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## Kaiser Permanente's Farmers' Market Program: Description, impact, and lessons learned

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### Abstract

Farmers' markets are an innovative strategy to potentially increase healthy nutrition environments. Kaiser Permanente (KP), the largest private, nonprofit healthcare system in the country, has been hosting farmers' markets on its medical

campuses since 2003 and now has markets in nearly 40 KP locations in four states: California, Hawaii, Oregon, and Maryland. This paper describes the KP farmers' market program and summarizes the results of a patron survey conducted in 2010 among 2,435 market patrons. The majority of patrons are KP physicians and staff, and a quarter of patrons are KP members and community residents. The markets appear to have an impact on what people are eating: 74% of all patrons reported eating more fruits and vegetables as a result of coming to the market. The KP experience may be generalizable to other healthcare organizations and to other large employers.

### Keywords

farmers' markets, healthy food access, hospitals, obesity prevention

### Introduction

In the face of rising levels of obesity and poor nutrition that contribute to the major causes of chronic diseases in the United States, farmers'

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markets are recommended as an innovative strategy to increase healthy nutrition environments (Kettel Khan, Sobush, Keener, Goodman, Lowry, Kakietek, & Zaro, 2009; Institute of Medicine, 2005). Hosting farmers' markets at hospitals and other healthcare institutions is a novel approach receiving increasing interest and attention. Hospital-based farmers' markets provide an access point to health resources for patrons: besides produce and other fresh foods expected at a market, the hospital may provide healthy recipes, cooking demonstrations, general wellness pamphlets, and other health-promotion materials. For patients and community members, these markets can also foster positive social norms, reinforcing the role of food in creating health. There is a strong call to action for healthcare communities to serve as leaders toward public health advances in the obesity epidemic, by creating healthier food systems — through organizational policy, changes in the workplace food environment, and health promotion (Harvie, Mikkelsen, & Shak, 2009). For physicians and hospital employees, markets can complement employee wellness programs, which are effective at improving various health outcomes and work productivity when evidence-based (American Hospital Association, 2010; Baicker, Cutler, & Song, 2010).

Furthermore, healthcare-based farmers' markets may provide increased access to healthy foods in communities disproportionately lacking nutritious choices. Healthcare organizations are located in a variety of communities, including "food desert" neighborhoods where there is a dearth of retailers offering healthy and affordable foods to their low-income residents. There is a strong public health rationale and supporting research to facilitate the ability of low-income community members to participate in successful farmers' markets as patrons, particularly through government food assistance programs. Electronic Benefits Transfer (EBT) food stamps can now be used by participants in the federal Supplemental Nutritional Assistance Program (SNAP) to buy healthy foods at farmers' markets, and there are guidelines for markets to attract SNAP customers (Briggs, Fisher, Lott, Miller, & Tressman, 2010; W.K. Kellogg

Foundation, 2009). There is evidence that markets have a positive impact on fruit and vegetable consumption for seniors and for Women, Infants, and Children (WIC) program participants through subsidies under the Farmers' Market Nutrition Program (McCormack, Laska, Larson, & Story, 2010). Markets located at healthcare facilities in underresourced areas may also offer convenience to captive customer bases of thousands of healthcare workers, increasing the potential for economic viability. In particular, there are opportunities for generating cross-subsidies for markets located in low-income areas, where relatively well-paid physicians and hospital employees may generate sufficient sales that low-income residents alone may not be able to provide to keep that market going (Fisher, 1999).

Recognizing the potential for farmers' markets to generate these multiple benefits, Kaiser Permanente (KP), the largest nonprofit healthcare system in the country, hosts farmers' markets and farm stands on several KP medical campuses.<sup>1</sup> KP conducted a survey of its farmers' market patrons in 2010 to evaluate the impact of the market on patrons, identify key factors related to market sustainability, and inform strategies to support their long-term success. This paper describes key results from the survey of market patrons, with an emphasis on benefits to healthy eating, and presents lessons learned from the evaluation.

There have been few studies that assess the impact of farmers' markets on food behavior in the general population. McCormack et al.'s review article (2010) identified 12 studies with nutrition-related outcomes, all evaluations of the SNAP Farmers' Market Nutrition Programs: seven focused on the impact for WIC participants and five focused on the influence for seniors. Six out of seven studies that measured fruit and vegetable consumption found an improvement in diet associated with accessibility to the farmers' market, particularly for vegetables; the other studies identified some positive benefits around beliefs and

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<sup>1</sup> Note: In this paper, the term "farmers' markets" (FM) or "markets" refers to both farmers' markets and farm stands.

intentions related to healthy eating and farmers' markets. The review authors found that few studies were well designed and many lacked standard dietary assessment measures, prompting a national call for further evaluation of the impact of farmers' markets on dietary behavior among various populations and settings.

### **Program Description**

The Kaiser Permanente (KP) farmers' market, started in 2003 by KP physician Preston Maring at the Oakland (California) Medical Center, was one of the first hospital-based markets in the country. By 2010, KP was hosting 37 markets, mostly in regions where it operates its own hospitals: 20 in Northern California, 11 in Southern California, three in Hawaii, two in Oregon, and one in Maryland. The markets align with the organization's social mission to promote the well-being of its members and the communities it serves by increasing access to healthy and fresh food to its staff, members, and local community residents. Farmers' markets are a strategy within KP's comprehensive Healthy Eating/Active Living Initiative (Cheadle, Schwartz, Rauzon, Beery, Gee, & Solomon, 2010) and a component of KP's Environmental Stewardship program, which supports sustainable food systems and reducing the distance from farm to fork. Various factors influenced which KP medical centers established markets, including access to an implementation guide (Kaiser Permanente, 2006), technical assistance and other organization-wide resources, and interest and support from local medical center employee "champions."

KP-hosted farmers' markets vary in structure and size, including average number of patrons and vendors. In August 2010, the majority of KP markets consisted of 8 to 14 vendors, with the smallest farm stands hosting one vendor and the largest market hosting about 30 vendors. Two of its markets, including the first one in Oakland, feature all organic produce. At many locations, the number of vendors fluctuates seasonally based on availability of produce. The sites also vary in the variety of vendor products available: produce, baked goods, prepared foods, and other items

(such as flowers). There are several types of market management structures, each placing KP in a different role. As of August 2010, approximately 27 markets were managed by a farmers' market association or independent market operator responsible for coordinating most operational logistics; five were operated in a collaboration between KP and a local community organization; and five were operated directly by KP. Each market site has a KP "farmers' market champion" who serves as the key KP point of contact supporting market activities. Champions come from a wide range of departments, including health education, employee wellness, food and nutrition services, community benefit, and public affairs. Depending on the market management structure of the site, the day-to-day market operations and vendor communications are handled by a market manager from the market association, an independent operator or vendor, or a KP staff member (Kaiser Permanente, 2006).

Most markets are held one time per week on a weekday for four hours, though some take place every other week. About two-thirds of the markets operate year round, while the remaining third are seasonal, open only during spring, summer, and early fall.

### **Methods**

In summer 2010, KP partnered with the Group Health Center for Community Health and Evaluation (CCHHE) to conduct a cross-site survey of market patrons. The goals of the patron survey were to: (1) determine the influence of the markets on patrons' eating behaviors, and (2) understand patron preferences for products and services that reinforce healthy eating. The survey was undertaken not as a formal research study, but rather as an evaluation designed to provide KP with measures of the program's impact and to inform efforts to improve the program. The 2010 patron survey was conducted across all 37 KP-hosted farmers' markets and farm stands during the peak summer season, in August and September.

Each KP farmers' market champion coordinated survey implementation at his or her facility, with

the assistance of market association representatives, market managers, and volunteers. Kaiser Permanente and CCHE conducted multiple webinar trainings and provided guidelines for those who conducted the survey at each market site. Training and materials were designed to increase patron participation in the survey, encourage accurate and complete responses, and standardize procedures across sites.

Each site that had a currently operating farmers' market or farm stand in August 2010 was invited to participate in the survey. The goal was to receive at least 50 patron responses at each site. Patrons were sampled while shopping at the market and asked to complete a survey questionnaire. Sites were encouraged to collect surveys on one market day in order to avoid having the same patron surveyed more than once.

The survey instrument was developed by adapting questions from other farmers' market surveys, and creating other items based on input from market stakeholders. A draft instrument was reviewed by KP market champions, members of an external market association, and evaluation advisors in KP's national offices. The questionnaire was pilot tested at the KP Oakland market by the KP farmers' market coordinator and the market manager as a way to finalize items, improve formatting, and inform the survey implementation procedures. The final questionnaire included 10 close-ended items (3 demographic) and one open-ended question, and was expected to take patrons less than five minutes to complete. The instrument was translated into Spanish and Chinese, to minimize some language barriers to participation in the survey.

The instrument includes questions designed to assess:

- Who comes to the markets,
- Patron shopping frequency,
- The impact of the markets on patrons' consumption of fruits and vegetables,

- Patron preferences for goods and services associated with healthy living offered at the markets,
- Influence of the markets on patron attitudes towards KP, and
- Patron opinions for market improvements to inform market decision-makers.

Because this survey was part of a program evaluation and not a research study, participants did not sign a formal consent form to participate. Patrons were given the option of filling out the questionnaire themselves or having the KP survey volunteer read the questions verbatim and record their verbal responses. Each KP market provided respondents with an incentive, such as seed packets, or entry into a drawing for market goods or a market gift certificate.

Each KP market was asked to standardize some procedures and use specific items in order to evaluate cross-site measures, but there was no explicit protocol for approaching patrons or guidelines on the number of additional surveys to collect once the target quota was reached. Each KP market location sent patron survey questionnaires in the mail to CCHE in Seattle, Washington, where the data were entered and analyzed. Surveys missing more than half of possible responses were excluded from the analysis. Open-ended comments were analyzed to identify key themes that emerged about patrons' opinions of the markets. Chi-square tests were used to test for significant differences between market-use frequency categories (e.g., comparing patrons who shopped weekly at the market to those who shopped less often).

## Results

A total of 2,435 patron survey responses were received from the 37 Kaiser Permanente sites that hosted farmers' markets in summer 2010, with a range of 11 to 148 completed questionnaires from each. The number of responses received at each site often correlated with the size of the market or farm stand, with larger markets gaining more responses, but it also varied with contextual factors that interfered with survey implementation plans

**Table 1. Kaiser Permanente Farmers' Market Survey: Respondent Characteristics by Frequency of Market Use<sup>a</sup>**

<i>Variable</i>	<i>Weekly</i>	<i>&lt;Weekly<sup>b</sup></i>	<i>Overall</i>
<b>Number of respondents</b>	1,199	1,211	2,410
<b>Patron Category</b>			
Kaiser Permanente (KP) physician or staff	69%	32%	50%
KP member	14%	48%	31%
Live and/or work in neighborhood	14%	11%	12%
Other	3%	9%	6%
<b>Schedule appointments around market</b>			
Yes	46%	29%	33%
No	20%	42%	36%
Did not respond to question	34%	29%	30%
<b>Age</b>			
17–24	3%	5%	4%
25–34	15%	15%	15%
35–44	21%	17%	19%
45–65	52%	41%	46%
65+	9%	22%	15%
<b>Sex</b>			
Male	19%	23%	21%
Female	81%	77%	79%
<b>Race/Ethnicity</b>			
African American	11%	11%	11%
Latino/Hispanic	18%	16%	17%
Asian American	21%	17%	19%
Pacific Islander/Native Hawaiian	5%	4%	5%
White, Euro-American	38%	46%	42%
Mixed race	1%	2%	1%
Other	5%	5%	5%

<sup>a</sup> All differences shown between weekly and <weekly shoppers were statistically significant ( $p < .05$ , chi-square test).

<sup>b</sup> <Weekly = Less than weekly category includes responses “monthly” (18% of respondents), “a few times per year” (16%), and “first time at the market” (16%).

(e.g., inclement weather, change in KP farmers' market champion during the survey period). Some sites administered the survey on more than one day to increase the number of responses, if the target number of 50 was not achieved.

#### *Patron Demographics*

Table 1 shows respondent characteristics overall and by frequency of market use. Overall, half of respondents were KP staff or physicians, 31% were KP members, and 12% lived or worked in the

neighborhood.<sup>2</sup> The proportion of KP staff was even higher among regular (weekly) shoppers: 69% were physicians or staff, compared with 14% who were KP members and 14% who lived or worked in the neighborhood. Among KP members, 33% (257) purposely scheduled their medical appointments on market days. Market patrons overall

<sup>2</sup> Note: If multiple patron categories were checked, respondents were assigned to KP staff if they checked that category, KP members if they did not check KP staff, and neighborhood if they checked neither KP staff or KP member categories.

tended to be older (61% greater than 45 years) and female (79%) than the general population, and roughly the same age and gender mix was found among weekly shoppers. The largest race/ethnicity category was White (42%), but there were significant numbers of patrons who were African American (11%), Latino (17%), and Asian American (19%). This racial/ethnic distribution was also found among weekly shoppers.

#### *Impact on Fruit and Vegetable Consumption*

Table 2 shows results for the two “impact” variables — amount and variety of fruits and vegetables consumed — as well as a question about how market patrons viewed KP’s motives for offering the markets. The results are shown by frequency of market use and exclude those who were first-time visitors. For both of the questions regarding fruit and vegetable (F&V) consumption there is a clear dose-response relationship, with more regular users consuming greater quantity and variety of F&Vs. For example, 48% of weekly market users reported consuming “a lot” more

F&Vs as a result of coming to the market, compared to a 25% response from those patrons who came a few times per year.

Eighty-six percent of respondents either agreed (41%) or strongly agreed (45%) that KP is looking after their health by operating the markets. This percentage was similar across all categories of shopping frequency.

#### **Discussion**

This paper describes the KP farmers’ market program and summarizes the results of a patron survey conducted in 2010 among 2,435 market patrons. The survey results show that the majority of patrons, particularly regular weekly shoppers, are KP physician and staff. However, the markets do attract a substantial number of KP members and community residents: over a quarter of regular weekly shoppers were members or residents.

The markets have an impact on what people are eating. Seventy-four percent of all patrons reported

**Table 2. Kaiser Permanente (KP) Farmers’ Market Survey: Change in Fruit and Vegetable Consumption, Perception of KP, by Frequency of Market Use<sup>a</sup>**

<i>Variable</i>	<i>Weekly</i>	<i>Monthly</i>	<i>&lt;Monthly<sup>b</sup></i>	<i>Overall</i>
<b>Number of respondents</b>	1,199	455	378	2,032
<b>Eating more fruits and vegetables</b>				
No change	19%	30%	42%	26%
A little more	33%	39%	33%	34%
A lot more	48%	30%	25%	40%
<b>Eating more variety of fruits and vegetables</b>				
None	24%	33%	41%	29%
A few more	48%	48%	46%	48%
Many more	28%	19%	13%	23%
<b>KP is looking after their health by operating farmers’ markets</b>				
Strongly disagree	7%	5%	4%	6%
Disagree	1%	2%	2%	1%
Neither agree nor disagree	5%	7%	12%	7%
Agree	38%	44%	46%	41%
Strongly agree	49%	41%	36%	45%

<sup>a</sup> All differences shown across the market use categories were statistically significant ( $p < .05$ , chi-square test).

<sup>b</sup> <Monthly = a few times per year; analysis excludes first-time market visitors.


eating more fruits and vegetables as a result of coming to the market, with 40% reporting that they are eating “a lot” more. Seventy-one percent of patrons reported eating a greater variety of fruits and vegetables, another meaningful nutritional outcome (Kettel Khan, Sobush, Keener, Goodman, Lowry, Kakietek, & Zaro, 2009; U.S. Department of Agriculture and U.S. Department of Health and Human Services, 2010). Given the limited literature on the impact of farmers’ markets on diet in the general population and among communities most difficult to reach, it is hoped these results and lessons learned from the KP experience may inform efforts elsewhere.

The survey results suggest a few areas for improvement and ways that farmers’ markets may be spread more broadly using the KP model. There are implications for healthcare organizations that host farmers’ markets to create more linkages to surrounding communities in order to increase the reach of benefits from shopping at the market to broader populations. At KP, these additional efforts have included markets hosted by community partners in additional locations, support for efforts to bring healthier food to corner stores, and investments that were established to attract new, healthy food retailers and build the infrastructure to support them, such as California FreshWorks (California FreshWorks, 2011).

The results also indicate that convenience may be an important factor in promoting market attendance. The vast majority of market patrons are KP physicians, staff, members, volunteers, or patient visitors to the medical campus. Among KP members, one-third of respondents said they scheduled their clinic appointments on market days. And, the fact that the hospital staff members compose a large majority of the regular shoppers suggests that the convenience of the on-site markets provides healthcare workers a means to fit farmers’ market shopping into their highly structured workday. The value of convenience combined with the apparent impact of markets on F&V consumption suggests that other large employers may wish to consider farmers’ markets as an innovative component to a workplace wellness

program. Comprehensive workplace interventions offer the potential to reach a large number of people and have been proven to make a significant impact on employee health outcomes; lessons learned from the KP farmers’ market experience build on understanding the effectiveness around weight maintenance or reduction interventions (Archer, Batan, Buchanan, Soler, Ramsey, Kirchhofer, & Reyes, 2011; Baicker et al., 2010).

There were a number of limitations to our study. While attempts were made to standardize data collection, this was not a research study, and therefore the sampling and administration of the survey varied across sites. Almost all data were only collected on a single market day, during the busiest season of the year. The validity of our convenience measure is uncertain given a high percentage of missing responses (30% of patrons did not provide a response). We assessed impact using only self-reported measures of increased consumption, rather than more valid and detailed dietary inventories. Finally, our design did not include a comparison group or assess changes over time.

Despite these limitations, the results indicate that the KP-supported markets are reaching a significant number of KP staff, members, and community residents, and positively influencing their choices around healthy eating. The KP experience may be generalizable to other healthcare organizations and other large employers. With the current need to find effective strategies to address obesity, healthcare- and workplace-based farmers’ markets warrant further research and evaluation on their impact and reach across diverse populations. 

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