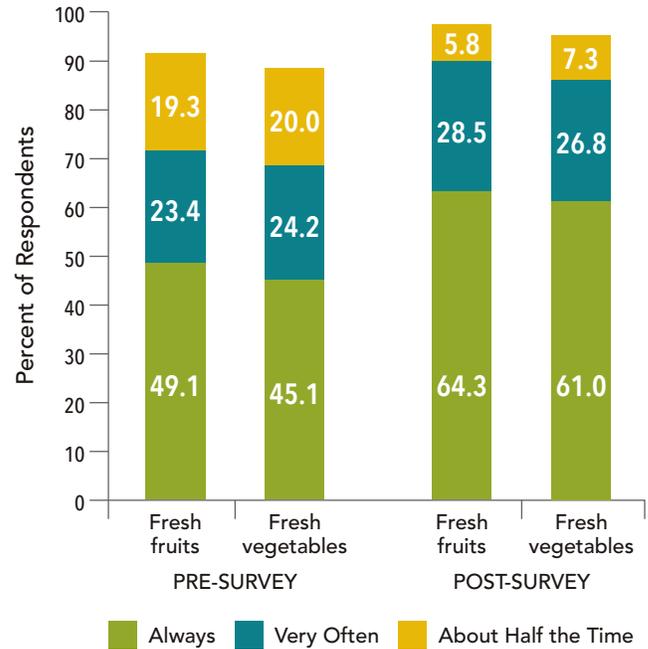
Health Care Center	% of Patients Increasing FV Intake
Unity Healthcare Upper Cardozo Clinic, D.C.	28.6
LifeLong Medical Center, CA	30.8
Holyoke Health Center, MA	38.5
People's Community Clinic, TX	40.9
Codman Square Health Center, MA	46.7
Fair Haven Community Health Center, CT	55.0
Greater Lawrence Family Health Center, MA	62.5
El Centro Family Health Española Clinic, NM	66.8
Skowhegan Family Medicine, ME	72.7
Thundermist Health, Center, RI	74.3

N=188

Finally, data regarding consumption of fresh fruits and vegetables (versus canned and frozen) by FVRx patients was also collected at the pre- and post-survey. Patients were asked, "Of the fruits and vegetables eaten over the last month, how often were they fresh (or frozen or canned)."

Figure 6 shows that patients ate their fruits and vegetables in fresh form more often by the end of the intervention period (with almost two-thirds saying they always ate their fruits and vegetables as fresh by the end of the intervention), and this change was statistically significant.

Figure 6: Change in Consumption of Fresh Fruits and Vegetables for FVRx patients, 2012

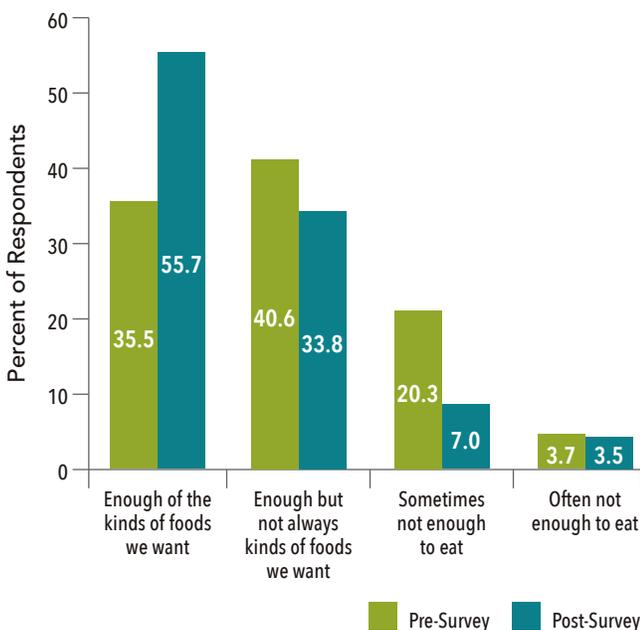


N=222; McNemar chi-square tests showed a significant increase (at $P < .0001$) in the number of patients reporting that they ate fruits and vegetables as fresh "very often" or "always" from the beginning to the end of the intervention.

Food Security Indicators Improve for FVRx Households During Intervention

Other indicators point to increasing food security on the part of participating families. During the intervention period, households reporting that they had access to enough of the kinds of foods they wanted increased significantly from pre- to post-survey, while those reporting that they sometimes did not have enough to eat decreased (Fig 7). Because these indicators suggest important impacts of FVRx, further study in 2013 is underway to examine food security experienced by FVRx patients during the intervention period.

Figure 7: FVRx Patient Households Reporting Access to Foods, 2012



N=222; McNemar chi-square tests showed a significant increase in (at $P < .0001$) the number of patient households reporting that they had “enough of the kinds of food we want” from pre- to post-survey (during the intervention period).

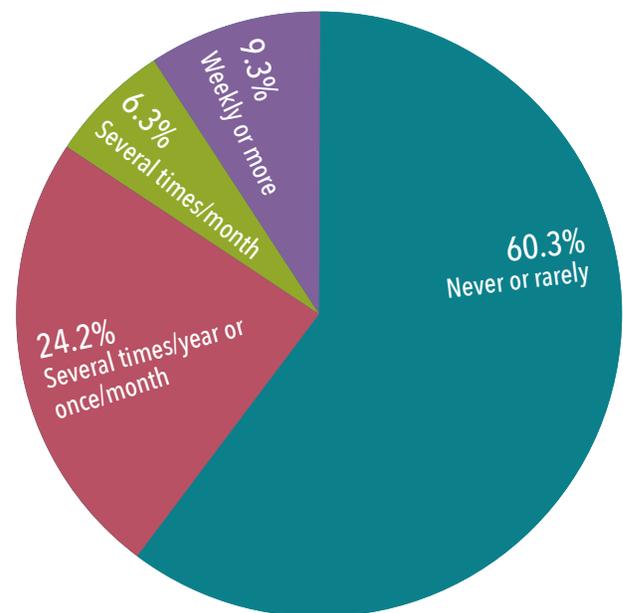
FVRx Brings New and Repeat Customers to Farmers Markets and Increases Patients’ Use of Farmers Markets

Farmers markets have attracted a great deal of attention for their potential to provide consumers in low-income rural and urban “food deserts” with

nutritious foods, especially fresh fruits and vegetables. FVRx can play a role in increasing access for these communities. In 2012, in a survey of FVRx farmers market program managers, 92% believe that FVRx increased access to fresh fruits and vegetables in the community.

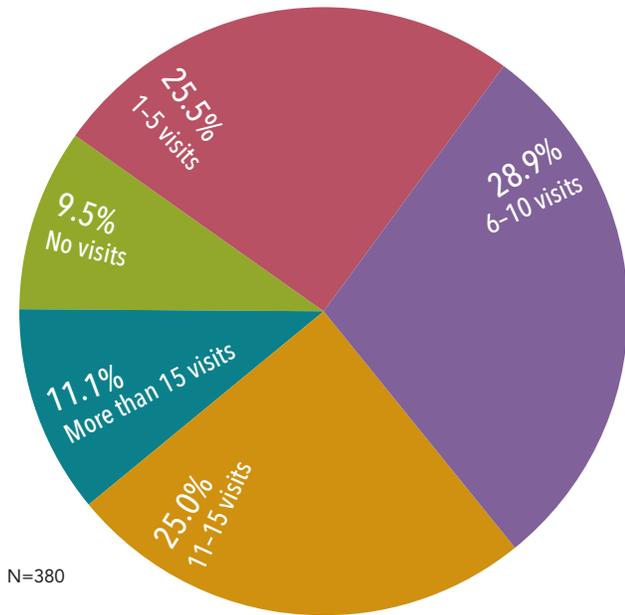
- 60% of FVRx families had never or had rarely been to a farmers market before participating in FVRx (Fig 8).
- By the end of the season, 65% of families came to the market six or more times during the 2012 season, and over 90% visited the market at least once (Fig 9).
- Almost 90% of FVRx patients reported getting at least half of their fresh fruits and vegetables at the farmers market during the season, with 70% saying they got most or all of their fresh produce at the market.
- FVRx patients shifted from supermarket to farmers market as their main venue for purchasing fresh fruits and vegetables (Fig 10).
- Almost 97% of FVRx patients agreed or strongly agreed that the FVRx prescription was important in their decision to shop at the farmers market.

Figure 8: FVRx Household Visits to Farmers Markets Before the FVRx Intervention, 2012



N=380

Figure 9: Number of Market Visits by FVRx Families during the 2012 Season

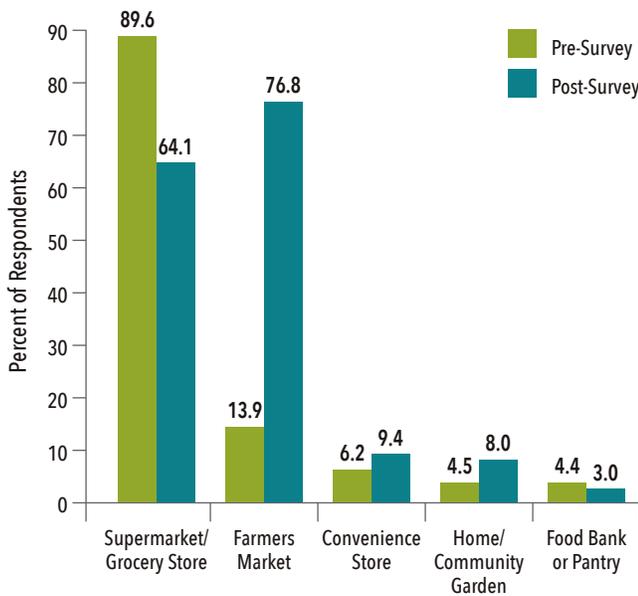


FVRx Strives to Increase Farmers Market Viability

FVRx is designed to not only improve health outcomes for patients, but to also expand the customer base for farmers at participating markets, thereby increasing the viability of both participating small and medium-size farms and the markets.

- Patient households spent an average of \$351.50 in FVRx prescriptions during the farmers market season.
- In 2012, 26 farmers markets took part in the program, adding approximately \$121,000 in total revenue to those markets from FVRx alone.
- 86% of farmers market program managers running FVRx reported increased or greatly increased revenue for their markets.
- 92% of farmers market program managers reported that FVRx increased awareness of farmers markets by healthcare organization or health center staff.
- 87% of patients agreed or strongly agreed that they would purchase fresh FV at the farmers markets the next year, even if FVRx was not available.

Figure 10: Venue Where Fresh Fruits and Vegetables Are Always or Very Often Procured



N=222; McNemar chi-square tests showed significant changes (at $P < .0001$) for patient households reporting that they purchased fresh fruits and vegetables at supermarkets (a decrease in the number that shopped at supermarkets) and farmers markets (an increase in the number that shopped at farmers markets) from pre- to post-survey (during the intervention period).

Farmers Market Program Managers Tell Us About Impacts on the Community and Markets

“People loved the fruit best of all. One participant loved the market so much that she opened her own cooking business at the farmers market.”

“The farmers loved providing this service to people who wouldn’t ordinarily get to eat good food.”

– Paula Downing, Market Manager, California

“We live in a rural community, so the patients were often from the same communities as the farmers. Many people told us repeatedly about how much they loved getting to buy local produce with the tokens.”

“Our market is in a county with a high rate of food insecurity. For the last two seasons, we have increased vendor participation by over 25% each year, and I think this is partly due to the programs such as the FVRx program, which have brought people to the market, who might not otherwise attend. Since the entire family is receiving benefits, each patient is multiplied by his or her family members. Increased vendor participation brings an increase in customers overall, since they find more choices in a larger market.”

– Sabra Moore, Market Manager, New Mexico

“Many of our farmers expressed that they love any opportunity to have the food they grow reach the people who need it most!”

– Keren Kurtis Alexander, Market Manager, Connecticut

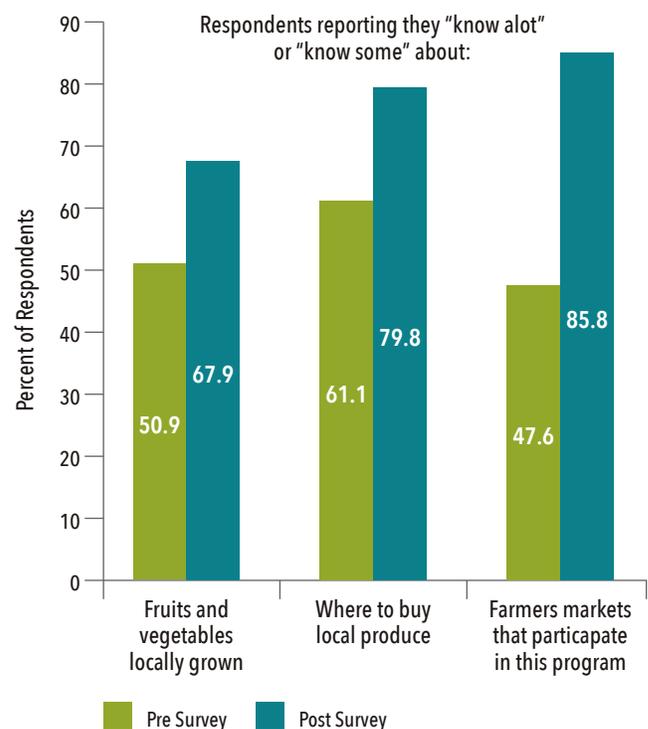
“We heard comments such as ‘If it weren’t because of the tokens, I would not have been able to afford buying fresh fruits and veggies.’ ‘My daughter has lost weight during the summer and has learned to eat and enjoy vegetables almost daily.’ ‘I have been able to keep my sugars levels low, since I am consuming less starches and more vegetables.’”

– Rosa Pina, Market Manager, Massachusetts

FVRx Patients Increase Knowledge about Locally Grown Produce and Participating Farmers Markets

The FVRx Program seeks to increase knowledge about locally grown fresh fruits and vegetables and create a comfortable setting for patients at the farmers markets. Indicators show that the program is making inroads with patients in both areas. From the pre- and post-surveys, FVRx patients reported increasing their knowledge about locally grown fruits and vegetables, where to purchase local produce, and about their knowledge of the participating farmers markets (Figure 11), and the increase in those reporting that they knew “a lot” about each topic was statistically significant.

Figure 11: FVRx Patients’ Change in Knowledge about Locally Grown Produce and Farmers Markets



N=222; McNemar chi-square tests showed significant increases (at $P < .0001$) in the number of patients reporting that they “know a lot” about each topic from pre to post-survey (during the intervention period).

Discussion and Conclusion

FVRx is an important community intervention that represents a multi-sector approach to the promotion of healthy eating. At the individual family level, it increases patient knowledge about both the importance of fruits and vegetables in their diet and the farmers markets and produce grown in their communities, improves perceived healthfulness of diet, and changes attitudes and behaviors such that participants are more likely to consume fresh fruits and vegetables and shop at farmers markets in the future. In addition, the FVRx dollars allow families increased financial access to fresh fruits and vegetables.

At the community level, the program provides support for healthy choices in both the primary care and farmers market settings. In the primary care setting, FVRx patients have their BMI measured and engage in a meaningful conversation about health and weight with their provider. Patients also receive support and reinforcement from a team consisting of a primary care provider, a nutritionist, and a community health worker on a monthly basis. Although planned monthly visits for children who are obese or overweight with risk factors have been recommended since the release of the 2007 Expert Committee Guidelines (Barlow & Expert Committee, 2007), these recommendations are rarely carried out in primary care practice using a multi-disciplinary team. The role of the healthcare provider was especially important to patients in the FVRx Program. FVRx is predicated on the trusted role of a patient's healthcare provider to promote behavior change regarding diet and weight maintenance. Patients valued the provider's role in giving them both counseling and the prescription.

At the level of living conditions and the broader community, FVRx supports the sustainability of farmers markets in low-income neighborhoods. FVRx promotes the financial health of farmers markets in underserved communities by: 1) generating new market customers, with 60% of FVRx families having never or rarely been to a farmers market prior to enrollment in the program; 2) increasing the number of repeat customers, with 65% of families coming

to the market 6 or more times throughout the program; and 3) increasing total revenue for markets, with a total of nearly \$121,000 across participating farmers markets.

In addition to the impacts on families and communities, FVRx has an impact on health. Given the short length of the intervention period (4-6 months), BMI and weight were unlikely to be affected, due to the longer period of time needed to impact these outcomes. However, 37.8% of patients decreased their BMIs over the intervention period. These results surpass those of other community programs for underserved populations under real life conditions. It is important to note that in many communities, FVRx occurs in the context of other activities to promote healthy eating and active living, such as physical activity programs and obesity clinics. This is the intent of this program, to be one essential part of a community and family approach to a healthier lifestyle. Further studies may explore the effect size of this intervention alone, but we do not anticipate that it will roll out in new communities outside of the context of an activated community that promotes health and wellness on multiple levels.

FVRx is a community-based intervention that stimulates productive partnerships among doctors, nutritionists, community healthcare workers, farmers, and farmers market managers. The 2012 data show that the program can be implemented across states and communities, and gives early indication that the program promotes changes in shopping and eating habits, as well as changes in BMI. Future studies will focus on planning for sustainability within current communities and spreading FVRx to additional communities, populations, healthcare settings, and food retailers.

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