FOOD AS MEDICINE: IMPROVING ACCESS TO HEALTHY FOOD

PREPARED FOR THE LOS ANGELES FOOD POLICY COUNCIL

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Master of Urban & Regional Planning

Jeff Loi, MPH | Candidate, MURP
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Faculty advisor: Evelyn Blumenberg

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EXECUTIVE SUMMARY

Healthy food is essential for life, and helps prevent chronic diseases such as obesity, diabetes, and hypertension. Many low-income households and communities do not have reliable access to healthy food. Community-based initiatives such as farmers' markets, community-supported agriculture (CSA), urban agriculture, food carts, and neighborhood corner store conversions are improving access to healthy food in many communities. As this research shows, the health care industry also has an important role to play in improving food access.

This research examines the role of health care providers in helping improve the food environment for patients in California. Drawing on interviews with nine experts in the field, I compiled an inventory of programs that improve patients' access to healthy food. The objective of this research is to identify examples of how health care providers are involved in helping their patients' access healthy food, as well as opportunities to extend their involvement.

The data suggest that health care providers are involved in two main types of programs. *Healthy food prescription programs* offer patients vouchers that they can redeem for fruits and vegetables at places such as local farmers' markets, grocery stores, pharmacies, and other retailers. These programs typically target low-income diabetic and pre-diabetic patients (and their families). *Hospital healthy food programs* offer healthy, local, and sustainable food to patients and hospital staff and visitors. These programs often advocate for menus that include less meat and more fruits and vegetables, as well as better quality meat (i.e. meat and poultry raised without the routine use of non-therapeutic antibiotics) and produce (i.e. local fruits and vegetables grown without pesticides). Over 165 hospitals in California participate in these initiatives.

In addition to the inventory, I developed case studies of two exemplary programs in California. The first case study examines VeggieRx, a healthy food prescription program in the San Francisco Bay Area. VeggieRx is a behavioral-change program for low- income adults, youth, and families in the San Francisco Bay Area. The program includes 8 nutrition and cooking classes over a period of 16 weeks and provides participants with "prescription" vouchers to purchase fruits and vegetables at local farmers' markets. Post-program surveys of participants suggest that the program has been successful. It has improved access to healthy food, increased vegetable and fruit consumption, lowered weight, and improved health and quality of life.

A second case study assesses the healthy food program at UCLA's two hospitals, Ronald Reagan and Santa Monica-UCLA. The initiative is led by hospital and University of California (UC) leadership in accordance with the UC Sustainability Plan and in partnership with the nationwide coalition Health Care Without Harm. UCLA focuses on providing patients with sustainable, local, organic produce; meat and poultry raised without the routine use of non-therapeutic antibiotics; and healthy beverages.

Healthy food prescription programs and healthy hospital food programs use different strategies to improve patients' access to healthy food. Healthy food prescription programs link the purchase and consumption of healthy food to the health care system. They target individual patients and their families and offer financial incentives to motivate the purchase of healthy food. In contrast, healthy hospital food programs are supply-side programs; they directly provide healthy food to hospital patrons who eat in hospital cafeterias and hospital patients. Patients are served healthy food; other hospital visitors and employees who eat in the hospital cafeteria have the opportunity to purchase and eat healthy food.

Data from healthy food prescription programs and from the 2014 VeggieRx post-program participant survey suggest that they can increase patients' consumption of fruits and vegetables and contribute to moderate weight loss. The health impact of improving the quality of hospital food is difficult to determine. It is hard to isolate the specific role of healthier food in patients' recovery process since there are so many other factors that influence the recovery process.

Based on this inventory and the two case studies, I make the following recommendations in this report:

- *Recommendation 1:* Explore funding options, such as community benefit funds from hospitals, to start and sustain more healthy food prescription programs
- *Recommendation 2:* Conduct formal program evaluation of healthy food prescription programs in California to better analyze their impact
- *Recommendation 3:* Consider combining purchasing power of hospitals with other sectors (like education) to drive positive change in the food system
- *Recommendation 4:* Provide health care professionals with additional education and training on diet, nutrition, and food accessibility
- *Recommendation 5:* Involve the health care sector more extensively in advocating for a better food system

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INTRODUCTION

***Let medicine be thy food and let food be thy medicine."* — Hippocrates, 4th century BC**

Food is medicine. This is intuitive. Since the days of Hippocrates, people have known that good health depends on a healthy diet. More recently, physician-authors like Dean Ornish and Daphne Miller have made the case that healthy food helps prevent chronic diseases like obesity, diabetes, and hypertension (Miller 2008, Ornish Lifestyle Medicine). Given the rapid rise of obesity and related chronic diseases in the last several decades, it is worth considering healthy food as an intervention for patients with these illnesses.

Overall, one-third of adults in the U.S. are now obese, and the prevalence of obesity among children has risen from 5 to 17 percent in the past 30 years (IOM 2012). The rise in obesity is disturbing on many levels. First, many of these conditions are preventable by healthy eating and active lifestyles (Lobb 2009). Second, obese adults have an increased risk for many diseases, including type 2 diabetes, heart disease, some forms of arthritis, and several cancers (Expert Panel). Third, the prevalence of obesity is generally higher for ethnic minorities, for those who are low-income or less educated, and for rural populations. Fourth, obesity-related illnesses account for $190.2 billion in medical expenditures, or nearly 21% of the annual medical spending in the U.S, as estimated by data from the Medical Expenditure Panel Survey (IOM 2012).

In light of the obesity epidemic, access to healthy food is even more important. Low-income Americans in particular have difficulty accessing affordable, healthy food. The US Department of Agriculture (USDA) estimates that 23.5 million people, including 6.5 million children, live in low-income areas that are more than a mile from a supermarket. The problem is compounded for the almost 1 million in this group who do not have access to a car (White House Task Force 2010).

There is a genetic component to obesity (Maes et al 1997); however, the rapid rise in the epidemic suggests an environmental cause, as our genetic pool could not have changed so dramatically over just the last several decades. Sedentary lifestyles (with increased 'screen time' and less physical activity) also contribute to weight gain (Dietz and Gortmaker 2001), but the most important factor is diet. The increased consumption of processed and fast foods, and sugar-sweetened beverages, and the decreased frequency of family meals have coincided with the rise in obesity in the United State (Lustig 2012).

The White House Task Force on Childhood Obesity lays out four key elements for ensuring access to healthy, affordable food:

- Convenient physical access to grocery stores and other retailers that sell a variety of healthy foods;
- A range of healthy products available in the marketplace;
- Food prices that make healthy choices affordable and attractive; and
- Adequate resources for consumers to make healthful choices, including access to nutrition assistance programs to meet the special needs of low-income Americans.

Currently, the main initiatives to improve access to healthy food are community-based. These strategies include developing new grocery stores, converting small neighborhood stores into healthier enterprises, establishing farmers' markets, and connecting consumers directly to local farmers (via community supported agriculture (CSA), urban agriculture, and community gardens) (Flourney 2011).

Health care providers also have a role to play in improving access to healthy food for their patients. However, there has been very little research on this topic. Therefore, in this research I draw on interviews with experts in the field to examine the role of health care providers in improving the food environment for California patients. I use these data to compile an inventory of programs. I then develop two case studies of exemplary programs—a healthy food prescription program and a hospital serving healthier food. This project highlights innovative programs that use food as a holistic, patient-centered, and prevention-oriented approach to health care. The objective of this research is to identify examples of how health care providers are involved in helping their patients' access healthy food, as well as opportunities to extend their involvement.

LITERATURE REVIEW

This literature review will look at the role of health care providers in promoting healthy nutrition.

Physicians are uniquely positioned to help patients make sense of the often confusing and sometimes contradictory messages about food and nutrition that are widely disseminated in the mainstream media (Bipartisan Policy Center 2014). Doctors, nurses, and other health care professionals are well-respected when they counsel patients on the importance of lifestyle choices on achieving and maintaining good health (Levy et al 2014).

Unfortunately, these health care practitioners often lack adequate training and incentives to talk to patients about nutrition and physical activity (Levy et al 2014, Kris-Etherton et al 2014). For example, less than ¼ of physicians feel they received adequate training in medical school or during residency to counsel patients on diet or physical activity (Bipartisan Policy Center 2014). Furthermore, the current health care reimbursement mechanisms often fail to provide incentives for nutrition counseling and other types of preventive care (Bipartisan Policy Center 2014). The *Teaching Nutrition and Physical Activity in Medical School* Report from the Bipartisan Policy Center summarizes that, "These topics have traditionally received little attention in formal medical school curricula and training programs, but they are increasingly essential as part of a comprehensive, patient-focused approach to treating some of the most common and consequential health problems affecting the American population today" (2014, pg. 4).

There is anecdotal evidence of health professional schools expanding their curriculum to include more education and training on nutrition and physical activity topics. Some schools are introducing new courses specifically devoted to these topics and/or incorporating new materials into existing courses. Lunch meetings, workshops, or seminars are potentially low resource-intensive options to introduce nutrition, physical activity, and other lifestyle medicine materials to students. Online learning offers another potentially cost-effective educational tool. Finally, students can also establish their own focused interest groups, preferably with the active support and input of interested faculty and administrators (Bipartisan Policy Center 2014).

In addition to the key role they play in counseling patients on healthy eating, health care professionals are well-respected as advocates. Businesses, community organizations, the government, and large institutions look to the medical community for guidance and expertise (Bipartisan Policy Center 2014). The Institute of Medicine (IOM) acknowledges that, "Outside of their offices, health care providers can use their influence and authority to

inform policy at the local, state, and national levels by advocating for health improvement and obesity prevention" (Accelerating Progress in Obesity Prevention, 2012, pg. 295).

Several health professional organizations advocate, or encourage advocacy among their members, for obesity prevention. For example, the American Association of Family Physicians (AAFP) states that family health care providers should participate in local, state, and national efforts to prevent obesity and encourage physical activity for children, adolescents, and adults. The American Academy of Pediatrics (AAP) has been involved in obesity prevention for the past decade. In fact, it has a website devoted to helping practitioners prevent and treat obesity, which includes practice tools, education and support, reimbursement information, and advocacy training.[1] In addition, Bright Futures, the AAP's national health promotion and disease prevention initiative, addresses children's health needs in the context of family and community.

In a September 2015 *Health Affairs* article, William Dietz of George Washington University and numerous prominent coauthors argue that clinicians' efforts to help patients with obesity "will not succeed without complementary community systems that make healthier choices the default or easier option" (Dietz 2015, pg. 1458). For example, the authors state that patients cannot lose weight without access to healthful food and safe places for physical activity.

[1] American Academy of Pediatrics. Bright Futures. Available at: http://brightfutures.aap.org/

METHODOLOGY

OVERALL STUDY DESIGN

This study explores existing programs in California that improve the food environment for health care patients. Based on information compiled from expert interviews, internet searches, and relevant publications and reports, I assembled an inventory of programs in California. I then describe the known fruit and vegetable prescription programs and the existing hospital food improvement programs that serve healthy, local and sustainable food and antibiotic-free meat. I then develop two detailed case studies of an exemplary food prescription program, and an exemplary hospital food program. The objective of this research is to identify examples of how health care providers are currently involved in helping their patients access healthy food, as well as options for further involvement.

DATA COLLECTION

Interview data serves as the foundation for my analysis. I supplement these data with secondary data from websites and published documents from organizations.

Interviewee selection

I compiled an initial list of six known experts in the fields of health and food. I added to this list using snowball sampling, drawing on the contacts of the initial groups of interviewees. This snowball sampling continued until the end of March 2016 by which time new interviews did not yield additional useful information (i.e. saturation). Three of the initial six did not respond to my request for an interview; one expert suggested that I interview another person instead of them. Appendix A provides a complete list of the interviewees who participated in this study.

Interviews

During the semi-structured interviews I asked the experts about the programs that they represented (e.g. VeggieRx, UCLA Health, Healthy Food in Health Care program of Health Care Without Harm). I collected information about the program, including the purpose, description, development, cost, and impact. Additionally, I asked interviewees a set of questions organized around the following pre-determined topics:

- Examples of other innovative programs;
- Available resources for food programs;
- Additional experts to interview

Depending on the interviewees' responses, I then probed using follow-up questions. The unit/level of analysis was programs and community organizations, health care providers and hospitals in California. I conducted the interviews in-person or on the telephone, depending on the interviewees' schedule and preference. In-person interviews took place in the offices of interviewees or at another mutually agreed upon location. I took copious notes, but did not record the interviews.

DATA ANALYSIS AND INTERPRETATION

From the information collected from the interviews and supplementary research, I compiled an inventory of programs. I then selected two illustrative case studies for more in-depth exploration. As the only established healthy food prescription program with information readily available, VeggieRx was a natural choice for a case study. I chose UCLA Health as a second case study since its healthy hospital food program has been recognized for its exceptional work. Moreover, the location—in the same city as the researcher—made it easy to conduct the research. For each case, I describe the program, review the development of the program (including funding and key players), and provide lessons for others who intend to create similar programs.

VALIDITY

Through these interviews and documents certain themes and patterns emerged (triangulation). To verify the accuracy of the findings, drafts of portions of the report were distributed to interviewees for their edits and comments before distributing to a wider audience (member checking).

LIMITATIONS

There has been very little research on the relationship between health care providers and food programs. This research takes an important first step in identifying and learning about existing programs. As such, this research project will not establish a causal relationship between these food programs and improved health outcomes for patients, nor do I conduct a program evaluation. However, the inventory of programs and the case studies may provide insights to other organizations interested in creating similar programs.

The interview format allowed targeted questioning and insightful and elaborate responses. However, bias could have occurred due to poorly articulated questions, inaccuracies due to poor recall, and reflexivity (interviewee giving the interviewer what he or she wanted to hear).

Documents about these programs provided additional information; however, they were not always available.

FINDINGS

Health care providers offer two main types of programs to improve patients' access to healthy food in California. The first program type is *healthy food prescription programs* which give patients vouchers that they can redeem for fruits and vegetables at locations such as local farmers' markets, grocery stores, pharmacies, and other retailers. These programs typically target diabetic and pre-diabetic patients (and their families) who are low income. I am aware of two such programs in California. The second program type is *hospital healthy food programs*. These programs offer healthy, local, and sustainable food to patients and hospital staff and visitors. These programs tend to advocate for menus that include less meat and more fruits and vegetables, as well as better quality meat (i.e. meat and poultry raised without the routine use of non-therapeutic antibiotics) and produce (i.e. organic). Over 165 hospitals in California participate in these initiatives (Health Care Without Harm).

Healthy food prescription programs and healthy hospital food programs use different strategies to improve patients' access to healthy food. Healthy food prescription programs target individual patients and their families and offer financial incentives to motivate the purchase of healthy food. Unlike the Supplemental Nutrition Assistance Program (SNAP) and Women, Infants, and Children (WIC) programs, healthy food prescription programs link the purchase and consumption of healthy food to the health care system.[2] Healthy hospital food programs are supply-side programs that directly provide healthy food to hospital patrons who eat in hospital cafeterias and hospital patients. Patients are served healthy food; other hospital visitors and employees who eat in the hospital cafeteria have the opportunity to purchase and eat healthy food.

I describe the two types of programs in greater detail below.

[2] SNAP and WIC are two federal programs that provide food subsidies for low-income families and their children.

Healthy Food Prescription Programs

There appear to be only two established healthy food prescription programs in California that attempt to increase patients' consumption of fruits and vegetables: VeggieRx and LifeLong Medical Center.[3] Both are located in the San Francisco Bay Area, and are based on Wholesome Wave's Fruit and Vegetable Prescription (FVRx) program, the first and most emulated program in the United States. I use VeggieRx as one of the case studies for this research as information about this program is more readily available than is information on the LifeLong Medical Center program.

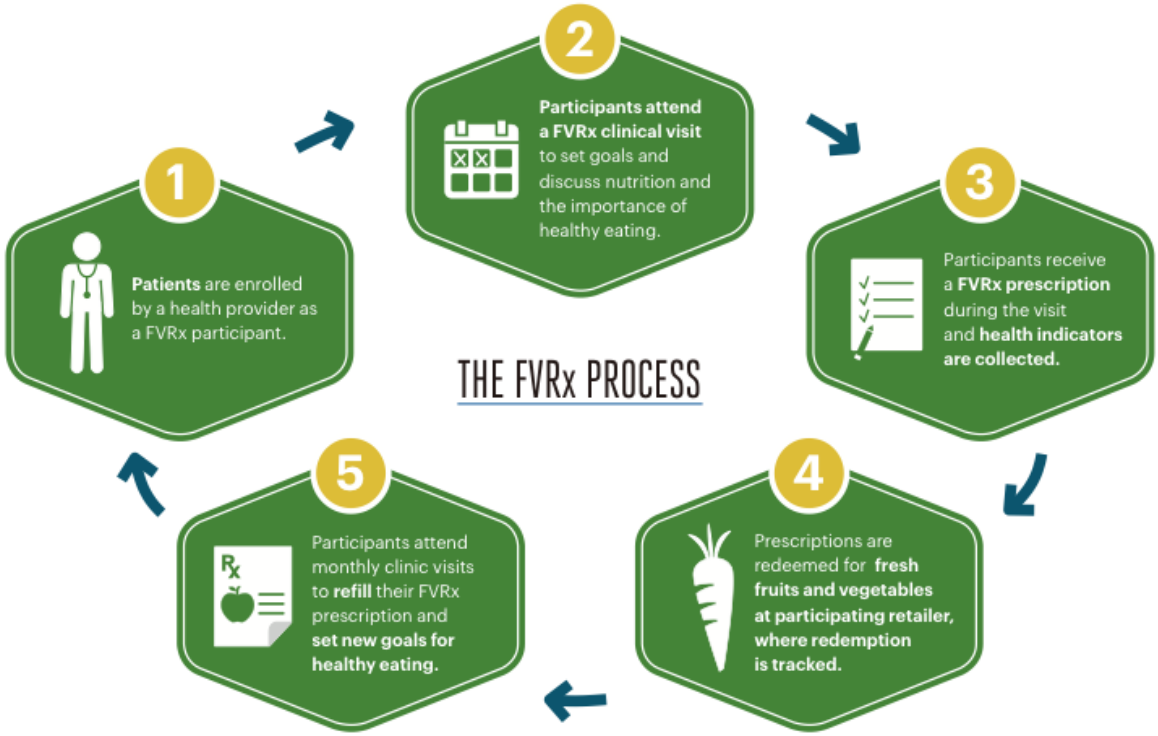
VeggieRx encourages behavioral change for overweight and obese low-income individuals and families by providing nutrition education and access to healthy foods. Participants are required to attend nutrition and cooking classes, and receive "prescription" vouchers that can only be used to purchase fruits and vegetables at local farmers' markets. The prescriptions are valued at $1 per family member per day (e.g., $28 per week for a family of four). In the case study of the VeggieRx program, I provide greater detail about the program, examine its development, and elicit lessons it has for other communities that desire to start healthy food prescription programs.

The **Fruit and Vegetable Prescription Program** (FVRx) from Wholesome Wave served as the model for VeggieRx. The programs are similar, but there are important differences. Health care professionals are an essential part of FVRx as they provide health care, as well as give families prescriptions that can be spent on fruits and vegetables at grocery stores, farmers markets, and other healthy food retailers. Instead of classes, nutrition information is imparted in ongoing meetings with trained nutritionists and/or health coaches.

See Figure 1 for a schematic of the FVRx process. In the basic model, children are identified, recruited, and enrolled by a primary care provider. The enrolled children are required to meet monthly with a primary care provider and nutritionist and receive a prescription for healthy food. The program targets low-income families with children; eighty-two percent of participants qualify for Medicaid or other public insurance. Since its inception in 2010, Wholesome Wave has launched FVRx programs in more than 18 locations, including programs in New York City, Washington, D.C., Massachusetts, Maine, and California.

[3] There have been a few small pilot programs, including one in Santa Rosa, California implemented in partnership with the University of California, San Francisco that targeted pregnant women at risk of gestational diabetes.

Figure 1: The Fruit and Vegetable Prescription Program process



Source: Wholesome Wave

These two programs both offer incentives to patients to purchase fruits and vegetables at farmers' markets but, as seen in Table 1, differ in (a) the age of patients that they serve, (b) the involvement of clinicians, and (c) the type of nutrition education provided. VeggieRx enrolls patients of all ages, while FVRx enrolls only children aged 2-18. Both programs provide vouchers for all family members, however. VeggieRx partners with health care professionals for the recruitment of patients and the operation of the program, but these professionals do not provide essential health care like they do in the FVRx program. Nutrition education is provided in an 8-class series in VeggieRx, and in ongoing meetings with nutritionists and/or health coaches in FVRx.

These healthy food prescription programs are similar to the increasingly popular financial incentives for SNAP recipients to purchase produce at local farmers' markets (Wholesome Wave 2015). The SNAP program in California is called Market Match. For every dollar a recipient spends on produce, they are given another dollar for fruits and vegetables, up to ten dollars. A survey by Wholesome Wave showed that incentives to SNAP recipients increased the consumption of fruits and vegetables for almost 90% of recipients (Wholesome Wave 2015). The healthy food prescription programs also offer vouchers to purchase fruits and vegetables, but the recipient does not have to be SNAP-eligible, or

spend any of their own money. The prescription programs are also linked to the health care system.

Table 1: Healthy Food Prescription Programs[4]

	VeggieRx	**Fruit and Vegetable Prescription**
Location	San Francisco Bay Area	Various (18)
Organization	Fresh Approach	Wholesome Wave
Patients	All	Children 2-18
Prescription	Voucher to purchase fruits and vegetables at local farmers' markets ($1/person/day)	Voucher to purchase fruits and vegetables at participating farmers' markets ($1/person/day)
Partners	Farmers' markets	Farmers' markets
Healthcare providers?	Sometimes	Primary care provider and nutritionist
Education?	Series of 8 classes over 16 weeks on food, nutrition, and cooking	Ongoing meetings with trained nutritionists and/or health coaches for assessment and guidance
Health measurement	Height, weight, blood pressure, and BMI	Yes, as part of clinical visit

Sources: Wholesome Wave; Fresh Approach; Goddu et al., 2015

FINDINGS

The early results from the healthy food prescription program are promising. A 2012 survey of participants in Wholesome Wave's programs showed decreases in body mass index (BMI) in more than one-third of participating children and significant increases in household food security (Bipartisan Policy Center, 2014).

Wholesome Wave recently released a comprehensive toolkit to help other communities establish and sustain healthy food prescription programs. Additionally, Wholesome Wave has formed a National Nutrition Incentive Network to provide support and resources to organizations doing this type of work. Network members are able to connect to

[4] The only other model of healthy food prescriptions in the U.S. is Chicago's FoodRx program, which also promotes healthy eating by offering a prescription from a physician, a coupon for fruits and vegetables at the local farmers' market or Walgreen's, and nutrition information.

practitioners, researchers, and advocates in the field; moreover, they have access to tools, trainings, and resources and can obtain technical assistance from Wholesome Wave experts.

Healthy Hospital Food

Hospitals can also play role in improving patients' access to healthy food. My research uncovered four of these programs in California: the hospital-based farmers' markets by Kaiser Permanente, a healthy food procurement program in Los Angeles County initiated by the Public Health Department, the Community Alliance for Family Farmer's (CAFF's) Farm to Hospital Program, and the healthy hospital food initiative spearheaded by the award-winning national organization Health Care Without Harm.

I briefly describe each of these below.

(1) KAISER PERMANENTE

In 2003 Kaiser Permanente partnered with the Pacific Coast Farmers' Market Association to found one of the first hospital-based farmers' market programs. Kaiser now hosts 46 farmers markets on its hospital sites in California, and almost 60 in the U.S. (Norris and Howard, 2015; deTar, Interview, February 5, 2016). The farmers' markets are consistent with Kaiser Permanente's interlocking food goals to: improve access to healthy food, model good nutrition in their facilities, improve the food environment in the community, and support a healthy, regional food system (Norris and Howard 2015). In addition to supporting farmers' markets on its hospital grounds, Kaiser Permanente sources sustainably produced and/or locally-grown fruits and vegetables for its patient menus.

(2) HEALTHY FOOD PROCUREMENT PROGRAM, LOS ANGELES COUNTY PUBLIC HEALTH DEPARTMENT

The Los Angeles County Department of Public Health adopted the Healthy Food Procurement Program in 2011 to improve the nutrition quality of food in the public hospitals in the county.

In that year, the County of Los Angeles Board of Supervisors adopted a motion requiring the Department of Public Health to review and provide recommendations on all food service Request for Proposals (RFP) prior to their release to ensure dietary requirements promote healthy nutrition (Wood, interview, February 1, 2016). This policy applies to the many food service environments operated by the County of Los Angeles, including hospital cafeterias. The standards include limits for calories, sodium, sugar, trans-fat, and other nutrients. The *Nutrition Recommendations Implementation Guide* also includes other recommended practices such as calorie labeling at point-of-purchase, signage, and product placement and

pricing strategies to promote and increase consumer selection of healthy food and beverages in cafeteria settings (Los Angeles County Department of Public Health).[5]

(3) CAFF'S FARM TO HOSPITAL PROGRAM

The Community Alliance for Family Farmer's (CAFF's) Farm to Hospital Program in the San Francisco Bay Area was one of the first in California to source local, sustainable fresh fruits and vegetables from farms for hospitals. The program was developed in collaboration with the organization Health Care Without Harm. Working with existing distributors and hospital food services, local family farms sell their produce to kitchens in six Bay Area hospitals (Community Alliance with Family Farmers website). This collaboration benefits the multiple stakeholders in the food chain in the following ways:

- Farmers gain economic opportunities in a new market through local, institutional sales;
- Distributors lower costs and reduce environmental impact by sourcing and delivering locally; and
- Hospitals and patients receive local produce, and their food purchasing choices support local, family-scale farm operations

From 2011-2013, ten family farmers sold nearly 67,000 pounds of produce to the six hospitals (CAFF, Farms to Hospitals). The program also reports helping preserve farmland, retrofitting the supply chain to be more accessible to family farms, and connecting hospital patients, staff, and visitors to the origins of their food.

(4) HEALTH CARE WITHOUT HARM

With more than 1,000 hospital partners nationwide, the non-profit organization Health Care Without Harm is leading the nationwide charge to make hospital food healthier and more sustainable.[6] Locally- and sustainably-produced produce, and meat and poultry raised without the routine use of non-therapeutic antibiotics are better for human health as well as the health of the environment (Health Care Without Harm).[7] The organization

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[5] For more details, see Brenda Robles, Michelle Wood, Joel Kimmons, and Tony Kuo. (2013). Comparison of Nutrition Standards and Other Recommended Procurement Practices for Improving Institutional Food Offerings in Los Angeles County, 2010–2012. *Advances in Nutrition* (4): 191-202.

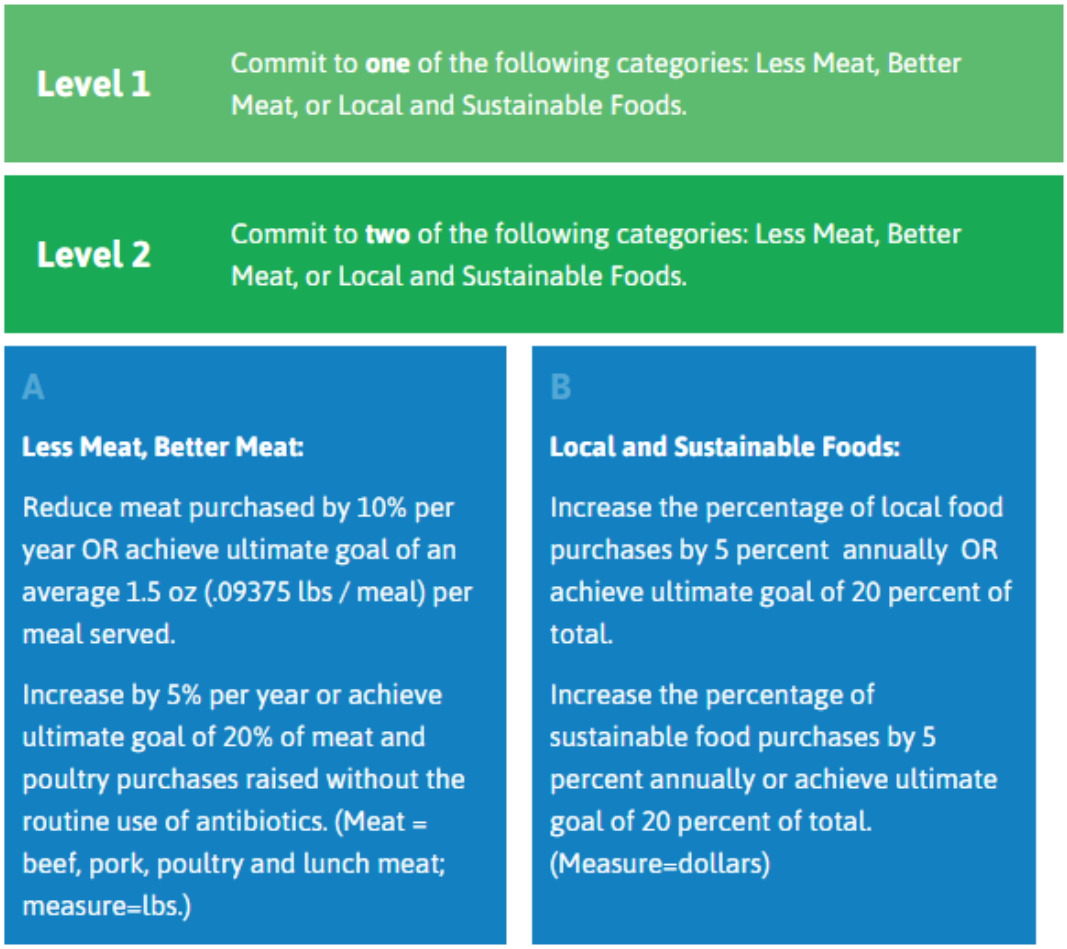
[6] In 2015, Healthcare Without Harm founder Gary Cohen received the MacAuthur genius award for his organization's work over two decades to spur environmental sustainability in healthcare (MacAuthur Foundation).

[7] It is beyond the scope of this paper, but antibiotic resistance in health care is an emerging issue (World Health Organization 2014). The routine use of non-therapeutic antibiotics for rising livestock contributes to the resistance.

launched its *Healthy Food in Healthy Hospitals* (HFHC) program in California in 2005. In California, 165 hospitals participate in this program, accounting for 1/3 of the acute care centers in the state. These hospitals rely on the organization's significant purchasing power as leverage to strengthen their procurement practices. By consolidating their purchasing power, hospitals are able to negotiate the purchase of healthy food at good prices, as well as influence suppliers to adopt better sustainability practices.

The *Healthy Food in Health Care* program is built on the understanding that all aspects of the food system, including how food is grown, processed, packaged, transported, and consumed, have implications for the health of individuals, communities, and the environment. This system-based approach broadens the sphere of concern beyond individual responsibility and illuminates many avenues for creating positive change. The HFHC Program guides health care facilities to make food a fundamental part of prevention-based health care, moving beyond a medical model focused on treating the symptoms of systemic problems to promoting health at multiple scales (HCWH, California Report).

Figure 2: Healthy Food in Healthy Hospitals Challenge



Source: Health Care Without Harm, Healthy Food in Health Care Program

HFHC challenges hospitals to adopt two measurable goals to help hospitals serve healthier food: serve less meat and better quality meat (i.e. meat and poultry raised without the routine use of non-therapeutic antibiotics) and/or serve more local fruits and vegetables (Figure 2). These goals have positive impacts on human health and the environment; they also contribute to an increased demand for healthier products in the marketplace (Health Care Without Harm).

Since many hospitals have limited budgets and, therefore, have difficulty increasing the amount they spend on healthier food, one popular strategy they use is to reduce the amount of meat that they procure and serve. This is one of the cheapest strategies to providing healthier food at a reasonable cost (Sayre, interview, February 12, 2016). Hospitals can save money and, potentially, divert these savings to the purchase of more locally-sourced fruits and vegetables. Sometimes, food directors can ask for increases in their budget for particular line items (Sayre, interview, February 12, 2016). Another strategy to contain costs while providing higher quality food is to rewrite menus to include more seasonal fruits and vegetables instead of purchasing fruits and vegetables that are flown in from distant places.

FINDINGS

These four programs (sponsored by Kaiser Permanente, L.A. County Department of Public Health, CAFF, and Health Care Without Harm) show that it is possible for hospitals to help their patients access healthy food. The four programs do this by using different methods. Kaiser offers proximity to farmers' markets by hosting them on Kaiser property. The *Healthy Food Procurement Program* from the L.A. County Department of Public Health regulates healthier food. The agency required that public hospitals in the county must follow dietary guidelines for healthy food. The *Farm to Table* program from CAFF and the *Healthy Food in Health Care* program bring healthy food into hospitals so that it can be served to patients and in the cafeteria. The first program improves the healthy food environment around the hospital, the second is a government agency regulating the type of food offered in public hospitals, and the last two programs improve the supply chain and food service at hospitals.

For the farms and farmers involved with these four programs, it means a larger market for their produce. Farmers sell directly to consumers at farmers markets, or to institutional customers in the hospital. Local, healthy food is also better for the environment because it does not need to be transported large distances to the consumer, the produce does not have pesticide residues, and the meat is free of non-therapeutic antibiotics.

The case study of the food at UCLA Health hospitals will examine their experience with improving patient and cafeteria food, and with the Healthy Food in Healthy Hospitals Program.

CASE STUDY

PURPOSE OF PROGRAM

The objective of the VeggieRx program is to motivate changes in the food-related behavior of low-income adults, youth, and families in the San Francisco Bay Area. The program strives to help these low-income families gain the knowledge they need to make better decisions about their diets and health, and to more easily access fresh, healthy, and affordable food (Fresh Approach website). VeggieRx is a program of Fresh Approach, a non-profit organization committed to creating a stronger, healthier, and more sustainable local food system through education and programming.

PROGRAM DESCRIPTION

There are two components to the VeggieRx program. Participants are required to attend a series of nutrition and cooking classes and are given prescriptions for healthy food. The class includes 8 sessions over a period of 16 weeks. (Participants must attend at least 6 of the 8 sessions to receive the prescriptions.) Classes are 90 minutes, with the first 45-60 minutes focused on nutrition education. The lesson includes hands-on activities and group discussion (about successes, struggles, creative solutions, etc.) on different nutrition topics and making healthy behavior changes (but not health care specifically). The class session then transitions into a cooking demonstration using fresh produce to create simple, healthy meals. The course instructors measure health indicators such as height, weight, blood pressure, and BMI at each class session. By tracking health indicators, participants and program staff can assess the effect of the program on health outcomes. Program staff also conducts pre- and post-program behavioral assessment surveys.

The "prescription" vouchers help participants purchase fruits and vegetables at local farmers' markets. The program provides vouchers for the participant's entire household, at a value of $1 per family member per day (e.g., $28 per week for a family of four). Vouchers are accepted at more than 65 farmers' markets in the San Francisco Bay Area including all Pacific Coast Farmers' Market Association markets, at the Heart of the City Farmers' Market in San Francisco's Civic Center, and at the Fruitvale Farmers' Market in Oakland. Since these farmers' markets already accept CalFresh EBT, it was relatively easy for them to add the food vouchers. The vouchers do not expire. (Participants already spend the money in a timely manner, and program staff did not want to short change farmers who accepted expired vouchers.) The vouchers are produced on non-reproducible paper so that they cannot be copied. Program participants can miss up to two classes and still qualify to receive vouchers.

History of Veggie Rx

Fresh Approach is a 501c3 non-profit organization and is the sister organization of Pacific Coast Farmer's Market Association (PCFMA), which operates over 60 certified farmer's markets in the San Francisco Bay Area. Staff and board members of PCFMA saw a need for community nutrition education and, therefore, founded Fresh Approach in 2008. The purpose of the organization is to connect Bay Area communities to healthy foods available at local farmers' markets. The partnership with PCFMA helps Fresh Approach to expand its programming throughout the Bay Area, and facilitates connections with community partners and local farmers' markets. The offices of PCFMA and Fresh Approach are co-housed in Concord, CA.

In 2011, Health Trust funded Fresh Approach's VeggieRx as a pilot program. VeggieRx is based on Wholesome Wave's Fruit and Vegetable prescription program, and has been further adapted over the years to incorporate group nutrition education sessions. The clinic partner for Fresh Approach's pilot VeggieRx sessions in 2011 was the Indian Health Centers of Santa Clara Valley's Wellness Center in San Jose. This pilot program consisted of paper handouts with nutrition education information, vouchers, and BMI measurements of participants. At the time, there was no farmers' market nearby, so Fresh Approach partnered with local farmers to offer a farm stand on the same day as classes.

The next iteration of VeggieRx was a partnership with Asian Americans for Community Involvement, which provides health care, housing, and human services to youth and adults in the San Jose area. The program grew to include a series of 8 class sessions instead of simply providing paper nutrition education materials to participants. Classes were half an hour long, and four were taught by Fresh Approach staff and the other four classes were

taught by dieticians or clinic staff. New farmers' markets were being formed throughout San Jose during this time, and so setting up farm stands was no longer needed.

By 2013, the classes were more structured with a well-defined curriculum. Program staff conducted focus groups regularly at the end of the course to solicit feedback to improve the curriculum.

In 2014, the San Francisco Foundation funded the program to work in the Fillmore/Western Addition area of San Francisco, but could not find a direct clinic partnership due to low staffing at the neighboring community-based clinic sites. Instead the program partnered with the SF Parks and Recreation Department to offer classes at a neighborhood recreation center, and recruited participants by posting posters in the lobbies of nearby clinics, libraries, and community resource centers.

PROGRAM PARTICIPATION

VeggieRx began as a pilot program in 2011. Previous class sessions have had as few as 10 attendees from low-income families, and as many as 40. Program staff recruits participants from health clinics, libraries, and community recreation centers. At current staffing levels, VeggieRx can offer three concurrent class series every three months.

COST

The VeggieRx program is not inexpensive. It costs $30,000 per class series, for a group of 30 participants (for an average of $1,000/per participant). Nearly half of the program cost goes to the vouchers themselves; the other half pays for the staff time spent to administer the class sessions. For the 16-week program period, the vouchers typically cost about $450 per person per class series (based on $7/week per person in household). The funds for staff pay for the program and administrative staff, the promotions team, including a graphic designer, and a stipend for the intern. The overhead costs include food samples, office rent, supplies, and travel expenses as well as the expenses associated with program evaluation. Sometimes, the VeggieRx program provides its clinic partners with a stipend ($2,000). (In their Toolkit, Wholesome Wave includes budgeting spreadsheets which can be found in Appendix D).

If another organization wants to develop a similar program, they should budget another $10,000 for curriculum development (deTar, interview, February 5, 2016). This cost would cover the expenses associated with curriculum development. Additional resources are available since Wholesome Wave has developed resources such as a comprehensive toolkit. Moreover, Fresh Approach and the National Nutrition Incentive Network are currently

developing technical assistance capacity to help other organizations launch similar programs.

Staffing

Staffing for the VeggieRx program consists of two nutrition educators and a program manager. To conduct the classes requires two staff members for each class to help with class activities, collect health indicators, and administer the pre- and post-surveys. The time required to prepare and run each class series is 175 hours from the health educator (which includes prep time, class time, data entry, and administrative time), and 175 hours from the program manager. As currently staffed, Fresh Approach has the capacity to offer 3-5 class series every 2-month period. For other organizations looking to do similar work, it would be possible to run a bare bones version with just the program manager and a health educator.

FUNDING

The VeggieRx program has been funded by the following sources:

2011 - 2012	Pilot program funding from the Health Trust
2012 - June 2015	California Department of Food and Agriculture Specialty Crop Block Grant
2013 - 2014	SF Foundation
2015 -2016	Kaiser Permanente Community Benefits

The consistent multi-year funding from the California Department of Food and Agriculture from 2012-2015 provided the resources to hire health full-time educators, instead of hiring them on a seasonal basis. The program is no longer funded by the California Department of Food and Agriculture, a State Department that seems to favor specialized nutrition classes for specific specialty crops like pistachios and prunes.

There is a new potential funding source, the new fee-for-service contract model with Health Plan of San Mateo. In the new agreement, Health Plan of San Mateo will pay for the VeggieRx course but will only provide vouchers for the attendees, and not the entire household.

In 2015, VeggieRx is made possible by the generous support of the California Department of Food and Agriculture through the Specialty Crop Block Grant program and Kaiser Permanente Northern California through their Regional Community Benefit Program.

EFFECTIVENESS

In post-program surveys conducted by the Fresh Approach staff, participants consistently report that VeggieRx has changed their lives for the better, helping them to think about their food, where it comes from and how eating healthier can make their lives easier in multiple ways (Fresh Approach, 2014 Results). The impact of the VeggieRx program can be seen in the improved access to healthy food, increased consumption of fruits and vegetables, positive impact on participants' weight, and improvement in their health and quality of life. In 2014, 164 adults completed the program by attending at least six of the eight class sessions. The participants received vouchers for their entire household to increase fruit and vegetable intake ($7 per person per week), resulting in 747 people gaining increased access to healthy foods (Fresh Approach, 2014 Results).

There were promising behavioral changes as well. Nearly all (99%) participants indicated that they are now very or somewhat comfortable cooking with fresh fruits and vegetables, and are very or somewhat sure where to purchase fresh fruits & vegetables near their home. Most participants now eat more fresh vegetables (90%) and more fresh fruits (88%) than when they first began VeggieRx, and a large majority (82%) indicated that they are very or somewhat likely to continue to purchase their fresh fruits and vegetables from farmers' markets (Fresh Approach, 2014 Results).

In 2014, forty-one percent of participants in the VeggieRx program lost weight (an average of 5.9 pounds), and thirty-five percent of participants maintained their weight with no significant gains (Fresh Approach, 2014 Results).

Anecdotally, participants sensed the improvement in their health and quality of life, frequently reporting feeling more energetic, clear-headed, and more mobile. Many people received positive reports from their doctors on improved cholesterol, blood pressure, kidney and liver function, and improved blood glucose averages. As a result, many participants were able to reduce or eliminate their need for blood pressure or cholesterol medications while stabilizing their blood glucose levels.

The voucher program also supports the local economy. In 2014, program participants used their vouchers to purchase $70,588 worth of fresh fruits and vegetables from California farmers.

FUTURE PLANS

The staff of the VeggieRx program hopes to provide more culturally sensitive information in future classes, by taking into consideration the background of program participants. One approach is to adapt family recipes (or those from participants' culture) to make healthier food. The staff also hopes to redevelop class activities to be more engaging for participants,

particularly youth. They acknowledged the importance of bringing youth on board to prevent illness.

LESSONS LEARNED

As the experience of the VeggieRx program shows, it can be difficult to secure funding for a healthy food prescription program. However, the results from the 2014 participant survey show that the VeggieRx program does make a difference. The survey did not measure the quantity of produce consumed by respondents; however, ninety percent of participants reported increasing their consumption of fruits and vegetables. The program also seems to have a moderate impact on weight loss (forty-one percent of participants lost weight, an average of 5.9 pounds, and thirty-five percent maintained their weight).

The VeggieRx staff promotes the following suggestions for other individuals who want to start and sustain healthy food prescription programs (deTar, interview):

1. Collect both quantitative and qualitative data because they are important for grant applications and funders. Focus groups are helpful with program development and 3rd party evaluators can be used to analyze the data.
2. Publicize the program to increase funding opportunities and help create policy change. Recognition in academic journals lends credibility and legitimacy. The publicity and publications do require data from evaluation though.
3. Assemble a diversity of funding sources since some sources will not be permanently available. For example, foundation grants are typically awarded for only one year. Fee-for-service contracts and corporate programs for staff are be creative, and yet valuable ways to support the program. It is resourceful to appeal to a variety of organizations. For example, the staff at VeggieRx is working with LinkedIn to create a mobile farmers' market on their campus. There also have also conversations to encourage LinkedIn to sponsor programming for people in their communities.

CASE STUDY

UCLA Health

PURPOSE OF THE PROGRAM

UCLA Health strives to serve healthy and sustainable food in its hospitals. This culture shift started approximately 15 years ago, when the leadership of UCLA Health directed food service staff to look for ways to improve the food environment at UCLA (Oliver, personal communication). These efforts have been supported in recent years by the University of California (UC) Sustainability Plan, which requires food services and dining operations to have 20% of its food purchases be sustainable by 2020, and to maximize the procurement of produce from local growers. Sustainable food services are also a priority of the Global Food Initiative, launched out of the Office of UC President in July 2014. UCLA Health participates in the Healthy Food in Health Care (HFHC) initiative of the coalition Health Care Without Harm.

PROGRAM DESCRIPTION

The healthy food initiative at UCLA Health is summarized by this statement found on cafeteria signs and patient menus:

> "UCLA Health is proud to serve seasonal, local and/or organic produce, meat and poultry without the routine use of antibiotics, and wild-caught salmon when in season. We do not use trans fats in our recipes."

UCLA Health also serves healthy (i.e. non-soda) beverages and observes Meatless Mondays.

There is no formal, separate healthy food program. Rather, it is embedded in the food services operations, and supported by the previously mentioned UC Sustainability Plan and the HFHC initiative. The direct health benefits are hard to quantify, but UCLA Health uses its health expert status to model healthier eating behavior, and leverages its purchasing power to promote a healthier food system.

UCLA Health participates in the HFHC Los Angeles leadership team to share information (like innovative strategies, best practices, operational and product information), as well as to strategize with other hospitals in the area. (Leadership teams have also formed for hospitals in Sacramento, the Bay Area, and San Diego. Forty percent of the hospitals participating in the HFHC programs participate in these leadership teams.)

PROGRAM PARTICIPATION

Food service at UCLA Health is provided at two medical centers: Ronald Reagan on the main Westwood campus, and Santa Monica, located on 16th Street and Wilshire Blvd in the city of Santa Monica. Hospital food consists of patient food, cafeteria food, catering, and vending. (Vending often involves contracts with outside companies.) The healthy food initiatives focus on patient food and cafeteria food.

As Table 2 shows, in 2015, the health system served 2.5 million meals in its cafeteria (1.9 of them at Ronald Reagan, and 600,000 at Santa Monica). Patient meals totaled 700,000, with 2/3 of them served at Ronald Reagan.

Table 2: Statistics of Food Service at UCLA Health, 2015

	Ronald Reagan Medical Center	**Santa Monica Medical Center**
Beds	520	266
Meals - retail	1.9 million	600,000
Meals - patient	470,000	230,000
Operating Budget	$18.9 million	$6.5 million
Employees (FTEs)	192	83

Source: Oliver, personal communication, March 15, 2016

COST & FUNDING

UCLA was able to incorporate its healthy food strategies into its existing work, like many other hospitals, instead of looking for additional funding, or staffing for healthy food initiatives. Its operating budget for the entire foodservice operation for 2015-16 is $25.4 million.

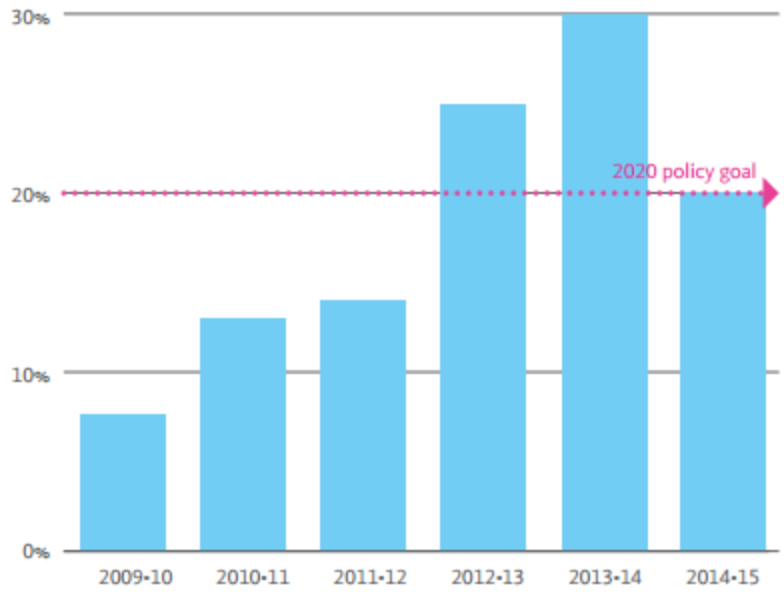
Data were not available for the amount of meat and produce purchased at UCLA Health. In general, meat produced without routine antibiotics is more expensive than conventionally-produced meat; sustainably produced fruits and vegetables are more expensive than

conventional produce; and meat is more expensive than produce. Hospitals are able to maintain their food budgets by serving less meat with their meals, and using those cost savings to purchase higher quality meat, and more produce that is sustainably grown. Hospitals are also able to negotiate lower prices by using their purchasing power.

EFFECTIVENESS

Ahead of the UC Sustainability Plan goal of sourcing 20% of sustainable food by 2020, UCLA Health sourced 30% of sustainable food and beverages in the fiscal year 2013-14; this figure decreased to 20% in 2014-15 (UCLA 2012-13, UC 2015). Sixty-one percent of its produce came from local sources in 2012-13.

Figure 3: Sustainable Food Purchases



Source: UC Sustainability Report 2015

Healthy hospital food is served to all patrons in hospital cafeterias and all hospital patients. Patients and their families (and hospital employees who eat in the cafeteria) are not given the opportunity to choose differently, unless they obtain food outside of the hospital.

LESSONS LEARNED

The experience of UCLA Health underscores the importance of leadership in changing the culture. The shift to healthier food was led by the leadership of the hospital system and encouraged by leadership of the University of California system, and supported by the UC Sustainability Plan and Global Food Initiative. Another important lesson is that the

provision of healthier food can be integrated into the existing food service operation without additional cost or staffing. Making the food service healthier in the hospital ensures that all patients, staff, and visitors eat off healthy menu.

DISCUSSION & RECOMMENDATIONS

Both healthy food prescription programs and healthy hospital food programs can improve patient access to healthy food. While they go about meeting this objective in different ways, they are similarities between the two programs. Both programs link healthy food to the health care system, promote the consumption of fruits and vegetables, and support local farmers and the local economy. There are important differences as well. Perhaps the most salient difference is that the prescription programs operate on the demand side, while healthy hospital food programs act on the supply side to facilitate healthy diet choices.

Table 3 presents the advantages and disadvantages of healthy food programs. Healthy food prescription programs are demand-side programs that give families additional resources and incentives to purchase healthy food. To be eligible for the vouchers, participants are required to participate in a set of food-related classes. The vouchers are limited to the use of only fruits and vegetables at local farmers' markets. Two advantages of these programs include:

- The provision of additional food resources for the time that participants are in the program; and
- The promotion of behavioral change by making the healthy choice an easier choice to make compared to the unhealthy choice.

There is a lot we do not know about the VeggieRX program. For example, there is no information on the percentage of distributed vouchers that recipients redeem or the percentage of purchased produce that is actually consumed. Anecdotal evidence from the VeggieRx program, however, suggests that virtually all vouchers are redeemed.

Table 3: Advantages and Disadvantages of Healthy Food Programs

	Healthy Food Prescriptions	**Healthy Hospital Food**
Advantages	• Additional food resources • Make healthy choice an easier choice	• Impact all patients and cafeteria meals served in hospital
Disadvantages	• Not know how many vouchers are actually redeem, and how much of purchased produce is actually consumed	• Limited population, limited time • No designed to promote prevention/ lifestyle changes outside of hospital

Healthy hospital food is a supply-side program as the actual supply of healthy food is served to all patrons in hospital cafeterias and all hospital patients. UCLA Health serves 3.2 million meals a year. Patients and their families (and hospital employees who eat in the cafeteria) are not given the opportunity to choose differently, unless they obtain food outside of the hospital. The advantage of such a program is the ability to affect all patient and cafeteria meals in a hospital. One of the weakness of these types of programs is that they affect a limited population (only those who come into the hospital) for a limited amount of time (during their stay in the hospital), and for patients late in their disease process. These programs are not designed to facilitate lifestyle changes (although having the hospital episode may encourage patients to make changes to their lifestyle after they are discharged).

IMPLICATIONS FOR HEALTH

The data from 2014 VeggieRx post-program participant survey and data from other healthy food prescription programs suggest that they can increase patients' consumption of fruits and vegetables and contribute to moderate weight loss. The health impact of improving the quality of hospital food is difficult to determine. It is hard to isolate the specific role of healthier food in a patient's recovery process since there are so many other factors that influence the recovery process. A patient's recovery is affected by their condition, the type of medical intervention, and the body's own ability to heal itself. The precautionary principle suggests that patients will be better off consuming healthy food that supports the healing process, rather than unhealthy food that may undermine it. Small changes can have a large effect; for example, studies have shown that even moderate weight loss (5% of body weight) can improve the body's response to insulin, decrease blood glucose levels, and reduce the need for diabetes medication (Klein 2004).

Healthy food prescription and healthy hospital food programs are not cure-alls. However, supply-side and demand-side programs like these may both be necessary to facilitate lifestyle changes because they complement each other. It is important to provide patients with resources to access healthy food, as well as to ensure that the food environment includes opportunities to purchase healthy food. Additionally, these healthy food programs may serve as models of health and wellness. Health care providers and institutions can inform patients and their friends and families of the connection between diet and human and environmental health, as well as advocate for a healthier food system.

I suggest the following recommendations for strengthening these programs:

RECOMMENDATION 1: EXPLORE FUNDING OPTIONS TO BETTER SUPPORT MORE HEALTHY FOOD PROGRAMS

Community benefit funds from non-profit hospitals are an emerging source of revenue for funding changes to the food system. The passage of the Affordable Care Act in 2010 means that in order to keep their tax-exempt status, non-profit hospitals are required to do a community health needs assessment (CHNA) once every three years through a comprehensive review of local health data and the gathering of local community input. They are then required to create an implementation plan to address those health needs. This means that there are more funds available to do community health improvement and community building. (Nationally, about 60% of all hospitals are non-profit, another 20% are owned by local and state government, and 20% are for-profit.)

These community benefit funds can be a viable source for funding both healthy food prescription programs, as well as healthy food in hospital programs, and should be explored. Other funding options, for healthy food prescription programs in particular, are foundation, government agencies, and fee-for-service arrangements, and individual donors. They are examined in more detail in Appendix E.

RECOMMENDATION 2: IMPLEMENT PROGRAM EVALUATIONS TO EVALUATE THE EFFECTS OF HEALTHY FOOD PRESCRIPTION PROGRAMS

A rigorous program evaluation will be needed to determine the impact of healthy food prescription programs in California. Increased patients' consumption of fruits and vegetables and moderate weight loss has been suggested by post-program participant surveys from VeggieRx participants and data from other healthy food prescription programs. However, a formal program evaluation by an outside auditor has not been done. It would be helpful to fully characterize the impact of these programs, as well to examine the benefits of the program in relation to the costs.

RECOMMENDATION 3: CONSIDER COMBINING PURCHASING POWER OF HOSPITALS WITH OTHER SECTORS (LIKE EDUCATION) TO DRIVE POSITIVE CHANGE IN THE FOOD SYSTEM

If hospitals combined their purchasing power with institutions in other sectors, they could leverage their impact for change in the food system. The average annual food budget of a hospital is $3-8 million. In aggregate, the health care sector has significant purchasing power as it spends an average of $12 billion annually on food and beverages (California Health Food Report, 2013). However, the education sector in California, which includes the K-12 system as well as all the University of California and California State University

campuses, purchases 8 to 10 times the amount of food as hospitals. An emerging strategy to improve the food system harnesses the collective food and energy procurement power of anchor institutions like government and school systems as well as hospitals.

Educational institutions may have more purchasing power, but their food procurement practices can be difficult to change because school districts are heavily regulated, are publicly funded, and have arduous contracting processes.

RECOMMENDATION 4: PROVIDE HEALTH CARE PROFESSIONALS WITH ADDITIONAL EDUCATION AND TRAINING ON DIET, NUTRITION, AND FOOD ACCESSIBILITY

Some forward-thinking health care providers understand the essential link between a healthy diet and good health, and have started innovative programs to make good diet and nutrition a more integral part of the healthcare system. More nutrition training for doctors and other healthcare providers will be needed if they are to support patients' healthy eating habits.

A unique collaboration between the Culinary Institute of America (CIA) and Harvard University resulted in the creation of the annual Healthy Kitchens, Health Lives annual conference in 2007. The partnership drew from the expertise of the CIA in the culinary arts education and Harvard's expertise in the areas of health, nutrition, medical research and education. The continuing medical education conference teaches physicians, registered dietitians, and other healthcare professionals the latest science on diet and nutrition as well as the practical skills to cook healthy food (Healthy Kitchens, Healthy Lives website). The objective of the conference is "to give physicians and other healthcare professionals the culinary tools to translate the best of nutrition science into flavorful, well-prepared meals, in the hope that they will be inspired to pass this new understanding on to their patients."

Another innovative approach will be for health care providers to routinely screen patients for food security and connect patients in need with community resources (Wholesome Wave, Community Benefits, 2015). This would require expanded training for physicians and nurses as well as the creation of a community resource guide that identifies food resources including assistance for enrollment in federal nutrition assistance programs, food pantries, farmers markets, healthy corner stores, meal sites and other relevant resources.

RECOMMENDATION 5: INVOLVE THE HEALTH CARE SECTOR MORE EXTENSIVELY IN ADVOCATING FOR A BETTER FOOD SYSTEM

The health care sector can play an important role by supporting policies and legislation around prevention-based health care and a healthier food system. The Healthy Food in Health Care (HFCC) program from Health Care Without Harm creates clinician advocates and inspires health care institutions to become leaders in shaping regional and national

policies. In California, hundreds of clinical professionals have taken action, many of whom work on sustainability and public health issues within their hospitals or clinics. This work builds on over a decade of success achieved by the California Medical Association, the California Nurses Association, and regional medical societies.

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APPENDIX A: INTERVIEWS COMPLETED

Name	Position and Organization	Date
Julie Ward, MPP	Co-chair, Food as Medicine Working Group, LA Food Policy Council	October 16, 2015 (1 hour)
Wendy Slusser, MD, MS	Associate Vice Provost, UCLA Healthy Campus Initiative	November 2, 2015 (1 hour; in-person)
Paul Simon, MD, MPH	Director, Division of Chronic Disease and Injury Prevention, LA County Dept of Public Health	January 23, 2016 (30 min; phone)
Michelle Wood, MPP	Program Manager, Food Procurement & Policy, LA County Dept of Public Health	February 1, 2016 (15 min; phone)
Laura deTar, MPH	Nutrition Program Manager, VeggieRx (Fresh Approach)	February 5, 2016 (1:15 hr; phone)
Lucia Sayre	Western U.S. Regional Director, Health Care Without Harm	February 12, 2016 (1 hr; phone); March 11, 2016 (35 min; phone)
Nichole Bednar, MS, RD	Senior Dietitian, UCLA Health System	February 19, 2016 (1 hr; in-person)
Patti Oliver	Director of Nutrition, UCLA Health Center	March 4, 2016 (20 min; phone)
Dani Lee, MPH	Dietetic Intern, CSU-Northridge	March 23, 2016 (30 min; phone)

APPENDIX B: TIMELINE OF HEALTHY FOOD IN HEALTHCARE PROGRAM IN CALIFORNIA

2005	**FOODMED** The first national Health Care Without Harm FoodMed Conference on health and sustainability in hospital food service is held in Oakland, California.
2006	**HEALTHY FOOD IN HEALTH CARE PLEDGE** The Health Care Without Harm Healthy Food in Health Care Pledge is launched nationally, providing a framework for the health care sector to support a food system that is environmentally sustainable, economically viable, and socially just. *By 2013, 112 California hospitals, along with 349 hospitals nationally, have signed the Pledge.*
2007	**SAN FRANCISCO BAY AREA HOSPITAL LEADERSHIP TEAM** The Bay Area Hospital Leadership Team is organized by San Francisco Bay Area Physicians for Social Responsibility, bringing hospitals together to share knowledge and to combine purchasing power to create a healthier food system. *In 2013, the Bay Area Hospital Leadership Team includes 16 constituent hospitals and health systems.*
2009	**BALANCED MENUS: LESS MEAT, BETTER MEAT** The Balanced Menus Program aimed at reducing meat procurement by 20 percent is launched by four San Francisco Bay Area hospitals. A 2010 pilot investigation conducted by Johns Hopkins University Center for a Livable Future shows that implementation resulted in the reduction of 1,648 tons of greenhouse gas emissions associated with the production of meat and poultry and can save an average of $20,000 annually for an average-sized hospital.
2011	**FOOD MATTERS** The national Health Care Without Harm Food Matters clinical education and advocacy program is launched with a training held at Children's Hospital Oakland. Food Matters encourages hospitals and health care professionals to become leaders and advocates for a food system that promotes the health of people, communities, and the environment. **POOLING PURCHASING POWER** By combining their usage, the San Francisco Bay Area Hospital Leadership Team secures cage-free, humanely-raised eggs from Wilcox Farms through food distributor US Foods. Three participating hospitals' annual demand of 91,000 pounds of liquid eggs saves approximately 3,500 hens from living in battery cages every year. **SAN DIEGO NUTRITION IN HEALTHCARE LEADERSHIP TEAM** At the invitation of the San Diego County Childhood Obesity Initiative, a program facilitated by Community Health Improvement Partners, twenty hospitals come together in the San Diego region to form the Nutrition in Healthcare Leadership Team to increase the health and sustainability of their food service and to support the development of a healthier food system.
2012	**FARM FRESH HEALTH CARE PROJECT** Bay Area Hospital Leadership Team members pool their purchasing power to secure local produce from family farmers through their produce distributors. The project, co-coordinated by Community Alliance with Family Farmers, ensures farmer-identification throughout the supply chain, allowing hospitals to prioritize family-farmed produce. *By 2013, six hospitals have sourced 29,217 pounds of produce from nine farmers.* **HEALTHIER HOSPITALS INITIATIVE** The Healthier Hospitals Initiative (HHI) is launched nationally, placing the Healthy Food in Health Care work within a comprehensive sustainability platform for the health care sector. The HHI Healthier Food Challenge encompasses the HFHC Pledge, Balanced Menus, Healthier Beverages, and Local/Sustainable Purchasing. Kaiser Permanente, Dignity Health, Tenet Healthcare, and Stanford University Medical Center are all sponsoring systems. *By 2013, 95 California hospitals out of 297 hospitals nationally have signed the HHI Healthier Food Challenge.*
2013	**STATEWIDE MOMENTUM** As a result of funding from The California Endowment, the California HFHC Program expands by hiring part-time coordinators in Los Angeles and San Diego and by hosting regional convenings in San Francisco, Los Angeles, and San Diego. **LOS ANGELES HOSPITAL LEADERSHIP TEAM** Thirty HFHC hospitals in the Los Angeles region come together to share best practices for healthy and sustainable food service and to create a healthier food system. **ANTIBIOTICS IN ANIMAL AGRICULTURE** California hospitals lead the nation in addressing the overuse of antibiotics in animal agriculture. Nearly half of California HFHC hospitals surveyed purchase meat and/or poultry produced without the use of non-therapeutic antibiotics and 78 percent are implementing meat reduction strategies. As a result of funding from the Pew Campaign on Human Health and Industrial Farming, SF PSR hosts *Balanced Menus: Meeting Health Care's Demand for Sustainable Meat* at the University of California at San Francisco (UCSF) Medical Center. Additionally, 355 health professionals from California participate in national policy actions on the overuse of antibiotics in animal agriculture led by the Healthy Food in Health Care program.

APPENDIX C: BUDGET PLANNING WORKSHEET FOR FRUIT AND VEGETABLE PRESCRIPTION PROGRAM

Building a Program Budget and Determining the Incentive Amount

The cost of running a prescrition program varies greatly and is highly dependent upon variables such as the comprehensiveness of the program, the number of patients involved, the incentive amount, and the healthcare site's ability to bill for providers' time.

The following budget provides example line items to consider when developing a projected program budget.

TOOL

Budget Planning Worksheet

Wholesome Wave has created a budget worksheet that can be used as a template when developing a program budget. It can be useful when calculating incentive program costs as well as estimating personnel costs based on your program's design. You can download the **Budget Planning Worksheet** from the Network Resource Library.

INCENTIVES	
Prescription Incentives For example, a variable incentive rate based on a participant's household size can be estimate using the following formula: Incentive Amount x Number of Target Patients x Average Household Size x 7 Days per Week x Number of Program Weeks x Number of Program Months	$ _____
Additional Program Incentives (e.g., gift cards for survey completion, tote bags, plastic sleeves for prescriptions)	$ _____
STAFF/PERSONNEL COSTS	Hours x hourly rate
On-site Program Administration Costs (e.g., staff time for an administrator or program coordinator)	$ _____
Clinical Provider (if including) consider staff time that may not be reimbursable (e.g., calls, planning)	$ _____
Nutrition Educator (if including) consider staff time that may not be reimbursable (e.g., collecting or entering data)	$ _____
Community Health Worker (if including) consider staff time that may not be reimbursable (e.g., data entry)	$ _____
On-site Program Administration at the farmers market or retail site (e.g., staff time for a market manager to oversee the program, distribute tokens and collect data)	$ _____
MATERIALS & SUPPLIES	
Printing of provider resources, patient materials, and communication materials	$ _____
Prescription pads (design & printing) average cost $130 for 24 pads	$ _____
Alternative currency (design & printing) average cost $.10 per token	$ _____
OTHER COSTS TO CONSIDER	
Transportation assistance for patients	$ _____
Institutional Review Board fees	$ _____
Translation of patient materials	$ _____
SUBTOTAL	$ _____
ADMIN/INDIRECT (Subtotal x admin %)	$ _____
TOTAL	$ _____

APPENDIX D: SAMPLE VEGGIE RX HANDOUT

UNPROCESSED FOODS:

These foods are fresh or raw foods that do not undergo any changes from their plant or animal sources when eaten other than the outer cover being removed. Examples include: raw fruits, vegetables, nuts.

MINIMALLY PROCESSED FOODS:

These foods are raw foods that are slightly changed from their original form into one that is more usable or available (most commonly by simply heating them up!). These foods retain most of their nutrients but can spoil quickly. Examples include: whole wheat bread, natural peanut butter, boiled eggs, baked potatoes.

HIGHLY PROCESSED FOODS:

These are foods that undergo considerable change from their original form. These foods are generally quickly prepared but may lose nutrients in processing and often contain chemical additives. Sometimes the additives are preservatives to prevent the item from spoiling, and sometimes they are added vitamins and minerals. Examples include: enriched white bread, pies, cured meats, and most food in packaging.

SOME TIPS ON IDENTIFYING PROCESSED FOODS:

- **Know your ingredients:** When buying packaged foods, read the list of ingredients-the shorter the list the better. You should be able to know and visualize exactly what you're reading. If you're holding a box of corn bread mix that includes sodium acid pyrophosphate, egg yolk poser, or monocalcium phosphate in its ingredients-this is a red flag that this may not be good for you.
- **Understand ingredient order:** The FDA requires manufacturers to state ingredients that make up 5% of the total recipe. This means that there may be other ingredients in the package that are not listed.
- **Know your food's original source:** The more a food has changed from its original form, the more it is processed. High fructose corn starch is found in many of the foods we eat and drink such as soda. It is derived from corn kernels-after soaking them in water-->heating-->washing the starch. This process changes the corn's appearance significantly and washes away nutrients and minerals. This is a highly processed food.

VeggieRx

BROUGHT TO YOU BY Fresh Approach

STAGES OF FOOD PROCESSING:

If we start with corn in its natural state (unprocessed) and follow it through the stages of food processing, here are the different categories these products fall into and why, as well as the types of finished products we may see.

UNPROCESSED

Corn in its most natural state is considered unprocessed; completely unchanged.

MINIMALLY PROCESSED

These corn puffs have one ingredient with only air added, making it a minimally processed food.

MINIMAL-HIGHLY PROCESSED

These taco shells are considered minimally to highly processed because the corn has been changed from its original state by being ground into flour but it has also been fried in coconut oil. All five ingredients are recognizable.

HIGHLY PROCESSED

This bag of cornbread mix is considered a highly processed product because the corn has been changed from its original state by being ground into a flour and there are many ingredients including preservatives that are difficult to pronounce and are even unrecognizable.

HIGHLY PROCESSED

This can of cola is considered highly processed because the corn has been drastically changed from its original state by being ground up first and refined to separate the corn kernels from the corn starch, and then cooked in an acid solution to turn into high fructose corn syrup. There are also several other processed ingredients.

APPENDIX E: FUNDING FOR HEALTHY FOOD PRESCRIPTION PROGRAMS

One of the main challenges of starting and sustaining healthy food prescription programs is funding.[8] Multiple funding streams should be explored as funding programs can be erratic. The main funding sources are: foundations, community benefit funds from hospitals, government agencies, fee-for-service arrangements, and individual donors.

FOUNDATIONS

Foundations are an important source of grants for improving healthy food access or addressing the health needs of underserved communities. Drawbacks may include long application process and funding that is limited to just one or two years. Foundations with interest in the following areas may be interested in supporting healthy food prescription programs (Wholesome Wave Toolkit):

- Community health
- Hunger and food security
- Health and wellness
- Nutrition
- Obesity
- Diabetes prevention and treatment
- Healthcare innovation
- Agricultural programs that increase access to local foods or support farmers

COMMUNITY BENEFITS FROM HOSPITALS

Community benefit funds from non-profit hospitals are an emerging source of revenue for funding changes to the food system. The passage of the Affordable Care Act in 2010 means that in order to keep their tax-exempt status, non-profit hospitals are required to do a community health needs assessment (CHNA) once every three years through a comprehensive review of local health data and the gathering of local community input. They are then required to create an implementation plan to address those health needs. This means that there are more funds available to do community health improvement and community building. (Nationally, about 60 percent of all hospitals are non-profit, another 20 percent are owned by local and state government, and 20 percent are for-profit.)

[8] I won't focus on how to create and sustain these programs, as there are resources available for that, including the Toolkit from Wholesome Wave.

Previously, ¾ of community benefit funds went to providing charity care for the uninsured or underinsured, and only 5% of the money went to improving community health. Now, there is more money for community health.

The final ACA rule, published in December 2014, states that hospitals may also consider "…the need to prevent illness, to ensure adequate nutrition, or to address social, behavioral, and environmental factors that influence health in the community." The specific incorporation of "nutrition" signals support for the idea that improving the community food environment and addressing barriers to healthy food access are viable strategies to improve population health (Wholesome Wave Toolkit).

GOVERNMENT AGENCIES

There are multiple funding opportunities through state and federal government agencies to fund healthy food prescription programs. In California, the Department of Food and Agriculture is one option. The following federal government agencies and grant opportunities might support programs that address chronic diet-related disease, increase access to healthy, local food, and/or improve food security (Wholesome Wave Toolkit):

- USDA's Food and Nutrition Service
    - Food Insecurity Nutrition Incentive Program
    - Community Foods Project
- Centers for Disease Control and Prevention (CDC)
    - Racial and Ethnic Approaches to Community Health
    - Community Transformation Grant Program
- Department of Health and Human Services
- National Institutes of Health's RO1 or R21 Grants
- Office of Community Services' Healthy Food Financing Initiative

OTHER

Other funding mechanisms include:

- Fee-for-service: For example, VeggieRx contracted their services to the Health Plan of San Mateo.
- Corporation sponsors
- Donations from wealthy individuals as well as crowdfunding

APPENDIX F: HEALTHY FOOD PLEDGE

Healthy Food in Health Care Pledge

This Healthy Food in Health Care Pledge is a framework that outlines steps to be taken by the health care industry to improve the health of patients, communities and the environment.

As a responsible provider of health care services, we are committed to the health of our patients, our staff and the local and global community. We are aware that food production and distribution methods can have adverse impacts on public environmental health. As a result, we recognize that for the consumers who eat it, the workers who produce it and the ecosystems that sustain us, healthy food must be defined not only by nutritional quality, but equally by a food system that is economically viable, environmentally sustainable, and supportive of human dignity and justice. We are committed to the goal of providing local, nutritious and sustainable food.

Specifically, we are committed to the following healthy food in health care measures for our institution. We pledge to:

Increase our offering of fruit and vegetables, nutritionally dense and minimally processed, unrefined foods and reduce unhealthy (trans and saturated) fats and sweetened foods.

Implement a stepwise program to identify and adopt sustainable food procurement. Begin where fewer barriers exist and immediate steps can be taken, such as the adoption of rBGH free milk, fair trade coffee, or selections of organic and/or local fresh produce in the cafeteria.

Work with local farmers, community-based organizations and food suppliers to increase the availability of fresh, locally-produced food.

Encourage our vendors and/or food management companies to supply us with food that is produced in systems that, among other attributes, eliminate the use of toxic pesticides, prohibit the use of hormones and non-therapeutic antibiotics, support farmer and farm worker health and welfare, and use ecologically protective and restorative agriculture.

Communicate to our Group Purchasing Organizations our interest in foods whose source and production practices (i.e. protect biodiversity, antibiotic and hormone use, local, pesticide use, etc) are identified, so that we may have informed consent and choice about the foods we purchase.

Develop a program to promote and source from producers and processors which uphold the dignity of family, farmers, workers and their communities and support sustainable and humane agriculture systems.

Educate and communicate within our system and with our patients and community about our nutritious, socially just and ecologically sustainable healthy food practices and procedures.

Minimize and beneficially reuse food waste and support the use of food packaging and products that are ecologically protective.

Report annually on implementation of this Pledge.

Name: _____ Title: _____

On behalf of (indicate your department, facility or system): _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Email: _____

Signature: _____ Date: _____

❍ Please send me a clean copy of the pledge with signature line only. We would like to have it framed and displayed.

To submit your pledge this form should be faxed or mailed to Health Care Without Harm:
HCWH • Healthy Food in Health Care Pledge • 12355 Sunrise Valley Drive, Suite 680 • Reston, VA 20191
Phone: 703-860-9790 • Fax: 703-860-9795 • www.NoHarm.org

Health Care Without Harm

Source: Health Care Without Harm

APPENDIX G: FOOD SERVICE CONTRACTOR PLEDGE

Healthy Food in Health Care
Food Service Contractor Pledge

As a responsible provider of food and nutrition services in the healthcare industry, we are committed to the health of patients, residents, visitors, staff and the local and global community. We are aware that food production and distribution methods can have tremendous adverse impacts on public environmental health. As a result, we recognize that for the consumers who eat it, the workers who produce it and the ecosystems that sustain us, healthy food must be defined not only by nutritional quality, but equally by a food system that is economically viable, environmentally sustainable, and supportive of human dignity and justice. We are committed to the goal of providing local, nutritious and sustainable food and food services.

Specifically, we are committed to supporting the following healthy food in healthcare measures:

In our Client facilities that have taken the Healthy Food in Health Care Pledge we will:

- Support stepwise implementation of the Healthy Food in Health Care Pledge.
- Develop and provide an annual report to our client hospitals on progress towards their Pledge goals.

As a Food Service Organization we will:

- Encourage our vendors to supply us with food that is locally sourced whenever possible and among other attributes, produced without genetic modification, synthetic pesticides or herbicides; meat and dairy products from animals that have not been given hormones (i.e. rBGH) or antibiotics in the absence of diagnosed disease, and produced and distributed in ways which support farmer health and welfare.
- Communicate to our supply chain our interest in foods whose source and production practices (i.e. genetic modification, antibiotic and hormone use, pesticide use, etc) are identified, so that we may have informed consent and choice about the foods we purchase.
- Inform our suppliers and our distributors of our need for product catalogues and programs which identify third party certified eco-labeled products (i.e. Certified Organic, Food Alliance Certified, Certified Humane, etc.), country, state or farm of origin, genetically modified foods, as well as trans fats and high fructose corn syrup (HFCS) content and other indicators of nutrition and sustainability.
- Train and educate our staff throughout our organization, on the relationship between food production and distribution and ecological and individual health.
- Increase our offerings of fruit and vegetables, whole grains, nutritionally dense and minimally processed, unrefined foods, and reduce our use of processed foods.

Health Care Without Harm

- Support new and existing value chains that promote local ownership, environmental stewardship and economic sustainability for all members of the value chain.
- Create seasonal menus to increase our use of fresh, locally produced food.
- Establish systems to minimize food waste and to compost and otherwise beneficially reuse food waste.
- Purchase for the environment through purchasing policies and practices that minimize the inherent toxicity of our equipment and supplies; which conserve water and energy; and reduce and eliminate waste.
- Develop or adopt reporting tools and benchmarks to track and measure our use of third party certified eco-labeled foods, genetically engineered foods, and other preferred attributes as listed above.
- Report annually to the public or shareholders on implementation of this Pledge.

Name: _____ Title: _____

Organization: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Email: _____

Signature: _____ Date: _____

To submit your pledge, this form should be faxed or mailed to:

Health Care Without Harm (HCWH) • Healthy Food in Health Care Pledge
12355 Sunrise Valley Dr, Suite 680 • Reston, VA 20191
Phone: 703-860-9790 • Fax: 703-860-9795 • www.NoHarm.org

Upon submitting this pledge to HCWH, contractor will receive a display copy of the pledge to promote their commitment online or in their facilities. The contractor may also link to the current list of pledge signers on the Healthy Food in Health Care website at: www.healthyfoodinhealthcare.org. Signing this pledge does not qualify the contractor for membership in HCWH and does not permit the use of HCWH's logo.

Health Care Without Harm

Source: Health Care Without Harm

APPENDIX H: RECOMMENDATIONS FOR FARM-TO-TABLE PROGRAMS

Pooling together the collective experience and wisdom of hospitals in California, the California Alliance with Family Farms and Health Care Without Harm have the following recommendations for hospitals working to source local, sustainable produce (Farm Fresh Healthcare Project, 2014):

1. Build a Team of Stakeholders

Building the right team of stakeholders required understanding the local scene in terms of existing local purchasing efforts and potential partners including: institutional purchasers, distributors, farmers, funders, and project facilitators.

2. Create Common Goals and Definitions

Bringing all stakeholders together to generate common definitions created a baseline to discuss project goals and challenges.

3. Leverage Community Partners

Nonprofit partners provided a network of existing relationships and expertise and served as 'social brokers' by facilitating a high degree of communication between all stakeholders and driving the project forward when challenges arose.

4. Identify Foodservice Champions

Internal foodservice champions are necessary to take on the extra effort involved in new purchasing initiatives.

5. Assess Distribution Networks

Sourcing through existing produce distributors helped hospitals meet many of the logistical constraints of their foodservice operations.

6. Pool Purchasing Power

Combining hospitals' purchasing power improved their ability to access new products

7. Identify Crops

The FFHP identified local crops that met hospitals' needs and that family farmers could supply at a competitive price. Choosing multiple crops meant that at least one was available during every season.

8. Incorporate Seasonal Produce Into Menus

Extensive menu planning is necessary to incorporate seasonal produce into hospital foodservice.

9. Identify Farmers

Mid-scale farmers were more likely to meet the volume, pack and grade standards, and food safety criteria required by distributors and hospitals.

10. Understand Distribution Constraints

The need for efficiency and scalability in distribution routes shaped which farmers could participate in the FFHP. One mid-scale grower acted as an aggregation and marketing conduit for smaller growers to participate in the project.

11. Ensure Food Safety

Food safety is a central concern to hospitals due to the immune-compromised population they serve. Small-scale farms may need assistance to become food safety certified.

12. Increase Supply Chain Transparency

FFHP distributors had to overcome significant in-house challenges related to IT systems in order to communicate farm name throughout the supply chain. Conventional distributors can learn from and adopt the technologies developed within the alternative food movement.

13. Be Persistent, Flexible, and Creative

New purchasing goals can create synergies and easy wins. However, creating new supply relationships and sourcing from local farmers often requires flexibility and persistence on the part of institutional buyers and distributors.

14. Balance the Budget

Hospital foodservice staff are often tasked with achieving new food goals while maintaining a neutral budget. FFHP hospitals used a variety of creative cost containment strategies.

- Pass some additional costs on to cafeteria customers; use signage to communicate the value of local and organic produce from family farmers to motivate willingness to pay.
- Implement a menu mix approach, e.g. incorporate more low-cost items like grains and pasta to accommodate higher-cost items.
- Negotiate discounts with farmers and distributors based on the volume of combined hospital demand.
- Find savings elsewhere in the budget. FFHP hospitals re-evaluated other purchasing categories like linens and paper goods to create savings, asked their group purchasing organizations to identify ways they could save, and switched to cheaper products, for example, one hospital switched to honey packets that cost eight cents each instead of eleven cents.

15. Tell the Story

Hospitals are looked to as experts on health and wellness. They can use their credibility to educate patients, staff, and visitors on the importance of creating a vibrant regional food system.

Hospitals have a tremendous opportunity to model healthy and sustainable food choices for patients, staff, and visitors and to educate them about an environmental nutrition approach that understands that healthy food must come from a food system that protects natural resources, farm workers, rural communities, and public health.